

Working paper

# Management in Pakistan

First evidence from  
Punjab

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Renata Lemos  
Ali Choudhary  
John Van Reenen  
Nicholas Bloom

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# Management in Pakistan: First Evidence from Punjab

Renata Lemos

*University of Cambridge & CEP-LSE*

*r.lemos@lse.ac.uk*

Ali Choudhary

*State Bank Pakistan*

*ali.choudhary@sbp.org.pk*

John Van Reenen

*London School of Economics, NBER, CEP-LSE and CEPR*

*j.vanreenen@lse.ac.uk*

Nicholas Bloom

*Stanford University, NBER, CEP-LSE and CEPR*

*nbloom@stanford.edu*

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**Abstract:** We collect data on management practices in the Punjab region of Pakistan (PK-MOPS) following the MOPS approach pioneered by Bloom et al (2013) for US manufacturing plants. Looking across almost 2,000 establishments we find very wide variation in the management score across firms (and areas within Punjab). Pakistan plants have lower average management scores than the US and a higher level of dispersion, suggesting that weakly managed firms exit more slowly in Pakistan. Establishments with higher management scores are significantly more productive, profitable and grow faster. A one standard deviation increase in the management score is associated with 21% higher labor productivity – almost identical to the US. As in other work, well managed firms are larger, more skilled, more likely to export and older. Controlling for these other factors, publicly listed firms have significantly lower management scores than other ownership types, which is different from other countries.

**JEL No:** L2, M2, O32, O33

**Keywords:** management practices, productivity, competition

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# 1 Introduction

The causes and consequences of the vast inequality in productivity across countries has been the subject of research projects for decades and will doubtless continue to be so even as we dig deeper into the mysteries of economic development. Differences in performance between establishments within countries as well as differences across countries have been thoroughly documented (Syverson 2004; Foster, Syverson and Haltiwanger 2008; Hsieh and Klenow 2009).

In recent years, economists have started to pay attention to establishment-level management practices, attempting to move beyond selective case studies and into collecting systematic and reliable data on how firms are managed in order to empirically investigate the relationship between management and performance (Bloom et al, 2014). This emerging literature finds that large variations in management practices across firms and countries are also strongly associated with differences in performance across firms and countries (Ichniowski, Shaw, and Prennushi 1997; Bertrand and Schoar 2003; Black and Lynch 2001; Bloom and Van Reenen 2007; Bloom et al. 2012).

The key purpose of this project is to measure management practices, undertake a rigorous empirical analysis of the management-performance relationship, and investigate the determinants of management practices in manufacturing establishments in Pakistan. We follow the work of Bloom et al (2013) who developed a Management and Organizational Practices Survey (MOPS) administered to over 30,000 plants through the US Census Bureau, the largest survey of management practices to date.

In partnership with the State Bank of Pakistan (SBP) and the Pakistan Bureau of Statistics (PBS), we extend the MOPS methodology for the first time to Pakistan, a country which has recently graduated to lower-middle income classification. In 2014-2015, we conducted face-to-face interviews of plant managers in almost 2,000 establishments in Punjab Province and the Capital Territory of Islamabad.

Our results can be easily summarized. First, as in other countries there is tremendous variation in management practices across establishments. Second, there is a much lower degree of adoption

of leading management practices in Pakistan than in the US, and the dispersion of management scores is also higher (similar to the findings on productivity in Hsieh and Klenow, 2009, comparing the US and India). Third, establishments with more structured management practices have better performance whether measured by productivity, profitability or growth. Interestingly, the magnitude of the correlation is remarkably similar in Pakistan to the US: a one standard deviation improvement in management is associated with a 21% improvement in labor productivity in both countries suggesting a common (within industry) production technology (e.g. Bloom, Sadun and Van Reenen, 2016). Finally, as with other countries, management scores are higher in establishments that are larger, older, which export, and which employ managers and non-managers with more skills. Conditional on these factors, however, establishments owned by Public Limited firms in Pakistan have significantly lower management scores, the opposite from most other countries.

The remainder of this report is organized as follows: Section 2 describes the survey data and methodology used to measure management practices across establishments. Section 3 explores the factors linked to the variation of management practices in Pakistan and compares these practices with practices in the US across establishments, regions and over time. Section 4 investigates the relationship between management practices and establishment performance. Section 5 concludes and highlights areas for future work.

## **2 Data**

### **2.1 Management and Organizational Practices Survey**

The Management and Organizational Practices Survey in Pakistan (henceforth, PK-MOPS) is a project jointly funded by the International Growth Centre (ICG) and the Private Enterprise Development in Low-Income Countries (PEDL) initiative, with significant contributions being made by the State Bank Pakistan (SBP). The PK-MOPS questionnaire is nearly identical to the 2010 US Management and Organizational Practices Survey (henceforth, US-MOPS) questionnaire.<sup>1</sup> We

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<sup>1</sup>The US-MOPS was based on survey tools used by the World Bank (Bloom, Schweiger and Van Reenen, 2012).

have maintained a consistent bank of the same questions and kept them in the same order to allow bench-marking and comparability across both countries. The questionnaire was translated into Urdu and piloted with 82 establishments in Punjab to confirm its applicability to establishments in Pakistan.<sup>2</sup>

In order to administer PK-MOPS, we engaged in a partnership with the Pakistan Bureau of Statistic (PBS) and the State Bank Pakistan (SBP). We successfully obtained responses from 1,999 manufacturing establishments located in the Punjab Province and the Capital Territory of Islamabad from November 2014 to October 2015 through structured face-to-face interviews<sup>3</sup> conducted by PBS field enumerators. SBP provided training, monitoring and oversight of the data collection. Enumerators were instructed to visit and interview the Plant Manager of each establishment. If such a position did not exist in the establishment, enumerators were instructed to interview the Production Manager or the VP of Manufacturing/Operations, that is, the person responsible for overseeing the day-to-day production processes at the establishment.<sup>4</sup> Face-to-face interviews allowed field enumerators to choose the manager to be interviewed, therefore improving consistency and comparability of responses across establishments.

We chose to initially survey establishments in the province of Punjab due to its better response rate in 2010 Census of Manufacturing Industries (CMI) Survey compared with other three provinces of Pakistan and its better law-and-order situation. In the near future, we aim to be able to extend the PK-MOPS to other provinces in Pakistan.

We surveyed establishments about their practices in 2005 and 2010 in order to match the data collected to CMI establishment accounts data (detailed below). It also enabled us to match the same time period as US-MOPS. An obvious concern is that the recall period of 5 and 10 years might be too long to prompt accurate answers. We tried to address this concern in two ways. First during the data collection, enumerators were instructed to refer to the mandate of former President Pervez

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<sup>2</sup>One hundred questionnaires were delivered at this initial stage and 82 were completed - 35 in Lahore, 19 in Faisalabad, 17 in Gujrawala, and 12 in Rawalpindi.

