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Abstract

The central hypothesis of this research is that there is a strong, positive correlation between good management practices and firm performance, for which we find strong evidence in a survey on management practices of Turkish manufacturing firms. To better understand this relationship, we investigated the drivers of firm heterogeneity in management practices. We find that product market competition and firm-level factors such as size, multinational status, work effort in the workforce, the level of managerial hierarchy, and ownership are significant determinants of management practices. We also find that family ownership and management are significant deterrents to good management practices and are strongly associated with declines in firm performance. Through this study, we also explored whether the adoption of better management practices comes at the expense of a good work-life balance. In this regard, we find that better-managed firms, in addition to attaining higher performance levels, provide better working conditions for their employees, resulting in improved employee well-being.

Keywords: Management practices, Firm performance, Competition, Multinational firms, Work-life balance
JEL code: F23, L2, L25, O14, O32, O33

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1. Introduction

Large variations in productivity levels across countries and firms have attracted scholarly interest. For example, Syverson (2004) analyzed narrowly defined manufacturing industries in the U.S. and found stark production differences (per labor unit) between plants at the 90th and 10th percentile in an industry's productivity distribution. Foster et al. (2008) even reported persistent productivity differences among firms in very homogenous goods industries such as white pan bread and ready-mixed concrete. Cross-country studies found strong evidence for the large total factor productivity differentials in explaining a substantial fraction of the average per capita income gaps (Hall and Jones, 1999; Jones and Romer, 2010). Overall, variations in production inputs alone have proven to be insufficient in explaining the large productivity differences between firms or countries. Even after accounting for capital input and technology differences across firms/countries, some residual output gaps remain. Bloom and Van Reenen (2007) is the first contribution attempting to explain the variation in productivity across firms through differences in the quality of firm management practices. They design a survey methodology, jointly with researchers from the London School of Economics, to objectively assess firm management practices by conducting interviews with the firm managers and evaluating their answers to 18 open-ended questions that aim to infer the firms' actual practices in monitoring, targets, and incentives areas of management. The interview begins with general questions on the management practice (e.g., asking how the manager tracks production performance within broad monitoring areas) and moves on with more specific questions (e.g., what are the key performance indicators you track?). This questioning continues until the interviewer receives enough input to place the firm's practice on a grid from 1(worst) to 5 (best). The survey is known as the "World Management Survey" (WMS) and has been conducted in 35 developing and developed countries since 2004. Most countries in the WMS sample appear only once, but some have repeated observations over

time. Türkiye, for instance, is in the former group of countries, with firm manager interviews from 2014.[1]

This study is based on a survey conducted in 2018 regarding the management practices of Turkish manufacturing firms. The study is highly influenced by the WMS in the process of design and implementation, so much so that the related questions and the scoring grid of firm management practices are exact copies of those in the WMS. The main aim of the study is to explore the management practices of Turkish manufacturing firms and their impact on firm performance. The study first finds a strong positive correlation between good management practices and firm performance. It then further explores whether such management practices, increasing performance, come at the expense of employees' work-life balance (WLB) (e.g., longer work hours, intense work, lower levels of job satisfaction). In our conclusions, we find a large spread of managerial practices across firms, and those that adopt better practices exhibit stronger firm performance. The reasons for the large variation in management quality across firms are found to be, in addition to product market competition, firm-level factors such as size, multinational status, levels of work effort put in by managers and non-managers, the extent of managerial hierarchy, and type of ownership. As in many other studies, multinational firms are better managed. Family ownership combined with family management (i.e., the chief executive officer –CEO– is one of the family members) is found to be a significant deterrent to good management practices and strongly associated with declines in firm economic performance. However, although different from the evidence from developed countries (see Bloom and Van Reenen, 2007), family firms with primogeniture CEO successions (i.e., the CEO is destined to be the eldest son) are no worse managed than family firms in which the CEO is chosen amongst all family members. The analysis of the relationship between the overall quality of management and work-life balance concludes that better-managed firms are not only high performers, but also providers of

[1] For details on the survey methodology and its theoretical foundations refer to Bloom and Van Reenen (2007) and the website at https://worldmanagementsurvey.org.

better working conditions to their employees. Different from many other studies (see Bloom and Van Reenen, 2006; Bloom et al., 2011), better WLB is significantly associated with lower firm performance, an effect that is attenuated when average management quality is omitted from the statistical analysis. The data also provide weak evidence on the role of tougher competition, which spurs better management practices, in eroding workers' work-life balance.

Due to the difficulties in objectively assessing firm management quality, efforts to unravel firm-level management-performance relationships are very valuable. This study is among only a few studies adding to the literature by providing evidence on the relationship between management practices and firm economic performance from the developing country context. The paper also contributes to the literature by presenting valuable evidence from a developing country—for which the existing knowledge base in the literature is very thin—regarding why, in the case of performance, gains associated with better management practices there is a sizeable spread of managerial practices across firms. Finally, to the best of our knowledge, this is the first study investigating the relationship between management practices and WLB, the validity of the two opposing hypotheses regarding the intertwined relationship between WLB, and competition and firm performance from a developing country's perspective. In this way, the study produces important insights and policy implications for development.

The rest of the paper is organized as follows. Section 2 describes the dataset used in this study. Section 3 begins with summarizing the findings from a comparison of recent and past management practices that prevailed in Türkiye and 34 other developing and developed countries and finishes by presenting a detailed overview of the management practices of Turkish manufacturing firms disaggregated at province, region, and manufacturing subsector levels, according to the survey under study. Section 4 quantifies the relationship between the overall quality of management and firm performance. Section 5 provides possible reasons for the heterogeneity in management practices across Turkish firms. Section 6 investigates the

relationship between management practices, work-life balance, and firm performance. Lastly, Section 7 provides a conclusion.

2. Data

The survey data used in this study is collected from a nationally representative sample of Turkish manufacturing firms in early 2018 by a private organization on behalf of the World Bank.[2] The firm management practices are also representative of the practices at province and manufacturing subsector levels. The questionnaire is prepared in parallel to the WMS. The exact same 18 open-ended questions in WMS—with the same scoring grid—are asked of firm managers to quantify the quality of the firm management practices.[3] The questions are designed to give information about three broad areas of management: 1) *monitoring* (six)[4]—the monitoring of internal processes of production and performance review; 2) *targets* (five)—types of targets (e.g., financial, operational or holistic), the applicability of targets and the consequences in case of failure to reach these targets; 3) *incentives* (seven)—promotion criteria and the practices to hire, fire and retain high performers. Each question is scored from 1 (worst practice) to 5 (best practice). Better practices, as in Bloom and Van Reenen (2010), are expected to increase firm performance in the long run. The overall management score of a firm is calculated by taking a simple average across the eighteen questions. Therefore, we interchangeably use the terms overall management score and average management score in the subsequent sections.

The management practices of 1,168 manufacturing firms are surveyed. Only one manager is interviewed in each firm whose location of employment is either the Headquarters or the plant.[5] Analogously to WMS, WB 2018 surveys medium-sized firms with numbers of

[2] From now on, we refer to the data as WB 2018.
[3] For the details of the survey components (e.g., management practices and the related questions) and the scoring scheme please refer to Table A1 in Appendix.
[4] The numbers in parenthesis represent the number of questions related to the management dimension in the survey.
[5] For firms that comprise of only one plant, the Headquarters is in the same place as the plant.

employees ranging between 50 and 10,000 and the size distribution being characterized by a median of 101-250 workers and a short tail of four firms exceeding the 5,000 workers threshold. Large firms may have more heterogeneity across their plants in terms of management practices (see Bloom et al., 2019a), and the interviewed manager's practices may not reveal the true management practices of the firm but rather reflect the management practices of the plant. Medium-sized firms are more homogenous: In the data, the distribution of the number of plants is characterized by the median firm having one plant, the frequency increasing to two at the 60th percentile, reaching four at the 90th percentile, and exceeding ten at only the 99th percentile. Therefore, the interviewed manager is more likely to reflect on the actual management practices of the firm and the unique feature of the data set, that is, the dominance of one-plant firms, which also implies that the firm management practices are highly representative of the management practices of the plant of the interviewed manager. Furthermore, the median firm, with respect to average management score, comprises only one plant encouraging the correlation between firm and plant management practices. The other key characteristics of the median firm in overall management score distribution can be summarized as follows: The firm is family owned and relatively new, being founded only 20 years ago. It employs between 101 and 250 workers, and one-third and one-sixth of its managers and non-managers have university degrees, respectively. The firm exports around 38% of its annual production. Another advantage of the dataset is the presence of information about management practices at plants with a size of fewer than 50 employees, an important feature relevant to the Turkish context which is not present in WMS.[6] In 2018, 97% of manufacturing firms registered to Turkish tax authorities were small firms with less than 50 employees (TurkStat, Annual Industry and Service Statistics 2018). Therefore, our dataset is also reflective of the actual distribution of manufacturing firm sizes in Türkiye. The fact that the data only covered registered firms should, however, be

[6] Around 60% of plants in our dataset have less than 50 employees.

kept in mind when interpreting our results, as managerial practices could be expected to be of poorer quality in unregistered firms.

3. Management Practices in Turkish Firms

This section begins by describing the evolution of the distribution of firm management scores in the Turkish manufacturing sector over time, between 2014 and 2018, and presenting a retrospective comparison with counterparts of Türkiye and the rest of the world using the WMS data. Figure 1 plots a firm-level histogram of average management scores, summarizing the more recent and past quality of management in Türkiye, and the average management quality in 34 other developing and developed countries. Table 1 presents a more in-depth comparison of these management practices by documenting the key features of the distributions.

Back in 2014, Turkish firms were, on average, worse managed, than the rest of the world, and, in comparison to the international distribution, the distribution of firm overall management scores is denser around the mean in Türkiye with a thick left tail (i.e., many poorly managed firms). A casual inspection of the kernel density plots of average management scores from WMS suggests that there is a strong correlation between firm management quality and the development level of a country, with long and thick left tails commonly driving the low average management scores in upper-middle-income countries such as Türkiye, Brazil and Argentina, and Southern-European countries such as Greece, Portugal, and Spain. Indeed, a regression of 2014 GDP per capita (PPP, current international $) and average management scores across the sample of 34 WMS countries yields an R^2 of 0.69. In line with this correlation, Türkiye achieves lower scores in all management dimensions in comparison to the developed countries and performs, on average, on par with countries with similar per capita income levels such as the previously mentioned South European nations and other upper-middle-income countries (see Figure A1 in Appendix). A quick look at the Turkish manufacturing firms' management score distributions reveals that the thick tail of poorly managed firms persisted over the four years, with the 2018 distribution

having longer left and right tails. Indeed, the evidence in Table 1 shows a larger spread in the 2018 distribution with lower (larger) management scores at the bottom (top) percentiles. The worsening of average management quality for firms at the lower percentiles, although speculative, might be an outcome of the differential effect of the worsening of economic conditions in Türkiye, that ultimately led to the 2018 crisis, on poorly managed firms. Although the pile of Turkish firms around the mean tends to spread across the tails over the period 2014-2018, the 2018 distribution of management scores across Turkish firms has a smaller variation than the prior international benchmark, and on average, Turkish firms adopt worse management practices compared to the rest of the world.

A thorough analysis of the 2018 firm management practices survey begins with Figure 2, which presents average management scores disaggregated by province, NUTS-1 regions, and manufacturing subsector levels, and depicts the relationship between provincial income and overall management scores. [7] Kocaeli and Izmir are among the top performers with respect to firm management quality. Among the eight big cities in Türkiye, Ankara scored the lowest average management score, which is on par with the mean in the remaining 43 Turkish cities grouped under the "other" category. The spread in province-level averages of overall management scores is not large with a range equal to one-fourth of a standard deviation of the management score distribution. However, at the regional level, the range between the top and bottom scorers exceeds the province-level spread by twofold. It is worth noting that the analysis at NUTS-1 regions is not representative and, hence, is only suggestive. The management quality in the Black Sea regions (i.e., East and West Black Sea regions) has decreased remarkably in comparison to their averages calculated from WMS. They are now ranked among the worst performers, while in 2014, both regions achieved substantially higher average management scores and were positioned among the top performers. Aegean and Istanbul regions swapped places between 2014 and 2018, and the top-performing

[7] Türkiye is divided into 12 NUTS-1 regions which are agglomerations of provinces with respect to the similarity in demographics, socioeconomic development, and geographical proximity.

Mediterranean regions lost more than a standard deviation in management scores and dropped eight places in the ranking over the four years.[8]

The dispersion of management scores across manufacturing subsectors has declined substantially since 2014. The sector which adopted best management practices (beverages) scored 3.2 while the least successful sector in management (leather and related products) scored 2.7 in 2014 (Del Carpio and Taskin, 2019). The range between the best and worst sectors (e.g., clothing versus rubber and plastic products) in management quality is 0.10 (one-fifth of a standard deviation) in our study. The change both in rankings and management scores of the rubber and plastic products sector is worth mentioning, losing around three-thirds of a standard deviation in its score— going from one of the highest-ranked sectors in 2014 to the lowest ranking today.

The evidence provided in panel (d) supports the stylized fact that good management is positively associated with economic development (Bloom et al., 2014). The average management quality of firms is higher in provinces with higher per capita income. This result may stem from the deliberate location choices of better-managed firms, as richer provinces provide not only larger product markets but also higher-skilled labor, which combined, attract better-managed firms.

Table 2 presents the average management scores by management dimension at the manufacturing subsector level. The results corroborate the previous finding of a tight average management quality distribution across sectors by presenting a similar pattern within each dimension of management. The results also suggest the specialization of some sectors in specific management dimensions. For example, the electrical equipment manufacturing sector adopts the best management practices in incentives while clothing has the highest scores in monitoring and targets. Relatively higher-skilled workers are needed in the

[8] Please refer to Figure 3.5 in Del Carpio and Taskin (2019) as a basis for the respective regional and subsectoral comparisons.

production of electrical equipment which may cause firms in this sector to pay more attention to hiring and retaining the best employees for their businesses to thrive. The clothing manufacturing sector is based on producing and delivering orders on time. Therefore, it is expected to specialize in various monitoring and targets dimensions of management. Rubber and plastic products use mostly unskilled labor and low levels of technology which may drive their monitoring and incentives scores below the country averages.