<sup>3</sup>Both Ahmed et al (2014) and Choudhary et al (2016)'s experiences suggests a weak response rates to conventional mail in Pakistan.

<sup>4</sup>The US-MOPS, on the other hand, was sent by mail and electronically to the respondent for each establishment, which was typically the accounting, establishment or human-resource manager.

Musharraf (2001 to 2008) when asking questions about practices in 2005 and to the mandate of former President Asif Ali Zardari (2008 to 2013) when asking questions about practices in 2010, a commonly used aided recall technique to minimize recall error. Second, we compared whether differences in employment – collected both in the MOPS and in the CMI surveys – increase over time. The correlation between MOPS and CMI log of employment numbers for each year is 0.85 and highly significant. So although there is some bias in recall, it still appears to be accurate.

### 2.1.1 Survey Questions

The survey includes 36 multiple choice questions about the establishment. The questions are split into three sections: management practices (16 questions), organization (13 questions) and background characteristics (7 questions). The full set of questions (and their English translation) is in Appendix C.

**Management:** The management practices covered three main sections: monitoring, targets and incentives, based on Bloom and Van Reenen (2007), which itself was based in part on the principles continuous monitoring, evaluation and improvement from Lean manufacturing (e.g. Womack, Jones and Roos, 1990). The monitoring section asked establishments about their collection and use of information to monitor and improve the production process. For example, how frequently were performance indicators tracked at the establishment, with options ranging from “never” to “hourly or more frequently”. The targets section asked about the design, integration and realism of production targets. For example, what was the time-frame of production targets, ranging from “no production targets” to “combination of short-term and long-term production targets”. Finally, the incentives asked about non-managerial and managerial bonus, promotion and reassignment/dismissal practices. For example, how were managers promoted at the establishment, with answers ranging from “mainly on factors other than performance and ability, for example tenure or family connection” to “solely on performance and ability”? As mentioned earlier, for all questions, interviewees were asked about the structure of management practices in both 2005 and in 2010, thus the answers were based on recall.

In our analysis, we aggregate the results from these 16 check box questions into a single measure of structured management. The structured management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. Thus the summary measure is scaled from 0 to 1, with 0 representing an establishment that selected the bottom category (little structure around performance monitoring, targets and incentives) on all 16 management questions and a 1 representing an establishment that selected the top category (an explicit focus on performance monitoring, detailed targets and strong performance incentives) on all 16 questions. Normalization of responses is detailed in the appendix.

**Organization:** The organization section of the survey covered questions on the decentralization of power from the headquarters to the establishment manager based on Bresnahan, Brynjolfsson and Hitt (2002) and Bloom, Sadun and Van Reenen (2012). This asked, for example, where decisions were made on pay increases, ranging from “only at headquarters” to “only at this establishment”. A second set of questions asked about establishment-manager span of control and reporting levels based on Bloom, Garicano, Sadun and Van Reenen (2011), for example asking how many employees report directly to the establishment manager. A final set of questions based on Brynjolfsson, Hitt and Kim (2011) asked about data use in decision making, for example asking the use of data in decisions making at that establishment with response options ranging from “decision making does not use data” to “decision making relies entirely on data”. In addition, one question asks about how managers learn about management practices with answers concerning a variety of sources (“Consultants”, “Competitors”, etc.). Similarly to the management questions, we normalized the responses of each question on a scale of 0-1 (details of this procedure also in the appendix).

**Background characteristics:** This section includes a range of questions about establishment ownership, the number of managers and non-managers at the establishment, the share of levels of education of both groups, the share of employees in a union, and the seniority and tenure of the respondent.

**Interview and interviewee characteristics:** We also collected a large amount of information

on the interviewee (seniority and company tenure) and interview process itself in order to control for interview measurement error. Details are in Appendix Section B.3.

## 2.2 Sample Design

The sample of establishments is drawn from the population business register, that is, the same source used in the 2010 Census of Manufacturing Industries (CMI) survey described in Section 2.3.1. Approximately half of our sampling frame was drawn from the list of CMI responders where establishment accounts data was available. The other half consisted of CMI non-responders, for which we expected a low, but not zero, response rate.<sup>5</sup>

Our sampling strategy, based on the sampling methodology in Choudhary et al. (2016) and Ahmed et al. (2014), is the following:

1. **Large establishments** employing 200 or more workers: all establishments in the 2010 CMI were included in the sampling frame.
2. **Medium and small establishments** employing 50-199 workers and 10-49 workers, respectively: the sampling frame was divided into two strata based on 2010 CMI response status of establishments: a responding and a non-responding stratum. Random samples were drawn from each stratum on the basis of employment size and economic activity.<sup>6</sup> The sample for the responding strata is drawn at 4-digit level, and if a size category is unavailable we revert to a random draw with the relevant 3-digit size category. For the non-responding strata the sampling scheme is same except that sample is drawn at 3-digit level.
3. **Micro establishments** employing less than 10 workers: excluded from the sample.

During the survey period, a minimum of two physical attempts were made to meet the relevant person belonging to each establishment from responding and non-responding strata, respectively

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<sup>5</sup>Appendix Table A2 compares MOPS responders in the two groups, indicating differences in a number of characteristics between MOPS responders in CMI and not in CMI and highlighting the importance of sampling both groups.

<sup>6</sup>We used the Pakistan Standard Industrial Classification System available in the 2010 CMI.

(phone calls were used to set up meetings with the establishments). Establishments not responding to physical attempts to contact them were considered non-responders and were replaced accordingly by establishments in their respective stratum.

Based on the 2010 CMI survey, our random sample of establishments consisted of 2465 CMI respondents and 2076 CMI non-respondents. Out of this sample, 224 CMI respondents and 432 CMI non-respondents were considered non-eligible as they no longer existed or were not traceable. Thus the sample of eligible establishments was reduced to 2241 CMI respondents and 1644 CMI non-respondents. Out of this eligible sample, we successfully surveyed 1503 establishments from the CMI respondent group and 496 establishments from the non-respondent group - a response rate of 66.4% and 30.1%, respectively. Overall, 1,999 interviews were conducted, implying an overall response rate of 51.1%. The previous responders to CMI had a response rate of 53.4% which is a reasonably good achievement for a developing country, although this was below the equivalent number from US-MOPS of 78%. The 1999 MOPS interviews represent 23.5% of Punjab census and 17.4% of Pakistan, excluding the province of Sindh.

For the analysis in this report, we further restricted the sample used in this analysis to (1) establishments manufacturing in 2010 (9 establishments had moved out of manufacturing), (2) establishments with at least 11 non-missing responses to management questions (7 management questions were mandatory), which reduced the sample to 1,983 establishments. For the analysis of performance we further restrict the sample to establishments with positive value added, employment and capital in the corresponding year in the CMI survey which reduced the sample to 1342 establishments. That is, our MOPS-CMI sample contains 500 establishments with data from both the 2010 and 2005 CMI survey, 643 with data from the 2010 CMI survey only and 84 with data from the 2005 CMI survey only (a total of 1227 establishments out of the 1503 MOPS establishments from the CMI respondent group). Out of the 496 establishments from the 2010 non-respondent group, we have 115 establishments with data from the 2005 CMI survey. Table A1 presents detailed information on how the final sample used in this report is derived from the universe of establishments in Pakistan. In Appendix Section B.1 we investigate potential sample

selection bias and address concerns over the main results.

## **2.3 Additional Data**

### **2.3.1 Establishment Performance from the Census of Manufacturing Industries**

CMI covers manufacturing establishments which are registered or which qualify for registration under Pakistan's Factories Act (1934). Similar to the US Annual Survey of Manufacturers, the CMI survey provides a range of establishment level data such on quantities and values of inputs and outputs, census value added, contribution to GDP, fixed assets, stocks, employment and employment cost and industrial taxes.<sup>7</sup> For this report, we use data reported in 2005 and 2010 on sales, employment, wages, materials, fixed assets in the beginning of the period, and industrial classification. The data is described in more detail in Appendix Section B.2.

### **2.3.2 Management Practices from the US-MOPS**

To compare the PK-MOPS with the US-MOPS, we extract data from figures and tables presented in the "Management in America" study by Bloom et al (2013). This study reports constructed management measures from nearly 30,000 self-reported establishment surveys.<sup>8</sup>

## **3 Management across Establishments, Region and Time**

### **3.1 Exploring management practices across establishments and regions**

In Table 1 we start by looking at establishment characteristics in Pakistan and comparing these characteristics to establishments in the US in order to understand the composition of the sample in both countries. In PK-MOPS, the average establishment has 189 employees (median at 38) and is 18 years old (median at 16). In the US-MOPS, on the other hand, the median establishment is

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<sup>7</sup>If an establishment is engaged in more than one activity and separate accounts are maintained by the establishment for each activity, then separate returns are collected for each such activity.

<sup>8</sup>We are in the process of getting clearance from the US Census Bureau to access more detailed information on the US MOPS sample and plan to update this draft in the near future.

larger (80 employees) and older (24 years old). There are some extremely large establishments in Pakistan which can be seen from the higher value at the 90th percentile (establishments are smaller at all other percentiles), which mean that the average establishment is bigger than in the US (189 vs 167 employees). Exporters account for 36% of establishments in Pakistan and 42% in the US. In the PK-MOPS, we also observe that 7% of establishments are owned by Public Limited companies, 27% are Partnerships, 29% are of Individual ownership, and 37% are owned by Private Limited companies.

Management practices averages in Pakistan and in the US are reported in Table 2. As expected, we find that the average establishment in Pakistan has less structured practices than in the US. The average firm in Pakistan adopts 49% (0.49 in the management score 0-1 scale) of overall structured management practices, 55% of data driven performance monitoring practices, and 49% of incentives and targets. These numbers for the US are 64%, 67% and 62%, respectively.

Not only is the mean management score lower in Pakistan, the dispersion is greater. The standard deviation of the management score is 678 in Pakistan compared to 385 in the US. The 90-10 is (the difference between the bottom decile and the top decile) is 43% (29% to 68%) in Pakistan and 38% in the US (from 43% to 81%). Figure 1 displays this information in more detail by plotting out the distribution of management scores across establishments (in bins of 0.10 management points) for Pakistan and the US.

The finding of greater dispersion in PK-MOPS is reminiscent of the results in the macro mis-allocation literature (e.g. Hsieh and Klenow, 2009) showing that there is greater dispersion of productivity and size in developing countries than in developed countries. One of the reasons for this could be that there are more market frictions associated with weaker competition and more variable regulation which allows less efficient firms to survive (e.g. Bloom, Sadun and Van Reenen, 2016).

One important caveat to bear in mind, however, is that although the design of surveys is essentially the same, the interpretation of the questions and the sampling response rates are different. We have worked to make the samples as comparable as possible for this report.

We also investigate differences in management practices across regions in Figure 2 and Figure 3. First, Figure 2 compares average management practices in Punjab, Pakistan to regions in the US. We find that the US-Pakistan gap is larger than the differences between US regions. Within Pakistan, Figure 3 reports management averages for 9 divisions in the Province of Punjab and the Capital Territory of Islamabad. Three groups emerge from this analysis: first, establishments in Dera Ghazi Khan, Rawalpindi, Multan, and Islamabad present more structured management practices on average, second, establishments in Lahore, Sargodha and Gujranwale show mid-level adoption of structure management practices on average, and third, establishments in Faisalabad, Bahawalpur and Sahiwal come at the bottom of the management ranking. It also seems that the differences across Pakistan regions in Figure 3 are much larger than the differences across American regions in 2. Note that in Pakistan the average management scores for divisions within each group are not statistically different from each other. Table A5 presents management averages, margins of error and number of observations for each division in more detail.

### **3.2 Accounting for differences in management practices**

Next we consider several factors that can potentially explain differences in management across establishments in Pakistan. It is important to note that the results of this analysis should be interpreted as partial correlations and not as causal relationships. In Table 3 we begin by exploring unconditional correlations in Columns (1) to (5). In column (1) we include dummies for the different types of establishment ownership: Individual, Partnership, Private Limited, and Public Limited (baseline category). Public Limited establishments have more structured management practices, followed by Private Limited, Partnership and, lastly, Individual ownership establishments. Differences in the average management scores of these different types of ownership when compared to the baseline are significant and large.

In columns (2), (3), and (4) of Table 3 we look at other establishment characteristics such as size, age, and exporting status, also explored in the US-MOPS report by Bloom et al (2013). We observe that these variables are all positively and significantly associated with higher management

scores. The 0.057 coefficient for establishment size - measured by the log of number of employees - suggests that a 10% increase in the number of employees is associated with an improvement in the management score of 0.005 points. There is also a similar positive association in the US (a coefficient of 0.043 in Table 4 of Bloom et al (2013)).