4. Firm Management Quality and Firm Performance

This section explores the relationship between firm management and performance. We do not have access to the accounts data of firms from WB 2018. Therefore, we cannot quantify the relationship by following the literature in using productivity measures such as value-added or gross revenue per employee as firm performance indicators.[9] Other key measures of firm performance stressed in the literature include employment growth and its cross-sectional counterpart, firm size. In equilibrium, better-managed firms should take a larger share of market sales, grow faster, and, hence, be larger. It could also be, that the association is due partly to the larger and more productive firms having the resources and willingness to employ better management (Lucas, 1978).[10] A cross-tabulation of the firm size categories

[9] In the context of Russian manufacturing firms, Grover and Torre (2019) show that good management practices are positively associated with firm performance: better-run firms have higher sales and value-added per worker, total factor productivity, and employment growth. Bloom and Van Reenen (2010), by exploiting variation in WMS, conclude similarly using sales per employee, Return on Capital Employed, Tobin's Q, and sales growth as firm performance measures.

[10] There are numerous studies in the management literature using firm size or employment growth as a firm performance measure in analyzing the relationship between managerial practices and firm economic performance. Grover and Torre (2019) besides labor productivity measures use employment growth as a performance indicator in an examination of the association between management and firm performance. Giorcelli (2019) presents the causal linkages between management and performance by exploiting variation across Italian manufacturing firms from a historical episode 1952-1958 and uses employment growth as a key performance indicator. Using WMS data, Bloom and Van Reenen (2007, 2010) find a strong positive correlation between management quality and firm size. Moreover, the literature is rich in studies that positively associate firm size with firm productivity and profitability. Majumdar (1997) investigated with a sample of 1,020 Indian firms the relationship between firm size and performance in terms of profitability (measured by returns on sales) and showed that larger firms are more profitable compared to smaller ones. Van Biesebroeck (2005) in the

with average management scores reveals a strong positive correlation, with small firms (between50-100 employees) having an average management score of 2.5 while the top three firm-size categories (751-1000, 1001-5000, and 5001 or more) have average management scores of 2.83, 3.05 and 3.17, respectively. In the dataset, we have not only ordinal firm size variables but also a continuous measure of plant sizes, allowing us to conduct statistical analyses of the relationship between firm management and performance by estimating various models of firm size.

Table 3 presents the estimation results of the firm-size regressions. Due to the nature of the dependent variables, we implement three different estimation methods: In columns (1)-(4), we have a continuous measure of the number of employees in the plant that the manager runs(OLS estimation), in columns (5) and (6), we have a binary indicator of the firm size, with firms having more than 100 employees and more than 250 employees coded as one, and others as zero, respectively(Probit estimation), and, lastly, in column (7), we have an ordinal variable of firm size with 7 categories[11] (Ordered Probit estimation). The key independent variable is the average management score of the firm. We include a full set of subsector- and province-level dummies, firm-level controls, and survey noise controls. Firm controls include the logarithm of average weekly working hours, the percentage of the workforce with a college degree, the percentage of the workforce that is female, the logarithm of firm age, and the percentage of unionized employees. Noise controls include seniority and job tenure of the manager, the extent of the manager's knowledge about the firm and the plant, a female dummy for the manager, and the manager's willingness to share information and his/her patience. We need to underline that the estimation results do not imply causality, e.g., the

context of African manufacturing firms showed that larger firms achieve higher productivity levels. Coad et al. (2013) focused on Spanish manufacturing firms over the period 1998-2006 and showed that firm size is positively associated with performance in terms of productivity (measured by value added per employee), profitability (measured by profit margin), and equity ratio.

[11] The order of the firm sizes is 50-100, 101-250, 251-500, 501-750, 751-1000, 1001-5000, 5001, and above.

possibility of reverse causation and unaccounted confounders prevent finding causal linkages.[12]

The first column presents the unconditional correlation between the average management score and plant size. The coefficient estimate, although statistically insignificant, is negative. Adding province and subsector dummies to the regression equation does not affect either the negative sign or magnitude of the coefficient on the management score. When heterogeneity in firm characteristics is accounted for, the sign of the partial correlation between managerial practices and plant size changes to positive but is insignificant at conventional levels. The change in the sign of the coefficient estimate implies that firm characteristics, such as human capital, labor supply, and unionization rates are important confounders of the relationship between management and firm performance. When these characteristics are omitted, the regression yields a downward-biased estimate of management impact. Column (4) includes noise controls to reduce the measurement error in the management practice scores (for details on why practice scores may be measured with error see Bloom and Van Reenen, 2007). The increase in the coefficient estimate in column (4) from column (3) is practically large and is expected only if the noise controls eliminate much of the measurement error in management practice scores. The final specification in column (4) reveals a strongly positive and significant correlation between management and plant size and suggests that one standard deviation increase in the management score is associated with a 7.5% increase in plant size.[13] A similarly strong, positive, and significant partial correlation appears when firm size is used instead of plant size. The marginal effect of

[12] Better-performing firms may have the necessary resources to hire higher-skilled managers and adopt modern management practices in which case the direction of the relation is from firm performance to management quality. A potential confounder of the management-performance relationship is the human capital in the firm. Skill composition of the workforce may reflect the differences between firms both in performance and the ability to adapt to better management practices. We control for the share of employees with college degrees separately for managers and non-managers to account for human capital differences between firms.

[13] The estimation sample standard deviation of the management score is 0.53. The percentage change in firm size to a one standard deviation increase in the management score is calculated as $100*\{\exp(s.d.* b) - 1\}$ where $s.d.$ refers to the standard deviation and b to the coefficient estimate of the management score.

management scores in column (5) at means of regressors is estimated to be 0.152 at a 1% significance level. Hence, one standard deviation increase (i.e., 0.53) in the management score increases the occurrence of firms with more than 100 employees by 13.4%.[14] Similarly, one standard deviation increase in the management score results in a strong and statistically significant increase in the rate of firms with more than 250 employees by 36.5%.[15] We do not present the marginal effect of management scores in column (7) due to the difficulty in interpreting the changes at cut-points. Nevertheless, the evidence provided using ordinal firm sizes corroborates the previous finding of a strongly positive and highly significant association between management practices and firm size. The analysis, carried out in Table 3 clearly shows a statistically significant and strong positive association between management and firm size after accounting for the fixed province and subsector differences, firm heterogeneity, and measurement error in management scores. The results are consistent with Lucas' (1978) model and support the prior findings in the literature regarding the relationship between firm management and performance (see Bloom and Van Reenen, 2007, 2010; Bloom et al., 2019a; Grover and Torre, 2019; Giorcelli, 2019).

5. Causes of Variation in Firm Management Practices

If adopting better management practices is related to stronger performance and, possibly, productivity gains, why do we observe large variations in management practices across firms? The literature suggests market competition, multinational and exporter status, ownership, human capital, and awareness about good management practices may be the answers. We will first focus on each one separately, and then investigate the explanatory factors together

[14] The share of firms with more than 100 employees is 60% and one standard deviation increase in the management score is associated with 100*0.152*0.53=8.06 percentage points increase in the chance of a firm to employ more than 100 workers. Hence, the increase in the rate of firms with more than 100 employees in response to one standard deviation increase in the management score is 13.4% (8.06/60).

[15] The large increase in the rate of firms that contain more than 250 employees in response to a one standard deviation increase in management score is due to the small fraction of firms in the data that already have at least 250 workers (close to 22%). Analogously to the calculation in the previous footnote, the increase in the rate of firms with more than 250 employees is 36.5% ((100*0.151*0.53)/ 21.9).

in a multiple regression framework, exploring the extent they jointly account for heterogeneity in management practices across firms.

5.1. Market Competition

There are at least two channels that may link market competition intensity with the quality of firm management practices. First, in competitive markets, poorly managed firms may exit more speedily since small profit margins make it hard to afford efficiency losses as a result of poor management practices. Second, intense competition may incentivize firms to adopt better management practices, especially if these improvements result in taking higher market shares (Bloom and Van Reenen, 2010). Therefore, we expect to observe better-run firms in environments with stronger competition.

We make use of the survey question asking for the average number of competitors for each firm, to examine the relationship between market competition and management quality. Figure 3 presents scatterplots of the average firm management score against the logarithm of the number of competitors, separately for all firms and for the firms where the largest shareholding block is not family.[16] Family firms, due to their well-evidenced poor management practices (see *inter alia* Bloom and Van Reenen, 2007, 2010; Bloom et al., 2014) and ability to operate under a large spectrum of product market competition, might strongly affect the management-competition relationship. The red lines denote linear fits to the data, and the top panel shows no correlation between the degree of competition and management quality across all firms.[17] This relationship, however, may be confounded by many firm characteristics. Therefore, in Table 4 we further analyze the association between management and market competition in a multiple regression framework. The dependent variable is the firm's overall management score. The independent variable of interest, the

[16] Top 1% of firms in the number of competitors distribution is trimmed in both panels.

[17] We also investigate the relationship between competition and management quality at the sectoral breakdown and separately by plotting the mean number of competitors against average management scores for each 5% group of the distribution of the number of competitors; neither showed a significant correlation.

number of competitors, is introduced to the regression specification in either levels or logarithms or in the form of a categorical variable. This methodology is adapted from Nickell (1996) and Bloom and Van Reenen (2007) and captures competition intensity by assigning a value of zero to firms with no reported competitors (7% of the sample), one to firms with less than 10 competitors (i.e., the median number of competitors), and two to firms reporting 10 or more competitors. Other explanatory variables include a full set of 9 province- and 8 manufacturing subsector dummies, firm characteristics such as the logarithm of average weekly working hours, the percentage of the workforce with a college degree, the percentage of the workforce that is female, the logarithm of firm age, firm size, and percent of employees unionized. Survey noise controls include the seniority and job tenure of the manager, the extent of the manager's knowledge about the firm and the plant, a female dummy for the manager, and the manager's willingness to share information and his/her patience. The results from regressions on the number of competitors in levels (columns (1)-(4)) reveal a null correlation between competition and management regardless of the specification adopted. When the number of competitors is replaced with its logarithmic transformation in the regression equation, the sample size decreases by 7% due to the loss of firms with no competitors. The analysis with the resulting selected sample yields a statistically significant, negative correlation between competition and management quality in columns (5) and (6). Once firm heterogeneity is accounted for and noise controls are included, the coefficient on the log number of competitors becomes smaller in absolute value and loses its statistical significance. Lastly, we treat the ordinal competition intensity variable as continuous and run the respective regressions as such. The estimation results with this variable suggest a statistically insignificant positive association between market competition and management.[18] The multivariable regression analysis presents mixed weak evidence of correlations of both signs. The negative correlations are in line with what Del Carpio and

[18] As a robustness check, we test by introducing competition intensity as a discrete variable into the regression specification. The results are qualitatively similar. We also experimented with the Nickell (1996) and Bloom and Van Reenen (2007) versions of the competition intensity variable where the cutoff point between the categories of "few" and "many" competitors is set at 5. The results do not change.

Taskin (2019) found in the context of Türkiye with WMS data but contradict the evidence presented in other international literature (see Bloom and Van Reenen, 2007, 2010; Bloom et al., 2014). The weak evidence presented in Table 4, especially the positive correlations found in the last four columns where firms operating under similar degrees of competition are grouped together, comply with either the argument that low profit margins under tougher product market competition pushes poorly managed inefficient firms out of business, or that higher degrees of competition force managers to put in more effort. Following Bloom and Van Reenen (2007), to test the first argument we regress the coefficient of variation of management scores (at sector and province levels) against the competition intensity variable. To test the second, we regress the average weekly work hours of managers against the same measure of competition. The results are in line with both arguments: Higher competition is associated with a lower coefficient of variation of management, and there is a positive effect of competition on managerial work hours. However, the coefficient estimates on relevant competition variables are small and statistically insignificant, regardless of whether the unconditional or partial correlations in regressions on the standard set of controls, including province and manufacturing subsector dummies, firm characteristics, and survey noise controls, are reported.[19]

The reason for the discrepancy between the Turkish and international contexts specifically, the absence of a significant positive association between competition and management, is argued to be the prevalence of family-owned manufacturing firms with poor management practices in Türkiye (Del Carpio and Taskin, 2019). Family firms are owned by the descendants of the founder of the firm. In other words, the second-generation family (or beyond) constitutes the largest shareholder of the firm. Family-owned firms are more resilient to harsh competition as they incur small amounts of debt and may resort to family resources in case of receiving negative shocks which help them afford to implement poor management practices. The frequency and characteristics of family-owned firms in our dataset resemble

[19] The results are available upon request from the author(s).

those of Turkish manufacturing firms in WMS: Family-owned firms constitute around 44% of all firms which is higher than the international standards[20], and on average, have mediocre management with a score of 2.59, slightly lower than the country mean. If, on top, family firms tend to operate more frequently in highly competitive markets, then this peculiarity may mask the positive correlation found between competition intensity and management quality in the international literature. We test this hypothesis, first, by excluding family-owned firms from the sample and plotting firms' log number of competitors against management scores in the bottom panel of Figure 3. The correlation between the two is still practically zero.[21] Second, through a multiple regression framework, we test whether the insignificant correlations in Table 4 are due to the scattering of poorly managed family firms, mostly in more competitive markets, although the evidence from the bottom panel of Figure 3 and the theoretical foundations described in the international literature suggests otherwise (see Bloom and Van Reenen, 2007). A probit model of family ownership is estimated using, separately, the number of competitors, the log number of competitors, and competition intensity as independent variables of interest plus the usual set of province and sector dummies, firm, and noise controls. In another specification, we include the set of controls dummies for exporter and multinational status[22], as well as controls for managerial organization schemes, i.e., the number of levels in the corporate ladder between workers and the CEO of the firm, and the degree of autonomy of the manager in allocating tasks across workers in the firm from a scale of 1 (workers make all the decisions) to 5 (managers make all the decisions). The results, presented in Table A2 in the Appendix, show small and

[20] Bloom and Van Reenen (2007) using WMS data show that around 30% of European firms and 10% of US firms are family-owned. La Porta et al. (1999) finds a moderately larger share of family ownership among medium-sized European firms—around 40%—while a similar rate of medium-sized US firms is family-owned—10%. However, the family ownership definition of La Porta et al. (1999) also includes founder-owned firms while Bloom and Van Reenen (2007) and this study differentiates those two.

[21] The bivariate relationship depicted in Figure 3 holds once the number of competitors substitutes its logarithmic transformation. As is shown in Table 4 exclusion of firms reporting no competition does not affect the overall relationship between competition intensity and management.