The coefficient for establishment age - measured by the year in which operations began - suggests that older firms are significantly associated with the adoption of more structured management practices in both Pakistan and the US (coefficients of 0.024 and 0.027, respectively). Establishments exporting part of their production are also positively and significantly associated with more structured management practices, and this relationship seems to be stronger in Pakistan (coefficient of 0.112, standard error of 0.008) than in the US (coefficient of 0.031, standard error of 0.002).

In column (5) we look at the percentage of the workforce with a college degree, including measures for both managerial and non-managerial education. We find this relationship to be positive and significant, albeit small in magnitude.

In column (6) of Table 3 we include all factors driving management practices and add firm and noise controls. We find that nearly all factors remain statistically significant and qualitatively similar. The two exceptions are age, where the coefficient becomes insignificant, and ownership. We now find that Public Limited establishments have significantly lower scores than other ownership types, and this is due to the establishment size control. The median Public Limited establishment employs 516 workers while the median Private Limited Establishment employs 84, the median Partnership establishment employs 26, and Individual ownership establishment employs 19 workers. The weaker performance of Public Limited establishments is different than in other surveys like the WMS, and does suggest that the firms on the stock exchange are negatively selected.

### **3.3 Exploring changes in management practices over time**

In a similar fashion to the US-MOPS, the PK-MOPS also asked for information about the state of management practices in both 2010 and 2005 which allows us to investigate the state of management practices at two different points in time. Figure 4 compares the management scores

in 2005 to 2010 of establishments which have been operating since 2005. Reassuringly there is a positive and significant correlation of about 0.93 – on average establishments who were well managed in 2005 remain well managed in 2010 - suggesting that managerial practices exhibit some persistence over time. Out of 1639 establishments with observations in both 2005 and 2010, 891 (54%) establishments report no changes in the overall management scores and 586 (35.7%) establishments report a positive change in management scores - as indicated by the blue dots - and 162 (10.0%) establishments report a negative change in management scores - as indicated by the red crosses.

Figure 5 shows that the average establishment in Pakistan has a management score of 0.45 in 2010 compared to 0.43 in 2005. This suggests that establishments in Pakistan have marginally improved their management practices by about 0.02 points on average. In the US we observe an increase of approximately 0.07 between 2005 and 2010, an average rate of change that is about three and half times higher than the rate of change in Pakistan. Overall, the US-Pakistan 2010 gap is approximately 0.14 while the 2005 gap was approximately 0.08, suggesting that average management scores between the two countries are diverging over time. Interestingly, Choudhary and Pasha (2013) also point out that there has been little convergence with the US over this time period in that Pakistan's growth in real GDP has been stagnant for the last 30 years on average.<sup>9</sup>

We also decompose the management measure in Pakistan between data-driven performance monitoring practices and incentives and targets in Figure 5. Data-driven performance monitoring covers questions 1 to 5 in the survey, asking managers about the number, frequency and extent of performance monitoring. Incentives and targets covers survey questions 6 to 16, asking managers about the time frame, difficulty and awareness of targets, performance-based bonuses for managers and non-managers, promotion of good performers and reassignment of poor performers. We observe management improvements in both areas between 2005 and 2010, with a slightly higher improvement in data-driven performance monitoring.

Next we explore in greater detail the areas in which management has improved the most be-

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<sup>9</sup>The ratio of US/PK log real GDP increased from 2.01 to 2.08 between 2005 and 2010 (Choudhary and Pasha 2013).

tween 2005 and 2010. Figure 6 shows changes in management practices by question and suggests that there have been improvements in most areas (blue bars) while some areas have slightly weakened (red bars). The top 5 management practices with the greatest upgrading - ranging from approximately 0.025 to 0.061 - include (i) creating structures for documenting problems and suggesting improvements to production processes (Q01), (ii) increasing the number of key performance indicators measured (Q02) and displaying key performance indicators on boards throughout the factory (Q05), (iii) focusing on both short as well as long-term targets (Q06) and making managers and non-managers more aware of production targets at the establishment (Q08). Some areas, on the other hand, have shown that management scores have only very slightly weakened - ranging from -.004 to -.009 - such as (i) offering performance related bonuses for managers (Q11) and non-managers (Q09), (ii) and frequently reviewing key performance indicators with both managers (Q04) and non-managers (Q03).

A caveat to these over time changes is, of course, that these are all recall questions. First, managers may incorrectly recall the state of their practices 5 or 10 years ago. Second, there is a selection bias as we cannot calculate the changes for the entrants or exiters. Third, both of these biases may differ across the US and Pakistan further complicating the comparison.

We also investigate the sources of management improvements by asking where managers at the establishment learn about management practices. Figure 7 presents the responses and shows that the most common source of learning about improved management practices is external consultants as reported by 36% of establishments during 2005 and 2010. This is followed by customers (30%), trade associations (21%), competitors (20%), and suppliers (19%), that is, managers learn from external peers operating and interacting in the same sector. Internal sources of improved management practices such as the headquarters and new employees are reported by a smaller share of respondents, 18% and 9% respectively. When compared to the US, we observe that 53.7% of US establishments learn about new management practices from the headquarters, indicating more diffusion of management structure within multi-establishment firms. The second and third most common sources are trade associations (48%) and consultants (45%), respectively. Interestingly,

the number of establishments reporting as not learning about management improvements from either internal or external sources is similar in both US and Pakistan, 14% and 16% respectively. Overall Figure 7 indicates that establishments in the US learn about management from a higher number of sources on average than establishments in Pakistan.

### **3.4 Observing associations between management and organizational practices**

We also look at other organizational characteristics and their relationship with management practices at the establishment. Figure 8 presents correlations between management scores (averaged in bins of 0.05) and reported measures of decentralization of decision making power for 309 establishments located in a different address than their headquarters. More specifically, the survey questions measure whether establishments have decision making power to (1) hire permanent full-time employees, (2) give an employee a regular pay increase of at least 10%, (3) introduce new products, (4) establish their own product pricing, (5) decide on advertising products, and (6) make capital investments. Across the board we observe a positive relationship, suggesting that more structured management practices are associated with more decentralization in decision making power.

Similarly, two questions in the survey asked to what extent data is available and used to support decision making at the establishment. Figure 9 also displays a positive association between more structured management practices (averaged in bins of 0.05) and these measures of data availability and usage, suggesting that better management establishments are more IT intensive.

In short, it appears that structured management practices are positively associated with measures of decentralization which is consistent with what has been observed in other work using management datasets (e.g. Bloom, Sadun and Van Reenen, 2012).

## 4 Management and Performance

Of course this descriptive analysis raises the question of whether establishments with more structured management practices have better performance. We examine the correlation between management and establishment performance in terms of productivity, profitability and growth rates. As mentioned in Section 2.3.1, we merge the PK-MOPS data with data from the CMI surveys in 2005 and 2010 and use performance measures available for 1342 establishments.<sup>10</sup> Overall, we find that more structured management practices are robustly associated with higher establishment performance.

In Figure 10 we start by graphically displaying unconditional correlations between management scores (averaged in bins of 0.05) and a range of establishment measures, showing that establishments with higher management scores hire more employees, have more capital per employee, and have higher labor productivity and higher profits per employee.

Table 4 and Table 5 report the results of OLS regressions. The dependent variables are three different measures of firm performance: (1) log of value added per employee calculated as total sales minus materials over total employment, (2) log of profitability calculated as total value added minus total wages, and (3) employment growth between 2005 and 2010. As controls we add the log of capital per employee calculated as the stock of capital reported at the beginning of each period and the log of employees. We also add noise controls to remove some of the measurement error, including (1) the distance between CMI and MOPS reported employment for 2005 and 2010, (2) a dummy indicating whether the survey was filled prior to the interview, (3) a dummy indicating whether a representative from the State Bank Pakistan was present during the interview, (4) numbers of establishment visits, (5) date of filing, (6) day of week, (7) company tenure of the respondent, (8) seniority of the respondent, and (9) a dummy indicating whether enumerator received additional training prior to interview. Finally, for some of the analysis we include industry fixed effects (3-digit Pakistan Standard Industrial Classification codes) or establishment fixed effects.

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<sup>10</sup>As mentioned in Section 2 we restrict our analysis to establishments with positive value added, positive employment, and positive capital.

Column (1) of Table 4 reports the result of a regression of  $\log(\text{value added}/\text{employee})$  on management. The management coefficient of 1.137 (mean of 0.443 and standard deviation of 0.174) suggests that every 10% increase in the management score is associated with a 12.04% ( $=\exp(0.1137)$ ) increase in labor productivity. In terms of magnitude, this means that a one standard-deviation change in management is associated with a 21.87% ( $=\exp(0.174*1.137)$ ) increase in labor productivity. In a similar fashion running performance-management regressions with the matched US-MOPS and ASM datasets, Bloom et al (2013) present comparable results: a one standard-deviation change in management is associated with a 21.3% increase in labor productivity. Echoing Bloom et al (2013), the unconditional correlation of management and labor productivity (value added per employee) is statistically highly significant and quantitatively large. The similar magnitude is remarkable and may suggest that management is like a common technology parameter (see Bloom, Sadun and Van Reenen, 2016 ).

In column (2) of Table 4 we include 75 3-digit Pakistan Standard Industrial Classification (PSIC) dummies and observe that the management coefficient slightly increases by 0.06, remaining quantitatively large. We re-run the same analysis with 161 4-digit PSIC fixed effects instead to investigate whether a more granular measure of industry classification changes our results (analysis not reported here) and find that the coefficient decreases by a mere 0.01. These results suggest that the magnitude of the labor productivity - management relationship continues to be robust to cross-industry variation both at the 3-digit and 4-digit industry levels. In the US, Bloom et al (2013) find that the management coefficient halves when including 4-digit industry fixed effects, suggesting that much of the correlation between labor productivity and management occurs across industries, albeit the within-industry correlation is still quantitatively large.

In column (3) of Table 4 we add capital per employee and establishment size and find that the coefficient on management decreases to 0.826, although it remains large and highly significant. The coefficient on capital is consistent with capital's share of value added being about 25% which is sensible. In column (4) we also control for interview noise and find that this reduces the management coefficient only modestly by 0.07. Conditional on these observables, this means a one

standard-deviation change in management is associated with a 14.05% ( $=\exp(0.174*0.756)$ ) increase in labor productivity. In column (5) we restrict the sample to only establishments with panel data (2005 and 2010) on management and value added per employee and add establishment fixed effects. We find that the coefficient, albeit not statistically significant (p-level at 0.113), remains similar in terms of magnitude.

For the remainder of Table 4, we repeat the specifications of columns (1), (4), and (5) using profitability as an establishment performance measure. In columns (6) and (7) we find the management-profitability relationship to be large and significant. While adding industry fixed effects, capital and establishment size drastically reduce the coefficient from column (6) to column (7), we still find that conditional on these observables, one standard deviation change in management is associated with a 17.21% ( $=\exp(0.174*0.913)$ ) increase in profitability as reported in column (7). Column (8) we restrict the sample to only establishments with panel data (2005 and 2010) on management and profitability and add establishment fixed effects. We continue to find the coefficient to be positive and significant. Columns (8) and (9) show that establishments with more structured management practices grew significantly faster between 2005 and 2010, even when adding a full set of controls.

In Table 5, we investigate whether more structured management practices are robustly associated with higher establishment performance across time by splitting the sample in 2005 (in the first six columns) and 2010 (in the last six columns). This analysis is useful for two reasons. First, we can compare the coefficients in each sample and determine whether the magnitude of the relationship holds across time. Second, we can use this analysis to validate the informativeness of the 2005 management data as it has a longer recall period, checking whether the combined results of being driven by both samples or by the larger and more recent 2010 sample. Across all specifications in the analysis, we find that the 2005 and 2010 management coefficients are not statistically different from each other, showing that the management-performance relationship is large and significant in both years.

This analysis presents strong evidence that establishments with more structured management

practices outperform establishments with less structured practices on a range of performance measures such as labor productivity, profitability and employment growth. Since this performance data was collected independently from MOPS it suggests that the responses to the survey are informative about establishment performance.

As usual, the caveat should be born in mind that these are conditional correlations and causality cannot be easily inferred. Nevertheless, the results from the randomized control trials in Bloom et al (2013) suggest that a good part of the performance-management correlation is causal.

## **5 Conclusions and Future Research**

Since management appears to be such an important aspect of the intangible capital of a firm, it is important to measure it in a consistent way across many firms and countries. The open-question WMS approach produces high quality data but is very expensive (Bloom et al, 2016). Consequently to make management data part of the national data infrastructure that is regularly collected by government statistical agencies, Bloom et al (2013) developed the Management and Organizational Practices Survey (MOPS), a more traditional close ended questionnaire that is much cheaper to implement. This paper has described the first attempt to implement MOPS in an emerging economy. Through a pilot survey in partnership with the State Bank Pakistan and the Pakistan Bureau of Statistics, we have systematically conducted structured face-to-face Management and Organization Surveys in nearly 2,000 establishments in Punjab, Pakistan. Similar exercises have been initiated in Canada, Germany, Japan, Mexico and the UK.

From a methodological perspective the pilot appears a success. We have successfully collected the data and the results look broadly sensible. This suggests that MOPS could be rolled out to other areas in Pakistan as well as in other countries.