[22] Exporters are defined to be firms that export at least 50% of their annual sales. Multinationals are firms that are foreign-owned.

insignificant positive correlations between the degree of market competition and family firm prevalence. The low-cost structures and ease of access to family resources in case of financial distress may help poorly managed family firms survive even under harsh competition. Based on the weak evidence for the prevalence of poorly managed family firms in highly competitive markets, one expects to find a reduction in the downward bias in the coefficient estimate of competition once an indicator for family ownership is introduced to the regression specifications in Table 4. The evidence in Appendix (Table A3 panel A) suggests that accounting for heterogeneity in family ownership across firms does not alter the findings of a null correlation between management and competition. However, when we extend the set of firm controls with indicators for exporter and multinational status and measures of the managerial organization besides the family ownership dummy, we find an increase in the coefficient estimates on measures of competition. Even the coefficient estimate on competition intensity becomes statistically significant at 5% with a size of 0.053 in the full specification (see panel B in Table A3). Therefore, the findings from a series of tests of the management-competition relationship conditional on family ownership suggest, in line with the expectations, that family firms do not systematically spread more frequently across highly competitive markets. Notwithstanding, it is the combined confounding effect of multinational/exporter status and managerial organization that yields insignificant correlations. Focusing on these firm characteristics, the data provide strong evidence for better-run multinational firms distributing densely in less competitive product markets. The simple regression of multinational status against competition intensity returns a negative and strongly significant (*t* statistic = -4.58) coefficient estimate, pointing at multinational status as a key factor in estimating no association between management and competition across firms.[23]

[23] Multinational firms on average have the highest management score of 2.89, almost half a standard deviation above the country mean.

We further investigate the causes of the discrepancy by grouping the plants into quartiles of market competition based on the reported number of competitors and examine the change in average management scores across quartiles holding plant size fixed. Table 5 presents a tabulation of plant-level average management scores and annual value added per worker in 2017 in parenthesis (in constant 2010 TLs), by intensity of market competition and plant size. The analysis finds a positive association between plant size and labor productivity by showing that, within each quartile of market competition, average labor productivity increases as the plant size increases. The null relation between market competition and management seems to be a result of the poor management practices adopted by plants in the highest quartile which tends to be largely driven by badly run plants with a number of employees between 10 and 249—relative to the same size plants from lower quartiles and plants of different sizes within the same quartile of competition. These medium-sized plants in the highest quartile have significantly lower average management scores compared to the corresponding scores of small and large plants within the same quartile, both of which adopt better management practices than the median firm in Türkiye. Although highly speculative, another cause of the discrepancy with the international literature may be the regulations that aim to protect medium-sized firms from harsh competition. Such protective regulations include, for instance, subsidizing firm production to help firms afford poor management practices and survive under competitive market conditions. A more plausible scenario, though, and in line with what we documented before, might be the systematic scattering of better-run, multinational firms in lower quartiles of competition. A cross-tabulation of competition quartiles and plant size by multinational status shows that multinationals are more frequently found in the lowest quartile, comprising 19% of all firms in the first quartile while the corresponding share of multinationals in the highest quartile is only 2%. Considering the plant sizes, around 23% of medium-sized plants with 10-249 employees in the first quartile are multinationals, while the corresponding share of medium-sized plants out of multinationals is only 3% in the highest quartile.

In sum, the analysis of the relationship between market competition and managerial quality is inconclusive, presenting correlations of both signs with varying levels of statistical significance. There is, however, evidence that well-run multinational firms concentrate in less competitive markets, inducing a downward bias on the correlation coefficient. Notwithstanding, other potential sources of endogeneity necessitate further efforts to disentangle the causes of the discrepancy with the international literature that finds strong positive correlations. One way is to support the research using other measures of market competition such as import penetration or the Lerner index of competition, which is beyond the scope of this study due to data unavailability.

5.2. Multinational Status

Figure 4 plots firm-level histograms of management scores by multinational and exporter status. A distributional comparison between domestic and multinational firms shows a higher frequency of badly run firms in the former (i.e., thicker left tail in domestic firms) and a larger fraction of well-managed firms in the latter. The difference in management quality across domestic and multinational firms may stem from selection effects: Better-managed firms are more likely to become multinationals (Bloom and Van Reenen, 2010). Simultaneously, the management practices of multinational firms in Türkiye may benefit from international experience and knowledge in other countries where the firm operates. The same pattern applies in a comparison of non-exporters with exporters. The lowest average management scores were found among non-exporters (2.60), the next lowest among exporters (2.65), and the highest among multinationals (2.89). This supports the predictions of Helpman et al. (2004). The difference in the group means of management scores between multinational and domestic firms is statistically significant, while, after taking into account measurement error in management scores, province and sector differences between firms as well as firm heterogeneity in age, size, skill, unionization and gender composition of the workforce, and

work effort put by employees, the corresponding difference between exporters and non-exporters is not (see Table 8).[24]

5.3. Ownership Status

Family ownership and management are shown to be common in developed and developing countries (La Porta et al., 1999; Morck et al., 2005, Bloom and Van Reenen, 2007). Our calculations using WB 2018 show a rate of family ownership at least as high as in the international literature, which necessitates paying special attention to the management practices of family-owned firms. Figure 5 presents a bar graph of average management scores by ownership status of firms and to further investigate management practices in family-owned firms provides kernel density plots of management scores of family firms disaggregated by the CEO's relationship with the family, e.g., family member, eldest son-primogeniture, or an outside professional manager.[25] Panel (a) of Figure 5 shows that firms owned by dispersed shareholders adopt the best management practices among other ownership structures. This is in line with the previous findings from the international context (see Bloom and Van Reenen, 2010), as well as with what Del Carpio and Taskin (2019) found in the Turkish context back in 2014. Private equity firms are badly run while in both international and Turkish contexts they were shown to be well managed. This discrepancy may stem from the small sample size of private equity firms (n = 18) in our dataset which may introduce large noise to the calculation of the group mean of management scores.

As previously mentioned, family-owned firms constitute a higher share (around 44%) of total firms, compared to their counterparts in Europe and US (see footnote 20). Around two-thirds of family-owned firms are also managed by family members, analogous to family management shares in France and UK (Bloom and Van Reenen, 2007). Panel (b) of Figure 5

[25] We suppress the results for government-owned firms in panel (a) of Figure 5 as the sample size is too small (N=8). As a side note, contrary to the international evidence, government-owned firms in Türkiye seem to adopt the best management practices among others with a mean management score of 3.03.

clearly shows worse management practices in family-owned and family-managed firms ("Family CEO"), compared to family-owned but externally managed firms ("External CEO"). This suggests that most family firms in Türkiye, as in France and UK, are overlooking professional management in running their firms.[26] Furthermore, the choice of a CEO by primogeniture in family-owned and family-managed firms is as frequent as in Germany with around one-third choosing the eldest son as the CEO upon succession, which as a group constitutes around 10% of the total sample of firms.[27] Although family firms that adopted primogeniture successions have a management score distribution with a longer left tail and shorter right tail compared to family CEO firms that do not adopt primogeniture successions, on average the latter performs slightly worse than the former.

To further analyze the relationship between firm management and family ownership, following the footsteps of Bloom and Van Reenen (2007), we used a multiple regression (Table 6) of firm management scores on three indicators, mainly, family ownership ("Family"), family ownership and family management ("Family, family CEO"), and family ownership combined with family management where CEO succession is determined by primogeniture ("Family, family CEO & primogeniture"). In column (1), the management score is regressed against the indicator of the largest shareholding block, the family (2nd generation or beyond from the founder), plus a standard set of the province and sector dummies, and firm and noise controls, which are enumerated in the notes of Table 6. Although imprecisely estimated, family ownership alone seems to depress firm management. Column (2) includes an indicator of family ownership and family management (i.e., the CEO of the firm is a family member) as the independent variable of interest and finds a much stronger negative and statistically significant (at a 5% level) association. In column (3), we include a dummy for firms

[26] Those that are owned and managed by the family have a thick and long tail of poorly managed firms while those that are owned by the family but managed by an external manager perform on par with dispersed shareholder firms.

[27] Choice of family CEO by primogeniture is more common among family-owned and managed firms in the US (around one-half) and in other European countries France and UK (around two-thirds) compared to Türkiye. However, family ownership in the US is not as frequent as in European countries resulting in primogeniture family firms constituting only around 3% of all firms (Bloom and Van Reenen, 2007).

that are owned and managed by a family where the eldest male child of the current CEO is destined to be the next one upon succession and find that the coefficient is negative but insignificant. The analysis with three separate indicators of family ownership and management suggests that the poor management performance of family firms is due to the subset of family-owned firms that are also run by family members. Strong supportive evidence in favor of this hypothesis is also found under a multiple regression framework, where all three indicators simultaneously enter the equation in columns (4) and (5) of Table 6. The identifying variation in these regressions to estimate the family indicator coefficient ("Family"), comes from cells that contain family firms with external CEOs and non-family firms. Therefore, the coefficient on family ownership estimates the mean difference in management scores between family firms with external CEOs and non-family firms, *ceteris paribus*. Analogously, the "Family, family CEO" coefficient estimates the mean difference in management performance between family firms with family CEOs (non-primogeniture) and the family firms with external CEOs, and the "Family, family CEO & primogeniture" indicator estimates the mean difference between family firms with primogeniture CEO successions and family firms with family CEOs where CEO succession is not determined by primogeniture, holding other factors constant. The family coefficient in column (4) suggests that family ownership without the involvement of the family in management decisions is insignificantly positively correlated with better management practices which may arise thanks to improved monitoring capabilities provided by the concentrated ownership.[28] The other results in column (4) show that family-owned and family-managed firms perform poorly compared to family firms with an external CEO: the coefficient estimate is strongly significant and implies, on average, around a quarter of a standard deviation (0.13) lower management score for non-primogeniture family firms while the unconditional difference in average management scores is 0.22, favoring family-owned and externally-run firms. The subset of family-owned and family-managed firms that adopt primogeniture successions are, on average, better

[28] We find significant supporting evidence for this hypothesis in a regression of monitoring score against the three indicators of family ownership/management and a set of province and sector fixed effects.

managed than non-primogeniture family firms, although the *ceteris paribus* interpretation lacks statistical significance at conventional levels, which contrasts with the unconditional difference in their means. To sum up, the statistically significant (p-value = 0.07) and large difference in coefficients on "Family, family CEO" and "Family" in column (4) suggests that the poor management practices adopted in family-owned and family-managed firms account for the negative correlation found between family ownership and management in column (1). Indeed, the sum of the coefficients on "Family, family CEO" and "Family" give the difference in group means of management scores between non-primogeniture family firms and non-family firms, *ceteris paribus*, which in column (4) equals -0.085, and is significantly different than zero with a p-value of 0.017. This, combined with the statistically indifferent management practices across primogeniture and non-primogeniture family firms, implies worse managerial quality for the subset of family firms with family management in comparison to non-family firms. In column (5), we drop founder firms from the sample, so that the analysis abstracts from any sort of familial relations in the control group (i.e., ownership structures in the omitted baseline include only external ownership). Here we find similar results, except for a more precisely estimated, stronger negative association between family ownership and management. Our results differ from what Bloom and Van Reenen (2007) found in their cross-country study of management, finding that the worst management practices were among non-primogeniture rather than primogeniture family firms, though, the statistical analysis could not differentiate one group from the other. As suggested by Bloom and Van Reenen (2007), the reasons for mediocre management standards in family-owned and managed firms can be their reluctance to talent in choosing the CEO (smaller pool to select the CEO from—the family) and possible "Carnegie" effects on future CEOs, i.e., knowing that the managerial control passes down within the family diminishes the will of the family members to acquire human capital necessary to succeed in firm management.

Overall, lower levels of management quality in family-owned and family-managed firms may imply that family members trade off private utility from self-managing their firms instead of

employing professional managers. This results in lower levels of economic performance due to the previously established positive relationship between good management practices and firm performance. To test this hypothesis, we re-estimate firm size regressions in Table 7 by substituting family ownership/management indicators for the firm management score and by accounting for the fixed province and sector differences, firm heterogeneity, and measurement error in the management practices score. The dependent variables are analogous to those in Table 3 and include the logarithm of plant size, an indicator of firm size larger than 100, another indicator of firm size larger than 250, and lastly, an ordinal variable of firm size. Table 7 reports the coefficient estimates of family ownership/management indicators for log plant size and ordinal firm size regressions which are estimated using OLS and ordered probit, respectively. For probit models of firm size, average marginal effects of covariates are reported for ease of interpretation. Family ownership *per se* is positively associated with size in each model with varying degrees of statistical significance. Similarly, family ownership combined with family management, *per se*, has a positive effect on size, although none of the coefficients are precisely estimated. In each specification, primogeniture family firms alone have a coefficient larger than family firms with family CEOs, *per se*. This may imply that the subset of family firms with non-primogeniture family CEOs, consistent with their mediocre management standards, have smaller firm sizes, and therefore, possibly lower productivity and profitability as well.[29] The regressions, which include all three indicators, provide more insights to the relationship between family ownership/management and firm size. The results in column (4) suggest an imprecisely estimated 12.2% size difference between plants of family-owned and externally managed firms and non-family firms. Non-primogeniture family firms are significantly estimated to be around 15% smaller than family firms with external CEOs, implying smaller plant sizes for

[29] Mean plant size monotonically increases with the mean managerial quality of family firms: the smallest average plant size belongs to non-primogeniture family CEO firms with 64 employees, then comes primogeniture family CEO firms with 78 employees, and lastly the mean plant size of external CEO family firms more than doubles primogeniture family CEO firms with 159 employees. Non-family firms, on average, have 81 employees.

family firms managed by family members other than the eldest son in comparison to non-family firms[30]. This is consistent with the previous finding of relatively poorer management practices in family-owned and managed firms compared to non-family firms. The coefficient on "Family, family CEO & primogeniture" compares the two subsets of family-owned and family-managed firms and estimates with strong statistical precision around 32% larger plant sizes for primogeniture family firms, counteracting the size disadvantage of non-primogeniture family firms and resulting in an ambiguous size comparison with non-family firms. Probit models of firm size in column (8) suggest that family ownership, *per se*, significantly increases the likelihood of a firm growing larger than 100 employees by 12 percentage points. Once family firms switch from professional managers to family management a counteracting, marginally significant effect on the chances of growing large by about 8.6 percentage points is estimated. The same pattern applies when large firms are defined to be employing at least 250 workers. The results from ordered probit models of firm size are in line with probit models of firm size. The lessons learned from this exercise are that family ownership when supported by external management helps improve firm performance, suggesting a strong positive effect of concentrated ownership on performance, possibly through its effect on particularly enhancing monitoring and targets management practices. On the other hand, family involvement in management seems to depress the growth aspects of firms. Sener (2014) and Hosal et al. (2015), using the market performance of listed Turkish firms as an outcome, similarly conclude that family ownership, *per se,* and family ownership combined with family management (i.e., family members serve as CEO or chairman) have counteracting effects, with family management significantly deteriorating firm performance. Lastly, the results suggest that primogeniture family firms perform similarly as non-primogeniture family firms, contradicting prior evidence in the literature (see Calabro et al., 2017). Our finding that family firms with family CEOs underperform, on the other hand, is in line with the literature (see Bennedsen et al., 2007; Perez-Gonzalez, 2006; Villalonga and

[30] A Wald test on the sum of coefficients on "Family" and "Family, family CEO" equal to zero yields p-value = 0.56.