Our substantive results can be easily summarized. First, as in other countries there is a tremendous variation in management practices across establishments. Second, there is a much lower degree of adoption of leading management practices in Pakistan than in the US, and the disper-

sion of management scores is also higher (similar to the findings on productivity in Hsieh and Klenow, 2009, comparing the US and India). Third, establishments with more structured management practices have better performance whether measured by productivity, profitability or growth. Interestingly, the magnitude of the correlation with TFP is remarkably similar in Pakistan to the US: a one standard deviation improvement in management is associated with a 21% improvement in labor productivity in both countries suggesting a common managerial production technology (e.g. Bloom, Sadun and Van Reenen, 2016). Finally, as with other countries, management scores are higher in larger establishments, those with more skills, older establishments and those who export more. Conditional on these factors, however, establishments owned by publicly listed firms in Pakistan have significantly lower management score, the opposite from most other countries.

To conclude, the less structured management practices observed in the manufacturing sector are potentially an important factor behind the lower levels of development in Punjab, Pakistan, hampering establishments' ability to innovate, to exploit new technologies and to react to the challenges of globalization. Further analysis of firms in Pakistan will also allow us to identify the strengths and weaknesses in management practices in Punjab, Pakistan and explore ways in which firms can potentially emulate the development paths of firms in other Asian middle income countries. We will also be able to understand the mechanisms of firm upgrading through improved management quality and suggest stronger research and policy recommendations for stimulating growth.

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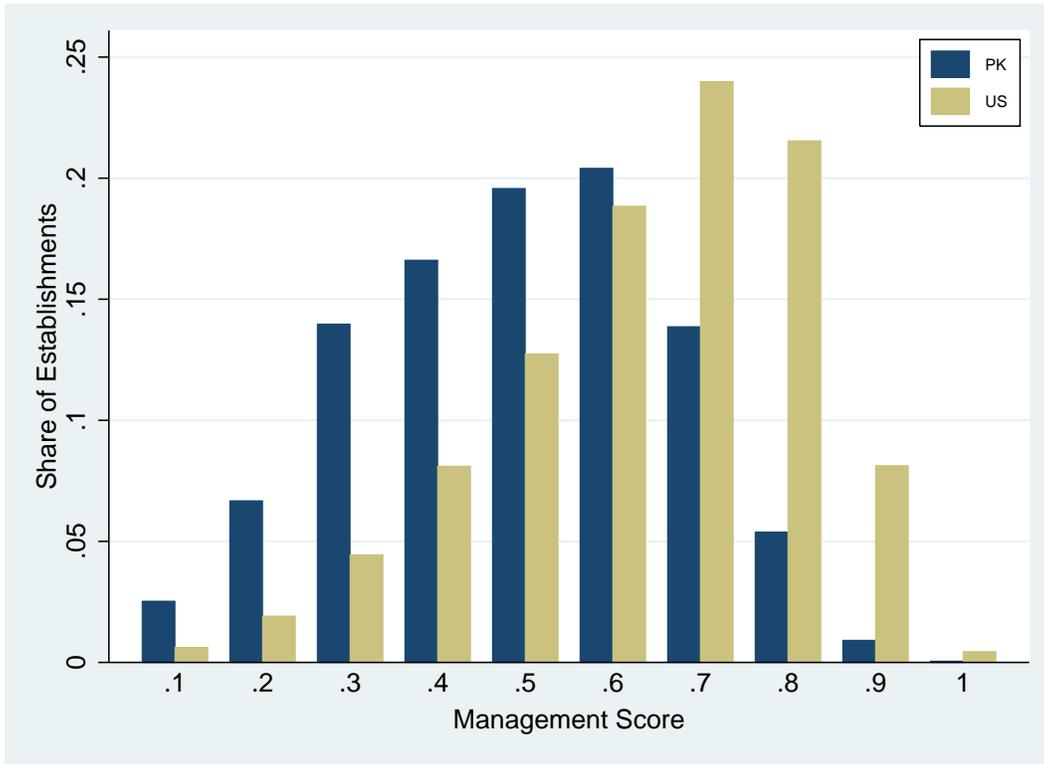
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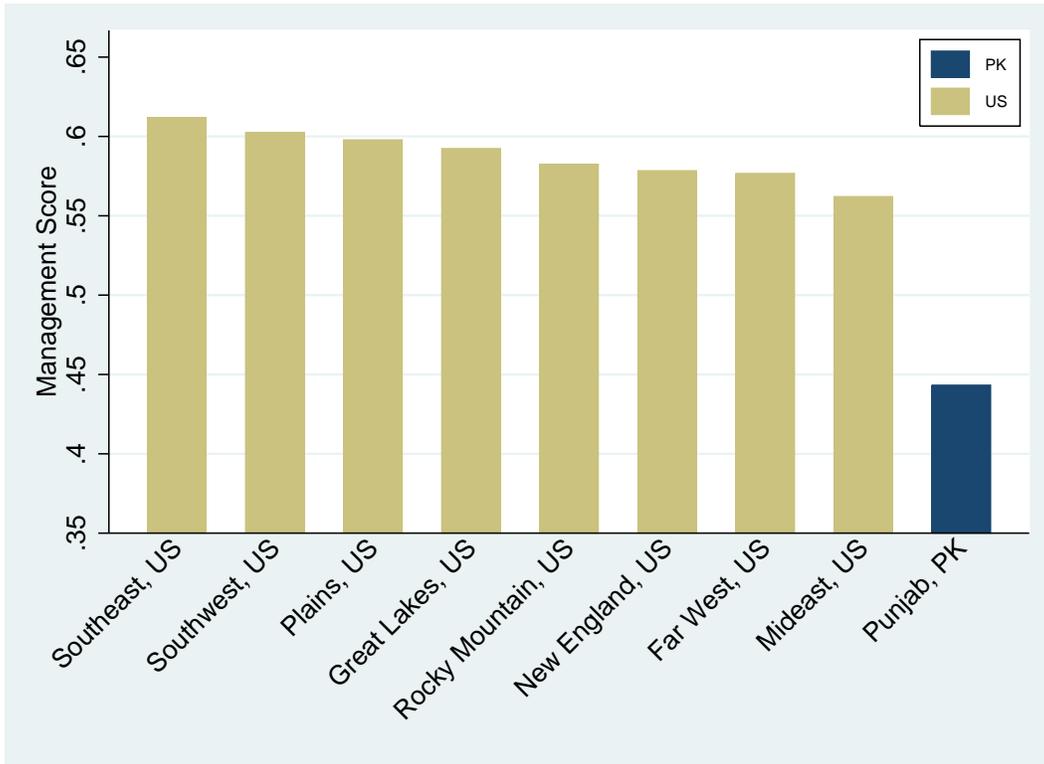
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Figure 1: Management distributions in Pakistan and the US