Amit, 2006) and presents evidence on family management, bearing amenity value for family members in exchange of lower levels of performance.

5.4. Human Capital

It is argued that the skills of managers are crucial in introducing modern management practices to the workforce, while the skills of workers determine how well and fast the firm adapts to these modern production and management practices (Bloom and Van Reenen, 2010). To test this hypothesis, we separately grouped firms in quartiles based on the respective shares of managers and workers with a college degree, and, in Figure 6, for each management dimension, a comparison of average management scores across quartiles is presented.

The figure depicts a positive relationship between the human capital of workers and the quality of firm management in each management dimension. On the other hand, there does not appear to be a similarly positive trend between the human capital of managers and the quality of management dimensions. We rule out the possibility of higher quartiles of the college-share distribution of managers, including relatively higher rates of firms with a low college graduate share among non-managers. We believe that the analysis, carried out with a skill distribution of managers was uninformative, mostly due to the small dispersion of the share of managers with college degrees across firms: The median is 6%, jumping to 50% in the 60^{th} percentile, and reaching 100% by the 74^{th}. The results imply that better management practices are easier to adopt in firms with higher human capital in the non-manager workforce. Therefore, from a policy perspective, a higher average level of educational attainment of the aggregate labor force may help improve firm management practices, and hence firm performance.

6. Good Management Practices: Awareness and Determinants

Improving firm management requires managers to be aware of good management practices. A lack of information about modern management practices or a misguided assessment of the

success of their own management practices constitutes another source of variation in management across firms. The WB 2018 survey includes a question asking managers to evaluate the general management quality in the firm on a scale of 1 (adopts worst practice) to 10 (adopts best practice), with the average practice corresponding to 5. The mean of the variable across firms is 7.7. This question, combined with the survey's objective assessment of the firm management practices, reflects the extent the manager is aware of good management practices and the areas which need improvement. The correlation coefficient between the subjective and objective measures of firm managerial quality is close to zero in any management dimension.[31] This says that the managers may be unaware of good management practices and trust in their innate talent in managing the firms (Del Carpio and Taskin, 2019). In this regard, training on good management practices may improve both management quality in their firms, and overall performance.[32] In parallel with this argument, a randomized, controlled trial in India's textile industry— where a random group of firms receives formal management training—reveals significant productivity gains due to the training. Additionally, the reason for not introducing modern management practices was evaluated to be the result of a lack of awareness of good practices (Bloom et al., 2013).

6.1. Determinants of Management Practices

In this subsection, we test the soundness of the bivariate correlations depicted in sections 5.1 to 5.5 through a multiple regression framework. The dependent variables in the firm-level regressions are overall scores and the three dimensions of management. The independent variables include, other than the standard controls for survey noise, indicators of family ownership/management, firm size, multinational and exporter dummies, the logarithm of

[31] Average management score has the highest correlation with the subjective assessment of the firm management practices of size 0.14 and the lowest is with monitoring of size 0.09 (both significant at 5%). The survey also asks managers to separately evaluate the monitoring and incentives practices of the firm. The same pattern of null correlations with the corresponding objective assessments of the monitoring and incentives practices applies.

[32] The data provide evidence for negative correlations between the self-assessment score of management quality and the firm performance measures used in Table 3.

average weekly working hours of managers and workers, the college graduate share among the workforce (separately for managers and workers), the percentage of the workforce that is female (separately for managers and non-managers), the logarithm of firm age, the percent of employees who are union members, and a variable capturing competition intensity as defined in section 5.1: taking a value of zero for firms with no reported competitors, a value of one for firms with less than 10 competitors, and a value of two for firms with at least 10 competitors. Finally, the extent of managerial hierarchy and autonomy in the firm, i.e., the number of levels in the corporate ladder between workers and the CEO of the firm, and the degree of autonomy of the manager in allocating tasks across workers in the firm is represented through a scale of 1 (workers make all the decisions) to 5 (managers make all the decisions). The multiple regression results presented in Table 8 acknowledge some of the previously found bivariate correlations and nullify some others. Family ownership, *per se*, has a positive and statistically insignificant association with management practices, while family ownership combined with family involvement in management is estimated with high statistical precision, to strongly deteriorate management performance in each dimension. Although imprecisely estimated, the subset of family firms where CEO successions are determined by primogeniture is found to be better managed than non-primogeniture family firms, suggesting that the consequences of father-eldest son succession patterns may not be as devastating compared to succession patterns by other types of kin. This finding is in stark contrast with the influential cross-country study of Bloom and Van Reenen (2007) which shows that, among family-owned and managed firms, primogeniture family firms adopt inferior management practices. The multinational status of the firm is strongly positively and significantly associated with better management practices, i.e., being a multinational is estimated, at a 1% significance level, to increase the average management score by a quarter of a standard deviation (0.13). This seems to be derived mainly from better incentives and people management strategies adopted in multinational firms. Firms, where managers supply more labor in terms of work hours, seem to be significantly better managed overall and in each management dimension. On the other hand, firms that lack organizational coherence, and hence, have mediocre management standards, may require their workers to

provide longer working hours to reach production targets. This may be one of the reasons behind the negative correlations between the non-managers' labor supply and average management score. Neither the skill nor the gender composition of the workforce is correlated with the management quality, implying that the positive correlation depicted in section 5.4 between human capital and management scores at quartiles of the college share distribution of workers is spurious. Despite contradicting the international evidence (see Bloom et al., 2014; Grover and Torre, 2019), the coefficient estimates of the human capital of the workforce, which are practically zero, are on par with those found by Del Carpio and Taskin (2019) in the Turkish context back in 2014. Additionally, although imprecisely estimated, the coefficient of the exporter dummy shows, in line with Figure 4, stronger management performance for firms with foreign linkages. The results are similar when we experiment with a continuous measure of export intensity, measured by the percent of a firm's exports in its total annual sales, suggesting that neither the marginal changes in export shares nor the group differences in exporter status play a significant role in determining management quality, *ceteris paribus*. Union density seems to, albeit at statistically insignificant levels, improve management practices—a result that contrasts with Bloom and Van Reenen (2007). Firms that are better organized in terms of hierarchy implement significantly better management practices. The strong positive correlation between management score and firm size found in Section 4 persists in Table 8 which strengthens the view of a potentially bidirectional relationship between firm size and management scores, i.e., better-managed firms may grow faster and consequently become larger, or larger firms have the means to hire higher-skilled managers which in return increase firm management quality. The statistically significant, positive effect of market competition on average management scores found in Table 8, which seems to be an outcome of the improved monitoring practices, concludes similarly with the international literature, that tougher product-market competition through upgrading management may increase firm productivity (see *inter alia* Bloom and Van Reenen, 2007; Bloom et al., 2009, 2014).

It is worth opening a paragraph on the relationship between firm age and management practices. For starters, the relationship between firm age and firm economic performance is theoretically ambiguous. Older firms are more experienced, and through learning from their own mistakes, might have improved their performance over their life cycle (Majumdar, 1997; Radipere and Dhliwayo, 2014). Moreover, older firms may have succeeded in creating beneficial business networks over time, strengthening their performance. On the other hand, older firms may adjust to changing circumstances of the product markets more slowly, resulting in a weakening of performance (Agiomirgianakis et al., 2006). The firm performance regressions in Section 4 found strongly positive and significant correlations between firm age and firm performance as measured by firm size[33]. We acknowledge, however, that firm size is not the best performance indicator to compare younger and older firms, as older firms that survived until then had more time to grow. The small and statistically insignificant, negative correlation between firm age and the overall management score, resulting from the counteracting effects of firm age on incentives and monitoring/targets management scores, combined with the positive relationship between age and economic performance of the firm, suggests that older firms have better economic performance than younger firms despite adopting relatively poorer management practices. This also implies that firm age is not a mediator of the relationship between firm management and firm performance. The null correlation found in this study between firm age and management contrasts the evidence from Mexico, Pakistan, and the U.S. which suggest that older firms have better management scores (see Bloom et al., 2019b; Lemos et al., 2016; Bloom et al., 2016). Our findings, however, are in line with evidence from Croatia, the Russian Federation, and a prior study on Türkiye (see Grover et al., 2019; Grover and Torre, 2019; Del Carpio and Taskin, 2019). This discrepancy presents a potential area for further research determining the causes of

[33] Firm age coefficients in the firm performance regressions in Table 3 were suppressed to save space. The results on firm age are as follows: the age elasticity of size varies between 0.12 and 0.14 in log plant size regressions; the marginal effect of firm age calculated at means of variables is 0.08 and 0.04 for indicators of firm size larger than 100 and 250, respectively; ordered probit regression of firm size estimates a similarly large firm age coefficient. All estimates are statistically significant at 1%.

opposite-signed correlations between firm age and management practices found in the literature.

To sum up, the multiple regression analysis reveals firm size, product-market competition, multinational status, work effort put in by managers and workers, the level of managerial hierarchy, and ownership status as significant determinants of management practices. Our results, in general, confirm the illustrative evidence presented in sections 5.1 to 5.5 and compare it to those of the state of firms in Türkiye in a 2014 study. (see Del Carpio and Taskin, 2019). The difference with the international literature is the finding of null effects of the human capital of the workforce on management practices which requires further effort to disentangle the causes of the discrepancy.

7. Management, Work-life Balance, and Firm Performance

The analysis so far associates better management practices with higher firm performance. The performance gains from improved management practices should be welcomed by employers, however, the implications of these superior management practices on work intensification and workers' job satisfaction are ambiguous. Do improvements in management practices come at the expense of work-life balance (WLB)? Bloom et al. (2009) summarize two opposing views in the management literature on the relationship between managerial quality and WLB. Optimists argue that good firm management practices can stimulate better WLB practices, while pessimists argue that better firm management reduces WLB. Another set of predictions, proposed by positive and negative views, concerns the intertwined relationships between WLB, competition, and firm performance. There is a consensus among both sides that tougher product-market competition, spurred by globalization and liberalization, increases firm performance (specifically productivity) by improving management. Nevertheless, the pessimists argue that implementing better WLB practices, especially in competitive markets, is costly in terms of performance, and that therefore, in equilibrium, firms sacrifice WLB to achieve higher performance, implying a negative association between better WLB and competition as well as firm performance. The

optimists, on the other hand, believe that better WLB practices improve employee well-being at work by increasing the morale and motivation of the workforce. Therefore, gains in yield performance and higher competition increase the use of good WLB practices since adopting poor WLB practices would be suboptimal in terms of performance, and in highly competitive markets, such inefficient firms would be forcefully eliminated from the market. Hence, according to the positive view, better WLB is positively correlated with both competition and firm performance. In this section, we test each of these hypotheses by synthesizing a WLB outcome measure from the four WLB practices surveyed in WB 2018. These include "working from home in normal working hours allowed", "switching from full-time to part-time work allowed", "childcare subsidy provided", and "childcare flexibility". Each of the WLB practices is separately surveyed for managers and non-managers, and other than "childcare flexibility", each is a "Yes/No" question that admits a binary variable representation. The survey question regarding childcare flexibility asks about the general firm policy regarding the ability and ease of employees to take a day off, on short notice, in case of an emergency due to childcare problems or their child's illness. Following Bloom et al. (2009), we recode the responses so that the variable is ordered conceptually as: 1 = Not allowed, 2 = Allowed without pay, and 3 = Allowed with pay. The responses "Not allowed" or "Never been asked" are allocated a score of 1 and comprise the worst WLB practices in this regard. The practices "Take as leave without pay" or "Take time off but make it up later" are assigned a score of 2, and the practices "Take as annual leave" or "Take as sick leave" are the best WLB schemes and assigned a score of 3. Since the scaling varies across practices, the WLB outcome measure is defined as the average

z-score from the four WLB practices that are standardized to mean zero and standard deviation one.[34,35]

Before investigating the relationship between the overall quality of management and WLB, we first need to examine whether there is evidence in the data displaying an association between our measure of WLB outcomes with firm characteristics that are expected to improve employee WLB. If this does not hold, one might suspect that the composite WLB practices z-score is not a strong indicator of the WLB outcomes. Specifically, to explore this, we separately regress the composite z-score of WLB practices against various firm characteristics including the skill composition of the workforce, weekly work hours, average number of holidays per year, the share of female workforce(separately for managers and non-managers), and the share of the unionized workforce, which are found in the literature to be correlated with better WLB (see Bloom et al., 2009; Osterman, 1995; Gray and Tudball, 2003; Milliken et al., 1998; Guthrie and Roth, 1999; Perry-Smith and Blum, 2000; Martins et al., 2002; Harel et al., 2003). We also include a set of province and manufacturing subsector dummies, and firm size and age. Table 9 presents the results and validates the use of the composite WLB practices measure as an indicator of employee well-being at work. Although the evidence is weak with respect to work hours, number of annual leave days, and the female share of the workforce, the correlations are in expected directions. In columns (1) and (2), the composite z-score is positively correlated, separately with the proportion of the workforce with a college degree, and a dummy for the manager holding a master's or PhD degree. The positive and significant coefficient on the manager's educational attainment

[34] Each WLB practice is first normalized to mean zero and standard deviation one, then an unweighted average across all eight z-scores (four WLB practices "working from home allowed", "switching job from full-time to part-time allowed", "childcare subsidy provided", and "childcare flexibility" separately for managers and non-managers, resulting in eight z-scores) is taken which is finally re-normalized to mean zero and standard deviation one.

[35] Bloom et al. (2009) use as the measure of WLB outcomes the perceptions of the managers about their own WLB practices in comparison to WLB practices of firms in the same industry. Such information is unavailable in our data set. Nevertheless, the strong positive correlation found in the literature between the composite score of WLB practices and the WLB outcome measure (see Bloom et al., 2009; Bloom and Van Reenen, 2006) allows to proxy WLB outcomes with the composite WLB practices z-score.

dummy implies that firms with higher-skilled managers tend to have better WLB practices. Similarly, the insignificant skills measure in column (1) suggests that a higher-skilled workforce is associated with better WLB practices in a firm. As in Bloom et al. (2009), better WLB practices are associated with shorter work hours and longer holiday days, however, neither of the correlations are significant at conventional levels. The partial correlation coefficients on the gender distribution suggest that female workers prefer firms with better WLBs while unintuitively female managers tend to cluster in worse WLB firms. Both of these estimates are, however, statistically insignificant. Lastly, unions might improve the WLB practices in firms by bargaining for the employees' demands for a better working environment. Consistent with this argument, the analysis in column (7) finds that the unionization rate has a strong positive and significant association with better WLB, estimating a large increase in WLB composite z-score of 0.16 standard deviations for one standard deviation (24%) increase in the percentage of unionized employees.

7.1. WLB and Management

Table 10 examines the correlation between WLB and the composite measure of good management. In the first column, the WLB outcome is regressed against the average management score and a constant. There is a strong positive and significant correlation between the two—a one-point increase in the average management score is associated with a 0.289 standard deviation increase in the composite WLB practices z-score. After introducing province and manufacturing subsector dummies, an ordinal firm size variable, the log of firm age, and the standard survey noise controls to the regression specification in column (2), the coefficient on management score reduces but is still positive and statistically significant at a 1% level. An important factor in explaining WLB appears to be the firm size. Column (3) includes indicators of family ownership/management, multinational status, exporter status, and the skill composition of the workforce as additional controls. The coefficient on management score erodes the same degree in magnitude as in moving between columns (1) and (2), but still is positive and strongly significant. Family ownership or management (or

both) do not have significant associations with WLB. Global linkages through multinational ownership significantly improve the working conditions of employees while exporter status has a small and insignificant positive association with better WLB. The increase in college graduates among the workforce is associated with better WLB and firms with higher-skilled managers also tend to have better WLB practices. Neither of the skills measures, however, is significantly estimated. Column (4) adds to the set of controls the firm characteristics that are expected to improve WLB, that is, average weekly work hours, the number of yearly holidays, the proportion of female managers, the proportion of female non-managers, and the percentage of unionized employees. When these are accounted for, the management score coefficient falls further, though its sign and level of statistical significance are preserved. Consistent with the results from Table 9, all the correlates of WLB have the expected signs in this final specification, but only the percentage of unionized employees is strongly significantly estimated. A significant difference with column (3) is the change in the magnitude and significance of the multinational coefficient. Conditional on a full set of controls, the size of the coefficient decreases by more than half and is not even significant at the 10% level. This suggests that a significant portion of the positive correlation between multinational ownership and WLB is due to other worker-friendly practices of multinational firms.

Next, we disaggregate the average management score into monitoring, targets, and incentives and examine each one's correlation with WLB by separately regressing the z-score of the WLB practices on each management dimension score individually and the set of full controls in column (4) of Table 10. Consistent with the results of Bloom et al. (2009), the incentives portion of the management score has the strongest positive and significant association with a better WLB—a one-point increase in the human management/incentives score is associated with a 0.18 standard deviation increase in composite WLB practices z-score. As different than Bloom et al. (2009), we find a similarly significant but slightly smaller positive correlation with monitoring (the partial correlation coefficient of monitoring is 0.15

with 1% significance). Management practice regarding targets is uncorrelated with WLB practices.

Lastly, we test separate regressions of the variables that constitute the composite WLB practices measure against the average management score plus the set of full controls in column (4) of Table 10. The results confirm that the positive association between overall management quality and WLB is not an artifact of how WLB outcome is measured. All WLB practices but "switching from full-time to part-time job" are positively correlated with good management practices. We find strong positive and significant correlations between the average management score and childcare subsidies as well as childcare flexibility, and a largely positive but insignificant correlation with "work from home allowed". A small negative and insignificant correlation between management score and "switching from full-time to part-time job" is estimated.

7.2. WLB and Product Market Competition

After establishing a strong positive correlation between firm management practices and WLB, the focus is turned to the correlation of WLB with competition and firm performance. In Table 11, the composite WLB practices z-score is regressed against the indicators of product-market competition and a vector of controls including province and manufacturing subsector dummies, an ordinal firm size variable, the log firm age, the percentage of the workforce with college degrees, a dummy for the manager with a master's or Ph.D. degree, and the survey noise controls. The coefficient on the number of competitors of the firm is practically zero regardless of being introduced to the regression equation in levels or logs. The continuous measure of competition intensity suggests that firms in more competitive markets have lower composite WLB practices scores, though the coefficient is imprecisely estimated. In column (4), the competition intensity measure is introduced to the regression as a categorical variable. There is a marginally significant, large difference of 0.29 standard deviations. in mean composite WLB scores of firms with no competitors and firms with more than or equal to 10 competitors. The weak evidence on the worse WLB practices adopted by firms in highly

competitive product markets is in line with the critics of globalization who argue that tougher competition spurs better management practices, but at the price of reduced work-life balance.[36] In search of additional evidence on the relationship between competition and WLB, we ran regressions identical to those in Table 11 by replacing the composite z-score of the WLB practices as a dependent variable with log average weekly working hours of managers, log average weekly working hours of non-managers, average days holidays per year, and the unionization rate. Tougher competition is associated with longer weekly work hours for managers and workers, shorter holidays, and lower unionization rates, however, the correlation is statistically significant only for the unionization rate. The new set of results provides some more confidence in the negative effects of competition on employees' working environment.

7.3. WLB and Firm Performance

Lastly, in Table 12, we investigate the correlation between WLB and firm performance. As in Section 4, firm size is used as an indicator of firm performance. In columns (1) and (2) we use the log plant size information and estimate the models with OLS. In columns (3) and (4) the categorical firm size variable is recorded as a dummy in which firms with more than 100 employees take the value one. Similarly in columns (5) and (6) firms with more than 250 employees represent better-performing firms and all binary choice models in columns (3) to (6) are estimated with Probit. In columns (7) and (8) we employ an Ordered Probit estimation method to exploit the total variation in the ordinal firm size variable. For each dependent variable, we first estimate a model by omitting the average management score, but by including an exhaustive set of controls. These include the standard survey noise controls, the province and manufacturing subsector dummies, the log firm age, the proportion of

[36] A more granular analysis focusing on the components of the composite z-score of the WLB practices find negative coefficients for the competition intensity measure (either treated as continuous or discrete) on any of the four standardized WLB components, but the only significant difference is in the worse childcare subsidy policies of the firms in highly competitive markets (i.e., number of competitors the firm faces in the industry exceeds 10) relative to firms with no competition.

employees with college degrees, a dummy for the manager with a master's or Ph.D. degree, average weekly work hours, multinational ownership, and a set of correlates of WLB including the average share of female managers, the share of female workers, and the share of employees who are union members. Next, we add to the specification the average management score and re-estimate the model. The coefficient estimates on the composite z-score of the WLB practices and average management score are reported. Except for the model for log plant size, the average management score has a strongly positive and significant correlation with firm size. Except for the probit model for large firms with more than 250 employees, the WLB practices z-score, *per se,* has a statistically significant negative correlation with firm size after including a full set of controls. When the average management score is added to the set of controls, the coefficient on WLB practices z-score is still negative, estimated with higher precision, and increases in absolute value, an expected finding given that better WLB and good management practices go hand in hand. The results differentiate from the previous evidence from developed country contexts that find a null relationship between WLB and firm performance (see Bloom and Van Reenen, 2006; Bloom et al., 2011) by estimating a strongly negative correlation after conditioning on management practices. Overall, the findings on WLB suggest a hybrid position between the positive and negative views, favoring the former by showing a strong positive association between management practices and WLB, and supporting the latter by concluding that improving employee wellbeing at work is costly in terms of performance and, hence, firms operating in markets with very thin profit margins may not afford the costs of better WLB practices. Caution should be paid to not infer causality from this analysis as these are associations. In addition, further analysis with other indicators of firm performance such as productivity should be carried out to check the soundness of the negative association of WLB with firm performance.

8. Concluding Remarks

8.1. Summary of Findings

Considering the large productivity differences between firms, even within narrowly defined industries, this paper focuses on dispersion in management practices across firms as a key factor behind this phenomenon. The central question of this study is whether the strong positive association between good management practices and firm performance found in the literature for most developed countries also holds in Türkiye, a large middle-income country. We found strong supportive evidence for this hypothesis by exploiting variation in management practices across firms from a survey of Turkish manufacturing firms conducted in 2018. We illustrate the drivers of firm heterogeneity in management practices, which may also help explain the differences in performance and test them in a multiple regression framework. The results show that tougher product market competition, consistent with the previous evidence from developed country contexts, is a significant driver of better management practices. Firm size, multinational status, ownership status, work effort put in by managers and non-managers, and the level of the managerial hierarchy are found to be significant determinants of management practices which corroborate the findings of previous literature. Family ownership combined with family management is a significant deterrent to good management practices and is strongly associated with declines in firm economic performance. However, family firms with primogeniture CEO successions are found to be similarly poorly managed as non-primogeniture family firms while the evidence from developed countries suggests primogeniture CEO successions as the sole reason for the poor management practices of family firms. In contrast to the international literature, we find no effect of the human capital of the workforce on management practices; however, reverse causality may be clouding the inference.

After establishing a strong correlation between better management practices and improved firm performance, we try to answer whether these better management practices come at the expense of reduced work-life balance. We find that better-managed firms not only exhibit better economic performance, but also provide their employees with better working conditions resulting in improved employee well-being at work. Nevertheless, the results from the examination of the relationship between WLB, competition, and firm performance

suggest that tougher competition, a key factor in adopting better management practices, comes at the expense of reduced WLB. This is probably a consequence of the strong significant negative association of WLB-enhancing practices with firm performance, that prevents firms in highly competitive markets with low profit margins to adopt these better but costly WLB practices.

8.2. Policy Implications

The results have a number of important policy implications. First, the evidence on the performance gains associated with good management practices suggests investment in these modern practices for higher firm performance. A detailed analysis of the firm characteristics and product markets reveals important insights on how to upgrade management. Tougher competition seems to benefit firms in improving their management practices. A better strategy for family firms to upgrade management, and, thereby, firm performance, is to employ professional external managers rather than family members. Considering that more than a quarter of firms are family-owned and family-managed in Türkiye, the return on the efforts to improve management practices in these firms may contribute largely to aggregate productivity. Governments may facilitate an increase in the productivity level of its firms' stocks, and, as a result, achieve higher aggregate outputs, by facilitating the entry of multinational firms to the products markets, introducing market regulations that eases firms to grow large and incentivizes firms to adopt better organization schemes (e.g., dispersed shareholder ownership). Lastly, the strong negative association of better WLB with firm performance, conditional on management practices, refutes its promised benefit of higher firm performance argued by the supporters of WLB policies. However, it is important to remember that a lot of WLB is about reconciling work and family, which provides a benefit that especially affects women's participation in the workforce, not only intensively but also extensively. For many women, without this flexibility there is no option to enter the workforce at all. Furthermore, this important finding suggests there may be a case to make some WLB policies more universal, at least at the sectoral level, to reduce a potential race to

the bottom in highly competitive markets. This is a concern of unions when collective bargaining deals with benefits like maternity leave, resulting in skewed benefits at firms with scarce workforces or market dominance. One policy implication could be to make some WLB benefits universal if the externalities on society warrant it. Nevertheless, training programs—as a way to improve productivity and pay for the reduced work hours that the WLB benefits imply—or incentives aided by the government may help firms to adopt better WLB practices without sacrificing performance. Finally, while the analysis covers only the pre COVID-19 pandemic period, we think the results offer interesting baseline insights on the relationship between quality of management and firms' performance. This can be particularly informative, from an operational and policy standpoint, for jobs operation currently ongoing in Türkiye, and/or for existing government programs, in case they include training options for firms beneficiary of loans or grants, aimed to improve management quality, performance and skills.

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Tables and Figures

Table 1: **Distribution of average management scores**

	Percentile							
	10th	25th	50th	75th	90th	Mean	Standard deviation	Observations
World	1.94	2.39	2.83	3.28	3.67	2.83	0.66	11,370
Türkiye 2014	2.22	2.44	2.67	2.94	3.22	2.71	0.40	332
Türkiye 2018	1.94	2.25	2.61	3.00	3.28	2.62	0.53	1,168

Notes: The table presents the key parameters of average management score distributions of Türkiye and 34 developing and developed countries. "Türkiye 2014" and "World" refer to the distributions estimated from WMS data. "Türkiye 2018" refers to the distribution estimated from WB 2018.

Table 2: **Manufacturing subsectors and management dimension scores**

Manufacturing subsectors	Overall Management	Monitoring Management	Targets Management	Incentives Management	# of Firms
Man. of other non-metallic products	2.59	2.57	2.64	2.57	252
Textiles	2.60	2.66	**2.55**	2.59	189
Clothing	**2.67**	**2.70**	**2.73**	2.61	135
Man. of electrical equipment	2.65	2.59	2.69	**2.68**	157
Food products	2.60	2.59	2.64	2.57	131
Rubber and plastic products	**2.57**	**2.56**	2.63	**2.53**	77
Man. of wood and cork products	2.64	2.67	2.59	2.66	75
All other man. subsectors	2.65	2.66	2.70	2.60	152
Türkiye	2.62	2.62	2.65	2.60	1,168

Notes: Each management dimension is the average of relevant questions in WB 2018 at the manufacturing subsector level. The highest and lowest averages in each column are denoted in bold. Averages of the management dimensions in Türkiye are reported in last row.