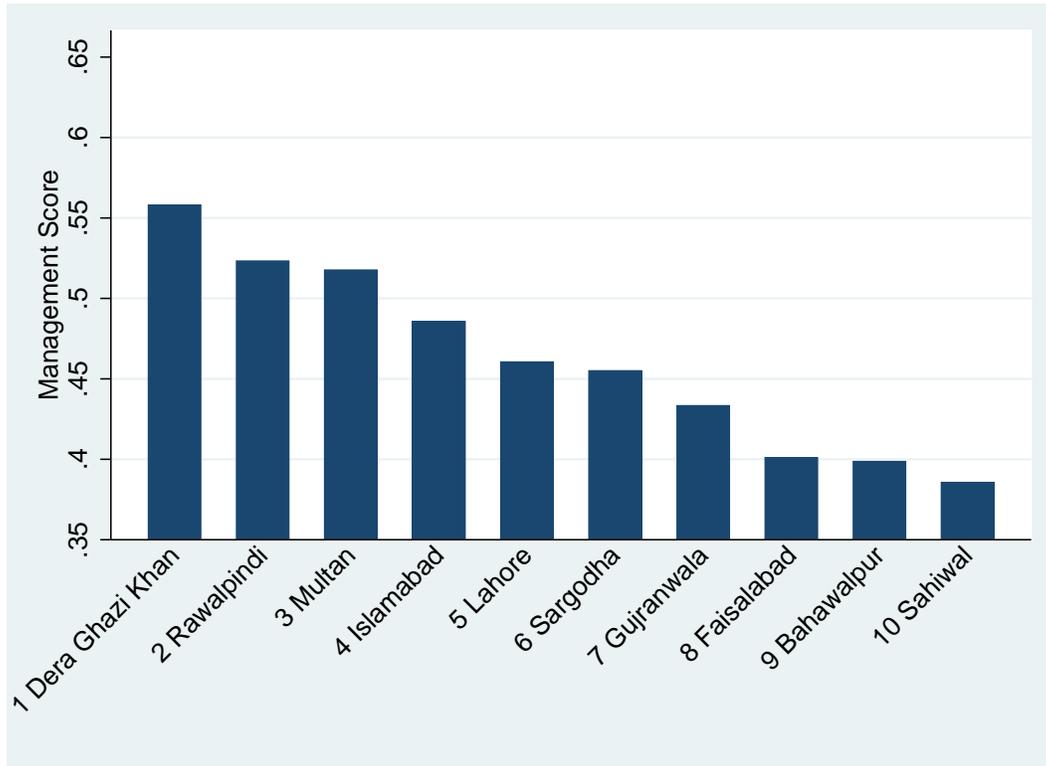
Notes: The Pakistan sample includes all MOPS observations with at least 11 non-missing responses to management questions (3714 observations from 1983 establishments). The share of establishments in the US is constructed from the shares displayed in Figure 2 in Bloom et al (2013). The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The ten bars display the share of establishments in bins of 0.10.

Figure 2: Management across regions in Pakistan and the US



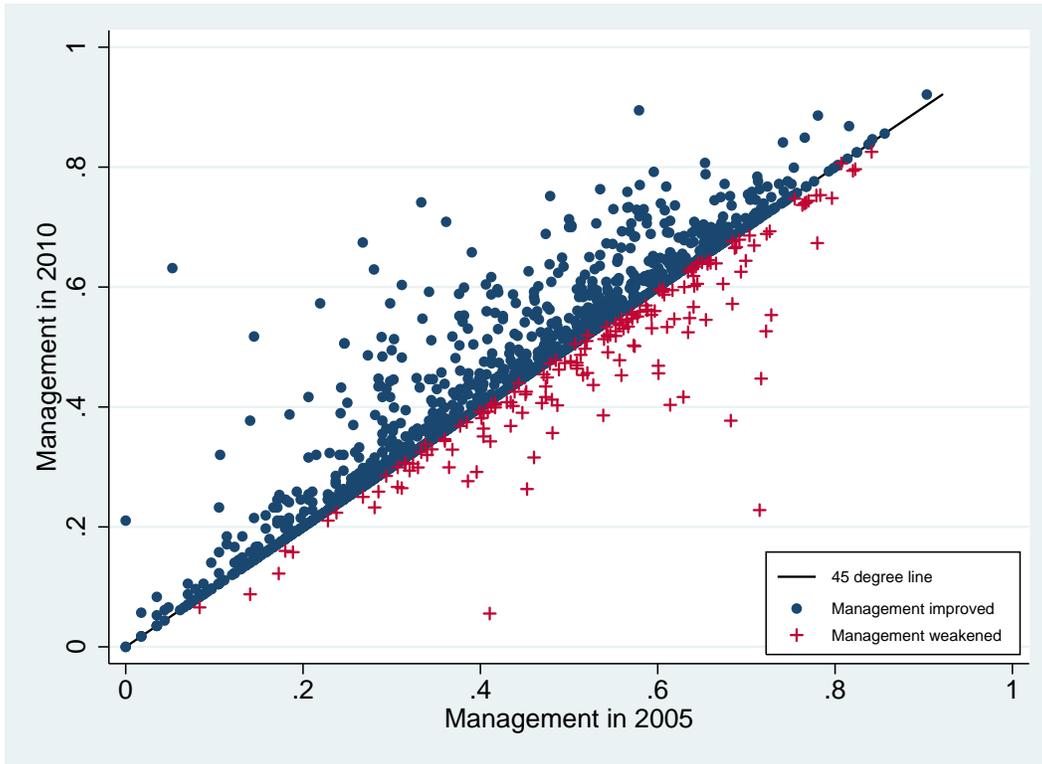
Notes: The Pakistan sample includes all MOPS observations with at least 11 non-missing responses to management questions (3714 observations from 1983 establishments). The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The Pakistan sample includes all MOPS observations with at least 11 non-missing responses to management questions (3714 observations from 1983 establishments). The management scores in regions in the US is constructed based on weighted state averages reported in Table 5 in Bloom et al (2013).