Table 3: **Firm performance estimations**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Estimation method	OLS				Probit		Ordered Probit
Dependent variable	Log plant size	Log plant size	Log plant size	Log plant size	Firm size>100 (binary)	Firm size>250 (binary)	Firm size (ordinal)
Average management score	-0.092 (0.111)	-0.094 (0.113)	0.077 (0.058)	0.136** (0.067)	0.400*** (0.077)	0.560*** (0.077)	0.491*** (0.065)
Province and subsector dummies	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	No	No	Yes	Yes	Yes	Yes	Yes
Noise controls	No	No	No	Yes	Yes	Yes	Yes
R^2	0.001	0.034	0.717	0.721	0.114	0.134	0.075
N	1130	1130	924	924	947	947	947

Notes: Coefficient estimates on management scores from the regressions of plant and firm size are reported. Standard errors are clustered at province by sector and are in parenthesis. The dependent variables are logarithm of plant size (columns 1-4), a binary indicator of firm size (larger than 100 and 250 employees in columns 5 and 6 respectively), and the ordinal firm size (column 7) with the following order of firm sizes: 50-100, 101-250, 251-500, 501-750, 751-1000, 1001-5000, 5001 and above. Province and subsector dummies include a full set of 9 province and 8 manufacturing subsector dummies. Firm controls include, separately for managers and non-managers, the logarithm of average weekly working hours, the percentage of workforce with college degree (separately for managers and non-managers), the percentage of workforce that is female (separately for managers and non-managers), the logarithm of firm age, and the percent of employees unionized. Noise controls include seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, manager's willingness to share information and his/her patience. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 4: **Management quality and market competition**

Dependent var.	Average management score											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Independent var.												
Number of competitors	-0.000***	-0.000***	-0.000**	-0.000***								
	(0.000)	(0.000)	(0.000)	(0.000)								
Log number of competitors					-0.018**	-0.018*	-0.014	-0.009				
					(0.009)	(0.009)	(0.009)	(0.010)				
Competition intensity									0.015	0.019	0.042	0.042
									(0.027)	(0.028)	(0.029)	(0.026)
Province & sector dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Firm controls	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Noise controls	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
R^2	0.005	0.017	0.104	0.295	0.004	0.016	0.099	0.283	0.000	0.013	0.102	0.295
N	986	986	822	822	917	917	766	766	986	986	822	822

Notes: The results from regressions of the overall management score on three different measures of market competition are reported. Standard errors are clustered at province by sector and reported in parenthesis. The independent variables are: the number of competitors (column 1-4), the log number of competitors (columns 5-8), and a variable that captures competition intensity (columns 9-12)(taking the value zero for no reported competitors, the value of one for less than 10 competitors (median number of competitors), the value of two for more than or equal to 10 competitors. Province and subsector dummies include a full set of 9 province and 8 manufacturing subsector dummies. Firm controls include, separately for managers and non-managers, the logarithm of average weekly working hours, the percentage of workforce with college degree (separately for managers and non-managers), the percentage of workforce that is female (separately for managers and non-managers), the logarithm of firm age, firm size, and the percent of employees unionized. Noise controls include seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, a manager's willingness to share information and his/her patience. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 5: **Management and labor productivity by market competition at plant size breakdown**

Quartile of market competition	Plant size				
	Average within quartile	1-9	10-49	50-249	250+
1st	2.61	2.66	2.67	2.46	2.67
	(27,077)	(13,156)	(28,114)	(41,949)	(69,407)
2nd	2.63	2.63	2.70	2.61	2.71
	(30,271)	(13,319)	(28,072)	(42,328)	(64,502)
3rd	2.71	2.71	2.58	2.67	2.91
	(28,809)	(13,151)	(26,816)	(42,746)	(64,698)
4th	2.56	2.62	2.50	2.48	2.77
	(31,857)	(13,341)	(28,168)	(40,462)	(65,299)

Notes: Table 5 presents the average management score and average annual value added per worker in constant 2010 TLs (in parenthesis) of plants in each quartile of market competition, where market competition is measured by the number of competitors. Plants are categorized based on the number of employees, and the first column shows the mean management score and annual value added per worker of all plants in each quartile of competition. The top 1% of firms in the number of competitors distribution is trimmed. Value-added per worker data is retrieved from Directorate General for Productivity, Ministry of Industry and Technology (MoIT).

Table 6: **Management and family ownership**

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Average management score				
Sample	All firms	All firms	All firms	All firms	All but founder firms
Independent variables					
Family	-0.030			0.043	0.075
	(0.030)			(0.046)	(0.053)
Family, family CEO		-0.080**		-0.128**	-0.140***
		(0.031)		(0.053)	(0.052)
Family, family CEO & primogeniture			-0.032	0.043	0.039
			(0.048)	(0.054)	(0.053)
General controls	Yes	Yes	Yes	Yes	Yes
R^2	0.276	0.280	0.276	0.281	0.277
N	947	947	947	947	692

Notes: The results from regressions of the overall management score on three different indicators of family ownership/management are reported. Standard errors are clustered at province b -sector and reported in parenthesis. Family indicates firms with largest shareholding block belonging to the descendants of the founder (2nd generation or beyond). Family, family CEO indicates family-owned firms that are also run by a family member. Family, family CEO & primogeniture indicates family-owned and family-managed firms with the selected CEO being the eldest son upon succession. General controls include: province and subsector dummies (a full set of 9 province and 8 manufacturing subsector dummies), firm controls that contain separately for managers and non-managers the logarithm of average weekly working hours, the percentage of workforce with college degree (separately for managers and non-managers), the percentage of workforce that is female (separately for managers and non-managers), the logarithm of firm age, firm size, the percent of employees unionized, and noise controls which contain seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, manager's willingness to share information and his/her patience. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 7: **Family ownership/management and firm performance**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Estimation Method	OLS				Probit				Probit				Ordered Probit			
The cells in the table contain	Coefficient Estimates				Average marginal effects				Average marginal effects				Coefficient Estimates			
Dependent Variable	Log plant size				Firm size>100 (binary)				Firm size>250 (binary)				Firm size (ordinal)			
Family	0.076			0.115	0.082***			0.123***	0.052**			0.093***	0.166**			0.309***
	(0.072)			(0.091)	(0.030)			(0.044)	(0.025)			(0.036)	(0.073)			(0.117)
Family, family CEO		0.030		-0.163*		0.033		-0.086*		0.002		-0.074		0.010		-0.263**
		(0.071)		(0.090)		(0.029)		(0.050)		(0.031)		(0.046)		(0.075)		(0.132)
Family, family CEO & primogeniture			0.225**	0.284***			0.069	0.060			0.023	0.031			0.081	0.103
			(0.102)	(0.105)			(0.046)	(0.058)			(0.044)	(0.057)			(0.115)	(0.143)
General controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.720	0.720	0.721	0.722	0.105	0.101	0.101	0.107	0.110	0.106	0.107	0.113	0.061	0.059	0.060	0.063
N	924	924	924	924	947	947	947	947	947	947	947	947	947	947	947	947

Notes: The table reports the results from regressions of plant and firm size against family ownership/management indicators, plus a set of general controls. Standard errors are clustered at province by sector and reported in parenthesis (delta method standard errors which account for clustering are reported in columns 5-12). The dependent variables are the logarithm of plant size (columns 1-4), a binary indicator of firm size (larger than 100 and 250 employees in columns 5-8 and 9-12 respectively), and the ordinal firm size (columns 13-16). Log plant size and ordinal firm size regressions report coefficient estimates, while for ease of interpretation, probit models of firm size report average marginal effects of covariates. Family indicates firms with largest shareholding block belonging to the descendants of the founder (2nd generation or beyond). Family, family CEO indicates family-owned firms that are also run by a family member. Family, family CEO & primogeniture indicates family-owned and family-managed firms with the selected CEO being the eldest son upon succession. General controls include: province and subsector dummies (a full set of 9 province and 8 manufacturing subsector dummies), firm controls that contain separately for managers and non-managers, the logarithm of average weekly working hours, the percentage of workforce with college degree (separately for managers and non-managers), the percentage of workforce that is female (separately for managers and non-managers), the logarithm of firm age, the percent of employees unionized, noise controls which contain seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, the manager's willingness to share information, and his/her patience. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 8: **Determinants of Management Quality**

Dependent Variable	Overall Management	Monitoring Management	Targets Management	Incentives Management
Family	0.052	0.068	0.022	0.061
	(0.050)	(0.063)	(0.077)	(0.056)
Family, family CEO	-0.152***	-0.143*	-0.173**	-0.146**
	(0.057)	(0.073)	(0.074)	(0.073)
Family, family CEO & primogeniture	0.088	0.068	0.072	0.117*
	(0.056)	(0.076)	(0.077)	(0.063)
Multinational	0.130***	0.081	0.092	0.199***
	(0.050)	(0.061)	(0.074)	(0.053)
Log work hours (managers)	0.348***	0.293**	0.327**	0.412**
	(0.127)	(0.135)	(0.133)	(0.204)
Log work hours (non-managers)	-0.382**	-0.158	-0.417	-0.549***
	(0.157)	(0.168)	(0.255)	(0.206)
College share (managers)	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.001)
College share (non-managers)	0.000	0.000	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Female share (managers)	0.001	0.001	0.003	0.000
	(0.001)	(0.002)	(0.002)	(0.002)
Female share (non-managers)	0.001	0.001	0.000	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Exporter dummy	0.030	0.060	0.040	-0.003
	(0.038)	(0.049)	(0.047)	(0.043)
Firm age (log)	-0.008	0.007	0.031	-0.048*
	(0.027)	(0.030)	(0.035)	(0.029)
Union density (% of employees)	0.001	0.001	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Competition intensity	0.052**	0.090**	0.019	0.043
	(0.026)	(0.038)	(0.039)	(0.027)
Managerial hierarchy	0.024***	0.017	0.021*	0.032***
	(0.008)	(0.011)	(0.011)	(0.011)
Firm size				
101-250	0.061	0.034	0.032	0.104**
	(0.037)	(0.048)	(0.047)	(0.043)
251-500	0.162***	0.118	0.143**	0.213***
	(0.051)	(0.072)	(0.066)	(0.054)
501-750	0.130	0.207	0.259**	-0.027
	(0.094)	(0.142)	(0.120)	(0.089)
751-1000	0.154*	0.151	0.236**	0.098
	(0.085)	(0.124)	(0.095)	(0.099)
1001-5000	0.431***	0.335**	0.419***	0.523***
	(0.109)	(0.131)	(0.127)	(0.121)
5000 and above	0.382***	0.221*	0.649***	0.329**
	(0.119)	(0.118)	(0.112)	(0.162)
Province & sector dummies	Yes	Yes	Yes	Yes
Managerial autonomy control	Yes	Yes	Yes	Yes
Noise controls	Yes	Yes	Yes	Yes
R^2	0.316	0.198	0.204	0.341
N	822	822	822	822

Notes: OLS estimates of determinants of firm management quality are reported. Standard errors are clustered at province by sector level and are in parenthesis. The dependent variables are management dimension scores, and in the first column the dependent variable is the average across all 18 management practices. The independent variables include firm characteristics that are of interest, 9 province and 8 manufacturing subsector dummies, and survey noise controls. Family indicates firms with largest shareholding block belonging to the descendants of the founder (2nd generation or beyond). Family, family CEO indicates family-owned firms that are also run by a family member. Family, family CEO & primogeniture indicates family-owned and family-managed firms with the selected CEO being the eldest son upon succession. Competition intensity takes the value of zero for no reported competitors, the value of one for less than 10 competitors (median number of competitors), and the value of two for more than or equal to 10 competitors. The exporter dummy takes the value of one for the firms that export more than 50% of their total annual sales. Managerial hierarchy controls for the number of levels in the corporate ladder between workers and the CEO of the firm. Managerial autonomy controls for the degree of autonomy of the manager

in allocating tasks across workers in the firm from a scale of 1 (workers make all the decisions) to 5 (managers make all the decisions). Noise controls contain seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, the manager's willingness to share information and his/her patience. The omitted base category for firm size is 50-100 employees. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 9: **WLB and firm characteristics**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable	Composite z-score of the WLB practices						
Percentage of workforce with college degree (z-score)	0.038						
	(0.030)						
Manager has master's or PhD		0.144*					
		(0.080)					
Average weekly work hours (z-score)			-0.015				
			(0.032)				
Average yearly holiday days				0.007			
				(0.005)			
Percentage of female managers (z-score)					-0.032		
					(0.030)		
Percentage of female non-managers (z-score)						0.009	
						(0.035)	
Percentage of unionized workers (z-score)							0.156***
							(0.036)
General controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.028	0.030	0.027	0.037	0.028	0.029	0.049
N	996	1124	1117	1073	1107	1049	1124

Notes: The coefficient estimates of various workplace and workforce characteristics that are supposed to be correlated with WLB outcomes from regressing z-score of the WLB practices measure separately against each firm characteristic plus a set of controls are reported. The dependent variable is the average z-score across the four standardized work-life balance practices: "working from home allowed", "switching from full-time to part-time work is allowed", "financial support for childcare is provided", and "childcare flexibility", which is re-normalized to mean zero and a standard deviation of one. General controls include province and sector dummies, ordinal firm size, and the logarithm of firm age. Standard errors robust to clustering at province-by-sector level are in parenthesis. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 10: **WLB and average management quality**

	(1)	(2)	(3)	(4)
Dependent Variable	Composite z-score of the WLB practices			
Average management score	0.289***	0.244***	0.208***	0.191***
	(0.055)	(0.065)	(0.064)	(0.066)
Family			-0.074	0.002
			(0.103)	(0.114)
Family, family CEO			0.119	0.092
			(0.112)	(0.127)
Family, family CEO & primogeniture			-0.078	-0.066
			(0.108)	(0.116)
Multinational			0.233*	0.087
			(0.126)	(0.137)
Exporter			0.054	0.009
			(0.078)	(0.078)
Percentage of employees with college degree (z score)			0.043	0.023
			(0.030)	(0.029)
Manager has master's or PhD			0.092	0.139
			(0.082)	(0.090)
Standard controls	No	Yes	Yes	Yes
Correlates of WLB	No	No	No	Yes
R^2	0.023	0.080	0.093	0.118
N	1168	1124	996	907

Notes: The results from regressing composite z-score of the WLB practices against average management score and a set of controls are reported. Standard errors are clustered at province by sector level and are in parenthesis. The dependent variable is the average z-score across the four standardized work-life balance practices: "working from home allowed", "switching from full-time to part-time job is allowed", "financial support for childcare is provided", and "childcare flexibility", which is re-normalized to mean zero and a standard deviation one. Family indicates firms with largest shareholding block belonging to the descendants of the founder (2nd generation or beyond). Family, family CEO indicates family-owned firms that are also run by a family member. Family, family CEO & primogeniture indicates family-owned and family-managed firms with the selected CEO being the eldest son upon succession. The exporter dummy takes a value of one for the firms that export more than 50% of their total annual sales. Standard controls include a set of 9 province and 8 manufacturing subsector dummies, an ordinal firm size variable, the log firm age, and the survey noise controls which contain seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, the manager's willingness to share information and his/her patience. Correlates of WLB include average weekly work hours, number of yearly holiday days, female share of managers, female share of non-managers, and the proportion of employees who are union members. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 11: **WLB and competition**

	(1)	(2)	(3)	(4)
Dependent Variable	Composite z-score of the WLB practices			
Independent variables				
Number of competitors	0.000**			
	(0.000)			
Number of competitors (log)		0.001		
		(0.019)		
Competition intensity (continuous)			-0.083	
			(0.058)	
Competition intensity (discrete)				
Few competitors (<10)				-0.270
				(0.176)
Many competitors (≥10)				-0.285*
				(0.167)
Full controls	Yes	Yes	Yes	Yes
R^2	0.057	0.064	0.059	0.061
N	856	798	856	856

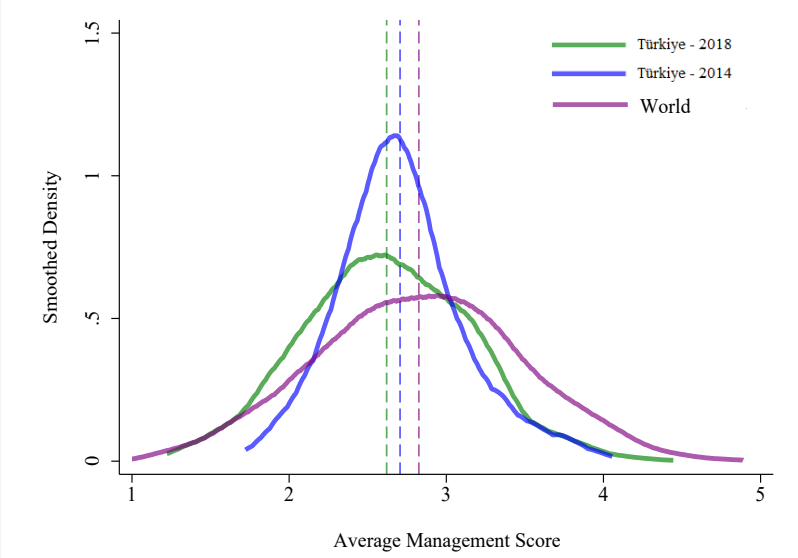
Notes: The results from regressing composite z-score of the WLB practices against competition indicators and a set of controls are reported. Standard errors are clustered at province by sector level and are in parenthesis. The dependent variable is the average z-score across the four standardized work-life balance practices: "working from home allowed", "switching from full-time to part-time job is allowed", "financial support for childcare is provided", and "childcare flexibility", which is re-normalized to mean zero and a standard deviation of one. The number of competitors is the manager's self-reported degree of competition the firm faces in the industry. Competition intensity, treated both as continuous and discrete, takes a value of zero for no reported competitors, a value of one for less than 10 competitors (median number of competitors), a value of two for more than or equal to 10 competitors. The omitted base group for the specifications with discrete competition intensity variable constitutes of firms with no competitors. Full controls include a set of 9 province and 8 manufacturing subsector dummies, an ordinal firm size variable, the log firm age, the percentage of workforce with college degrees, a dummy for the manager with a master's or PhD degree, and the survey noise controls which contain seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, the manager's willingness to share information and his/her patience. Statistically significant at: * 10%, ** 5%, *** 1%.

Table 12: **WLB and firm performance**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation method	OLS		Probit				Ordered Probit	
Dependent variable	Log plant size	Log plant size	Firm size>100 (binary)	Firm size>100 (binary)	Firm size>250 (binary)	Firm size>250 (binary)	Firm size (ordinal)	Firm size (ordinal)
WLB practices z-score	-0.110**	-0.117**	-0.072*	-0.092**	-0.076	-0.097	-0.078*	-0.096**
	(0.054)	(0.055)	(0.041)	(0.042)	(0.060)	(0.061)	(0.040)	(0.042)
Average management score		0.182		0.456***		0.564***		0.518***
		(0.113)		(0.073)		(0.085)		(0.065)
Full controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.326	0.328	0.103	0.121	0.126	0.154	0.067	0.084
N	887	887	906	906	906	906	907	907

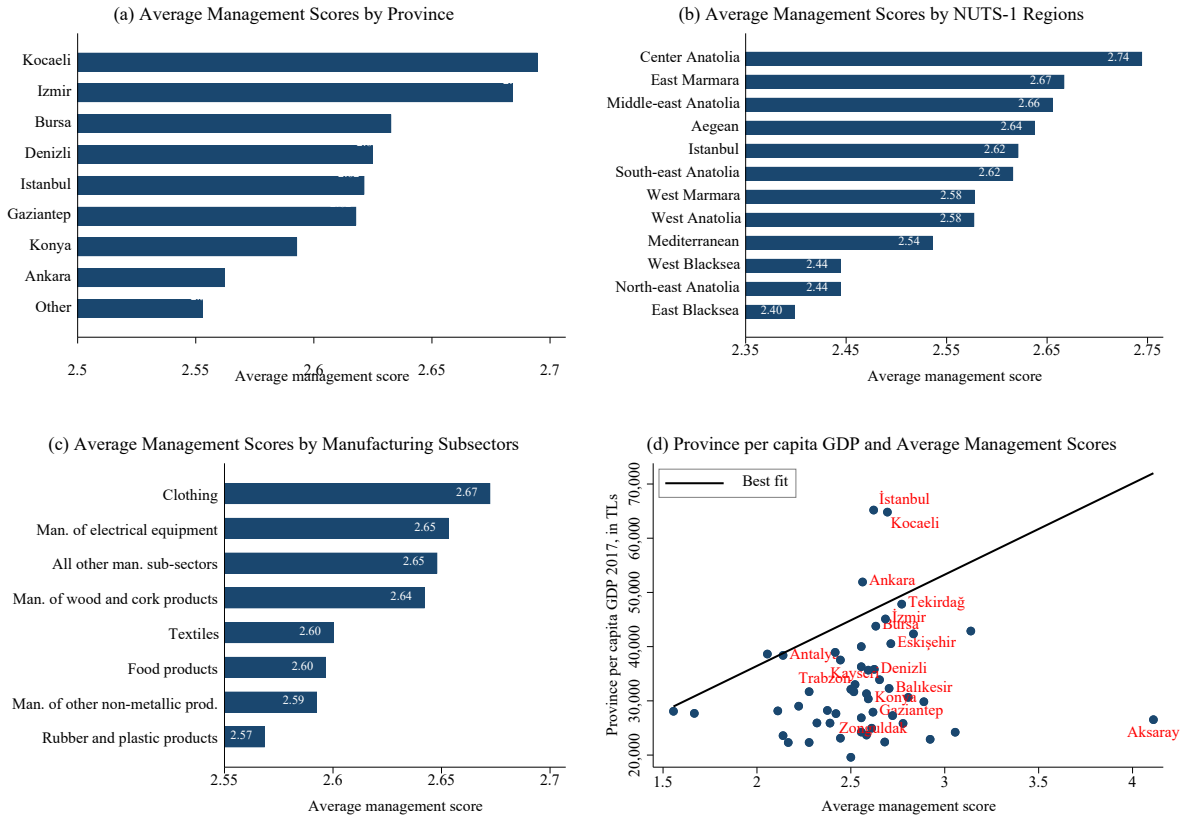
Notes: The table presents the coefficient estimates from firm size regressions on WLB practices z-score, average management score and a set of full controls. Standard errors are clustered at province by sector and are in parenthesis. The dependent variables are: the logarithm of plant size (columns 1-2), a binary indicator of firm size (larger than 100 in columns 3 and 4, larger than 250 employees in columns 5 and 6), and ordinal firm size (columns 7 and 8) with the following order of firm sizes: 50-100, 101-250, 251-500, 501-750, 751-1000, 1001-5000, 5001 and above. WLB practices z-score is the average z-score across the four standardized work-life balance practices: "working from home allowed", "switching from full-time to part-time job is allowed", "financial support for childcare is provided", and "childcare flexibility", which is re-normalized to mean zero and a standard deviation of one. The management score is the average across all 18 firm management practices. Full controls include, besides the standard survey noise controls (seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, the manager's willingness to share information and his/her patience), province and manufacturing subsector dummies, log firm age, proportion of employees with college degrees, a dummy for the manager with a master's or PhD degree, average weekly work hours, multinational ownership, and a set of correlates of WLB including average share of female managers, share of female workers, and the share of employees who are union members. Statistically significant at: * 10%, ** 5%, *** 1%.

Figure 1: **Histogram plot of average management scores**



Notes: The figure plots are smoothed kernel estimates of the manufacturing firm distribution of average management scores. The green line is estimated using WB 2018 and includes 1,168 data points. The blue and purple lines are from WMS where the former is estimated using 332 Turkish firms from 2014 and the latter comprises 11,370 firms from 34 countries other than Türkiye. The vertical lines with respective colors denote the average management scores of each distribution.

Figure 2: **Average management scores by region, province, and subsector, and provincial income-management quality relationship**



Notes: In each panel average management scores are calculated at the respective breakdown. There are 12 NUTS-1 regions in Türkiye which group provinces that are similar in characteristics such as population, socioeconomic development level, geography, per capita GDP, and urbanization rate. In panel (d) observations are weighted by the total number of manufacturing firms in provinces in 2017 and the reported provincial income is annual nominal GDP per capita.

Figure 3: **Competition and average management quality**

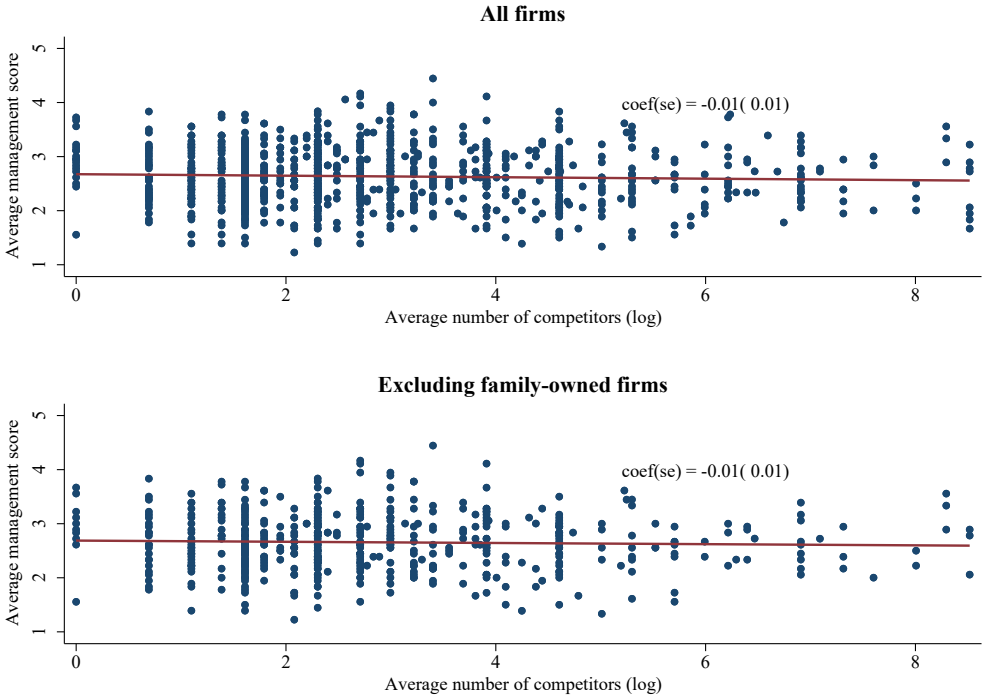
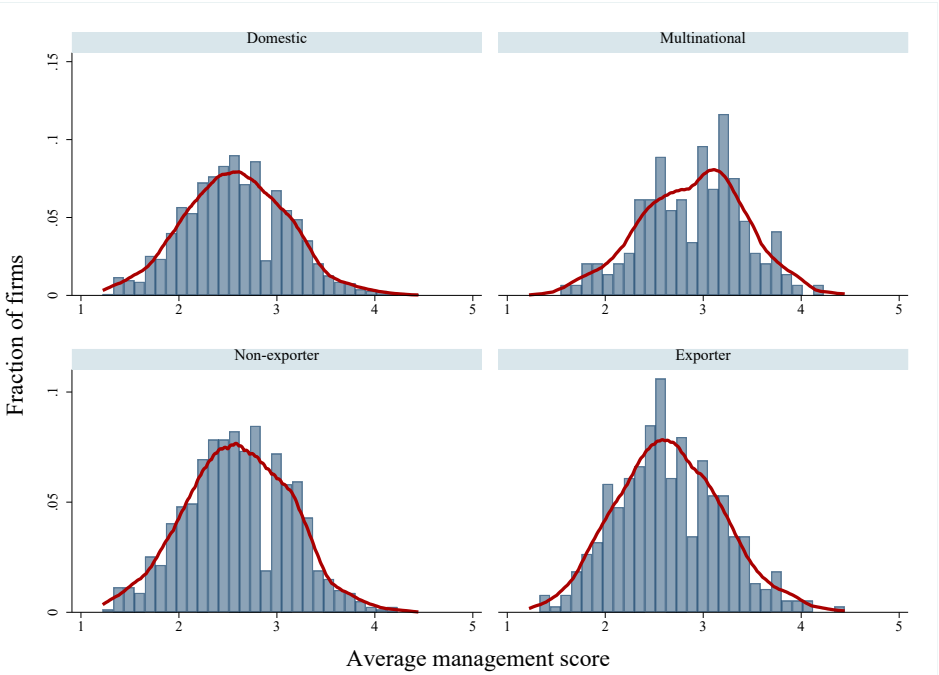
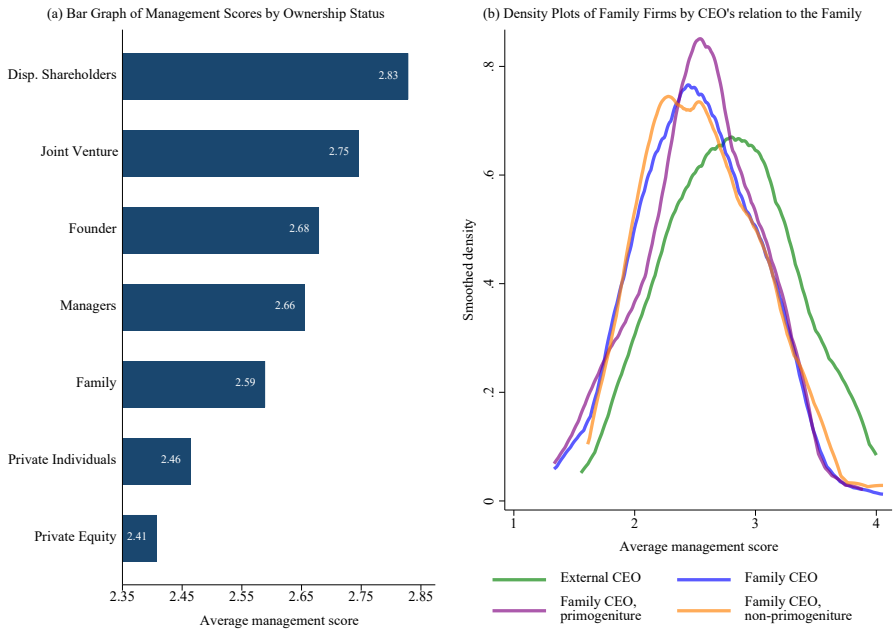


Figure 4: **Histogram plots of management scores by multinational/exporter status**



Notes: The average management score for domestic (multinational) is 2.58(2.89). The corresponding scores for non-exporters and exporters are 2.60 and 2.65, respectively. Bars denote the actual data values and red lines denote the kernel estimates of management score densities.

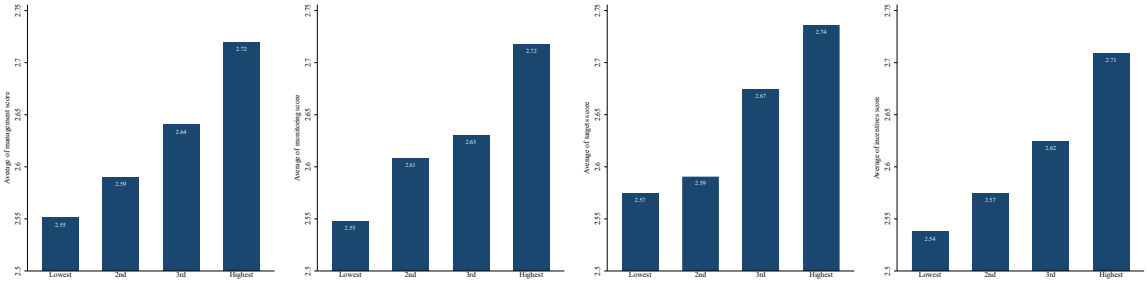
Figure 5: Ownership and management scores



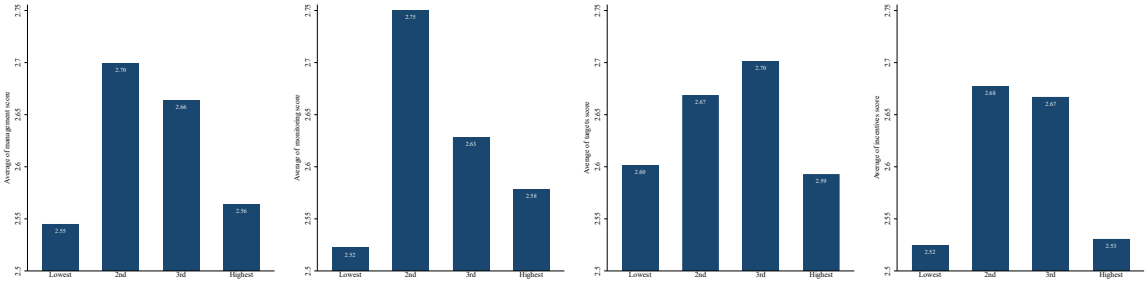
Notes: Panel (a) presents a bar graph of management scores by ownership. Panel (b) presents kernel density plots of family firm management by differentiating first between external and family CEO firms and then disaggregating family CEO firms by whether the CEO is the oldest son or any other family member. Average management scores in panel (b) for external CEO, family CEO, family CEO-primogeniture, family CEO-non-primogeniture are 2.79, 2.52, 2.54, 2.57 respectively.

Figure 6: Management scores by quartiles of college share distribution

(a) Quartiles of workers' college share distribution and management scores



(b) Quartiles of managers' college share distribution and management scores



Appendix

Table A1: Survey questions on management practices

Categories	*Score from 1–5 based on:*
1) Introduction of modern manufacturing techniques	What aspects of manufacturing have been formally introduced, including just-in-time delivery from suppliers, autonomation, flexible manpower, support systems, attitudes, and behavior?
2) Rationale for introduction of modern manufacturing techniques	Were modern manufacturing techniques adopted just because others were using them, or are they linked to meeting business objectives like reducing costs and improving quality?
3) Process problem documentation	Are process improvements made only when problems arise, or are they actively sought out for continuous improvement as part of a normal business process?
4) Performance tracking	Is tracking ad hoc and incomplete, or is performance continually tracked and communicated to all staff?
5) Performance review	Is performance reviewed infrequently and only on a success/failure scale, or is performance reviewed continually with an expectation of continuous improvement?
6) Performance dialogue	In review/performance conversations, to what extent is the purpose, data, agenda, and follow-up steps (like coaching) clear to all parties?
7) Consequence management	To what extent does failure to achieve agreed objectives carry consequences, which can include retraining or reassignment to other jobs?
8) Target balance	Are the goals exclusively financial, or is there a balance of financial and nonfinancial targets?
9) Target interconnection	Are goals based on accounting value, or are they based on shareholder value in a way that works through business units and ultimately is connected to individual performance expectations?
10) Target time horizon	Does top management focus mainly on the short term, or does it visualize short-term targets as a "staircase" toward the main focus on long-term goals?
11) Targets are stretching	Are goals too easy to achieve, especially for some "sacred cows" areas of the firm, or are goals demanding but attainable for all parts of the firm?
12) Performance clarity	Are performance measures ill-defined, poorly understood, and private, or are they well-defined, clearly communicated, and made public?
13) Managing human capital	To what extent are senior managers evaluated and held accountable for attracting, retaining, and developing talent throughout the organization?
14) Rewarding high performance	To what extent are people in the firm rewarded equally irrespective of performance level, or are rewards related to performance and effort?
15) Removing poor performers	Are poor performers rarely removed, or are they retrained and/or moved into different roles or out of the company as soon as the weakness is identified?
16) Promoting high performers	Are people promoted mainly on the basis of tenure, or does the firm actively identify, develop, and promote its top performers?
17) Attracting human capital	Do competitors offer stronger reasons for talented people to join their companies, or does a firm provide a wide range of reasons to encourage talented people to join?
18) Retaining human capital	Does the firm do relatively little to retain top talent or do whatever it takes to retain top talent when they look likely to leave?

Source: Bloom and Van Reenen (2010).
Notes: Overall Management score is the average score across all eighteen questions. Monitoring management score is the average across questions 1-6; Targets management score is the average across questions 8-12; Incentives management score is the average across questions 7 and 13-18.

Table A2: Family ownership and competition

Dependent variable	Family ownership			
	(1)	(2)	(3)	(4)
		Panel A. Main specification		
Independent variables				
Number of competitors	0.000			
	(0.000)			
log(number of competitors)		0.044		
		(0.032)		
Competition intensity (continuous)			0.053	
			(0.084)	
Competition intensity (discrete)				
Few competitors				0.006
				(0.175)
Many competitors				0.076
				(0.185)
pseudo R^2	0.085	0.085	0.084	0.084
N	822	766	822	822
	Panel B. with additional controls for multinational-exporter status and managerial organization schemes			
Independent variables				
Number of competitors	0.000			
	(0.000)			
log(number of competitors)		0.048		
		(0.032)		
Competition intensity (continuous)			0.043	
			(0.083)	
Competition intensity (discrete)				
Few competitors				-0.022
				(0.177)
Many competitors				0.045
				(0.185)
pseudo R^2	0.096	0.095	0.094	0.094
N	822	766	822	822

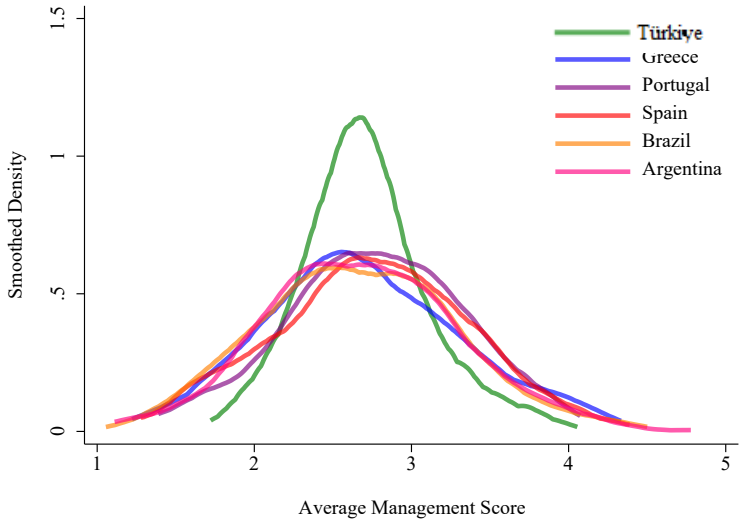
Notes: The results from probit estimation of family ownership on competition and standard set of controls including 9 province and 8 manufacturing subsector dummies, noise controls, and firm characteristics: the logarithm of average weekly working hours, separately for managers and non-managers, the percentage of workforce with college degree (separately for managers and non-managers), the percentage of workforce that is female (separately for managers and non-managers), the logarithm of firm age, firm size, and the percent of employees unionized. Survey noise controls include seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, manager's willingness to share information and his/her patience. Panel B differs from Panel A by extending the set of firm controls with indicators for exporter and multinational status and controls for managerial autonomy and managerial hierarchy, i.e., the number of levels in the corporate ladder between workers and the CEO of the firm, and the degree of autonomy of the manager in allocating tasks across workers in the firm from a scale of 1 (workers make all the decisions) to 5 (managers make all the decisions). The independent variables of interest in each panel are: the number of competitors in levels, log number of competitors, and an ordinal variable that captures competition intensity treated both as continuous and discrete in alternative specifications which takes the value of zero for no reported competitors, the value of one for less than 10 competitors (median number of competitors), the value of two for more than or equal to 10 competitors. The base group for the specifications with discrete competition intensity variable is firms with no competitors. Standard errors are clustered at province-by-sector and reported in parenthesis. Statistically significant at: * 10%, ** 5%, *** 1%.

Table A3: **Management quality and market competition, conditional on family ownership**

Dependent Variable	Average Management Score											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					Panel A. Main specification							
Independent Variables												
# of competitors	-0.000***	-0.000***	-0.000**	-0.000***								
	(0.000)	(0.000)	(0.000)	(0.000)								
log(# of competitors)					-0.018**	-0.017*	-0.014	-0.009				
					(0.009)	(0.009)	(0.009)	(0.010)				
Competition intensity									0.015	0.019	0.043	0.042
									(0.027)	(0.028)	(0.029)	(0.026)
Family	-0.051	-0.043	-0.016	-0.027	-0.044	-0.038	-0.013	-0.026	-0.053	-0.046	-0.021	-0.031
	(0.033)	(0.033)	(0.036)	(0.031)	(0.034)	(0.035)	(0.039)	(0.034)	(0.033)	(0.034)	(0.036)	(0.031)
Province & sector dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Firm controls	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Noise controls	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
R^2	0.008	0.019	0.104	0.296	0.006	0.018	0.099	0.283	0.003	0.014	0.103	0.295
N	986	986	822	822	917	917	766	766	986	986	822	822
					Panel B. with additional controls for multinational-exporter status and managerial organization schemes							
Independent Variables												
# of competitors	-0.000***	-0.000***	-0.000**	-0.000***								
	(0.000)	(0.000)	(0.000)	(0.000)								
log(# of competitors)					-0.018**	-0.017*	-0.012	-0.007				
					(0.009)	(0.009)	(0.010)	(0.010)				
Competition intensity									0.015	0.019	0.056*	0.053**
									(0.027)	(0.028)	(0.029)	(0.026)
Family	-0.051	-0.043	-0.011	-0.022	-0.044	-0.038	-0.008	-0.023	-0.053	-0.046	-0.016	-0.027
	(0.033)	(0.033)	(0.036)	(0.033)	(0.034)	(0.035)	(0.039)	(0.034)	(0.033)	(0.034)	(0.037)	(0.032)
Province & sector dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Firm controls	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Noise controls	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
R^2	0.008	0.019	0.127	0.309	0.006	0.018	0.120	0.294	0.003	0.014	0.127	0.309
N	986	986	822	822	917	917	766	766	986	986	822	822

Notes: The results from regressions of the overall management score on three different measures of market competition are reported. Standard errors are clustered at province by sector and reported in parenthesis. The independent variables of interest in each panel are the number of competitors (column 1-4), the log number of competitors (columns 5-8), and a variable that captures competition intensity (columns 9-12): taking the value of zero for no reported competitors, the value of one for less than 10 competitors (median number of competitors), and the value of two for more than or equal to 10 competitors. Family, a binary variable, indicates firms with largest shareholding block belonging to the descendants of the founder (2nd generation or beyond). Province and subsector dummies include a full set of 9 province and 8 manufacturing subsector dummies. Firm controls include separately for managers and non-managers the logarithm of average weekly working hours, the percentage of workforce with college degree (separately for managers and non-managers), the percentage of workforce that is female (separately for managers and non-managers), the logarithm of firm age, firm size, and the percent of employees unionized. Noise controls include seniority and job tenure of the manager, the extent of manager's knowledge about the firm and the plant, a female dummy for the manager, the manager's willingness to share information and his/her patience. Panel B differs from Panel A by extending the set of firm controls with indicators for exporter and multinational status and controls for managerial autonomy and managerial hierarchy, i.e., the number of levels in the corporate ladder between workers and the CEO of the firm, and the degree of autonomy of the manager in allocating tasks across workers in the firm from a scale of 1 (workers make all the decisions) to 5 (managers make all the decisions). Statistically significant at: * 10%, ** 5%, *** 1%.

Figure A1: **Histogram plot of average management scores for select countries**



Notes: The figure plots the smoothed kernel estimates of the manufacturing firm distribution of average management scores for upper-middle-income countries Türkiye, Brazil and Argentina, and Southern-European countries Greece, Spain, Portugal.

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ABSTRACT

The central hypothesis of this research is that there is a strong, positive correlation between good management practices and firm performance, for which we find strong evidence in a survey on management practices of Turkish manufacturing firms. To better understand this relationship, we investigated the drivers of firm heterogeneity in management practices. We find that product market competition and firm-level factors such as size, multinational status, work effort in the workforce, the level of managerial hierarchy, and ownership are significant determinants of management practices. We also find that family ownership and management are significant deterrents to good management practices and are strongly associated with declines in firm performance. Through this study, we also explored whether the adoption of better management practices comes at the expense of a good work-life balance. In this regard, we find that better-managed firms, in addition to attaining higher performance levels, provide better working conditions for their employees, resulting in improved employee well-being.

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