Figure 3: Management across divisions in Punjab



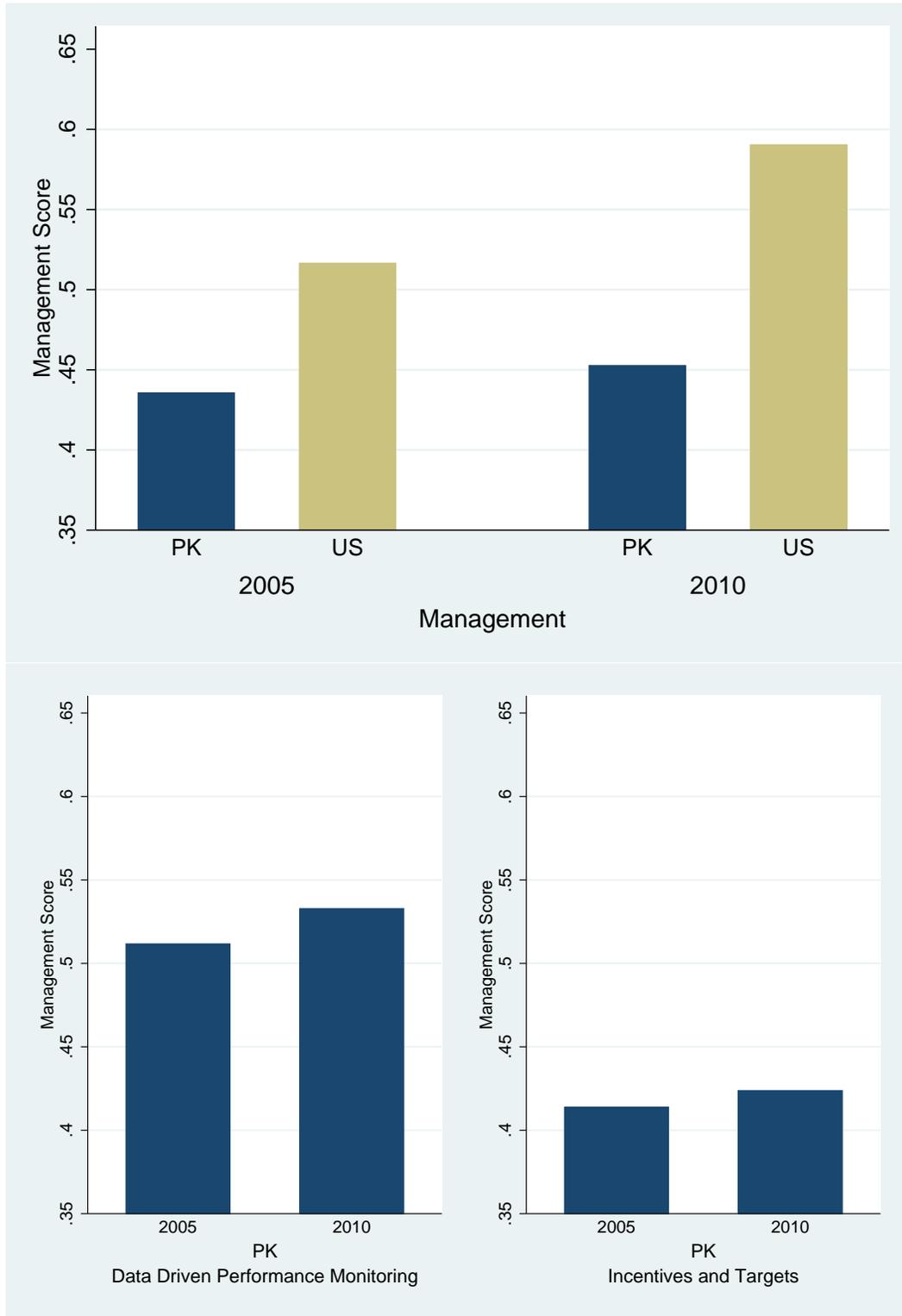
Notes: The sample includes all MOPS observations with at least 11 non-missing responses to management questions (3714 observations from 1983 establishments). The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale.

Figure 4: Management in 2010 is strongly linked with management in 2005



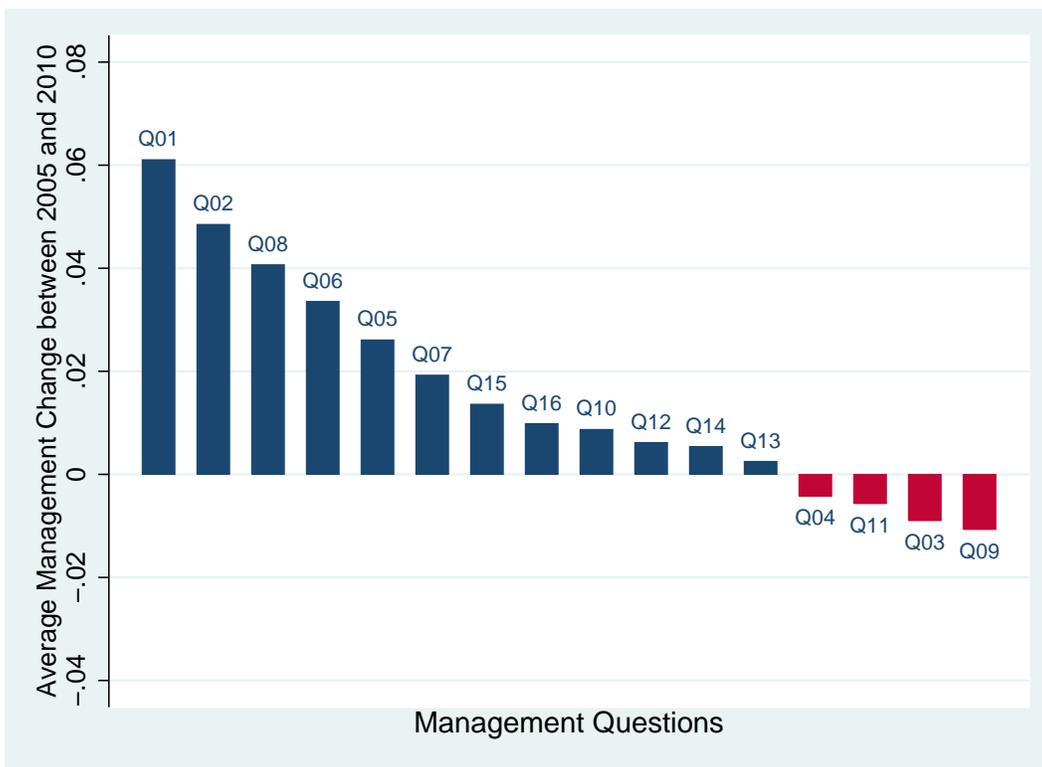
Notes: The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The sample includes all MOPS observations with at least 11 non-missing responses to management questions and with observations in both 2005 and 2010 (1731 establishments). 965 (55.7%) establishments report no change in management practices, 598 (34.5%) establishments report positive change in management practices, and 168 (9.7%) establishments report negative change in management practices.

Figure 5: Management improves over time



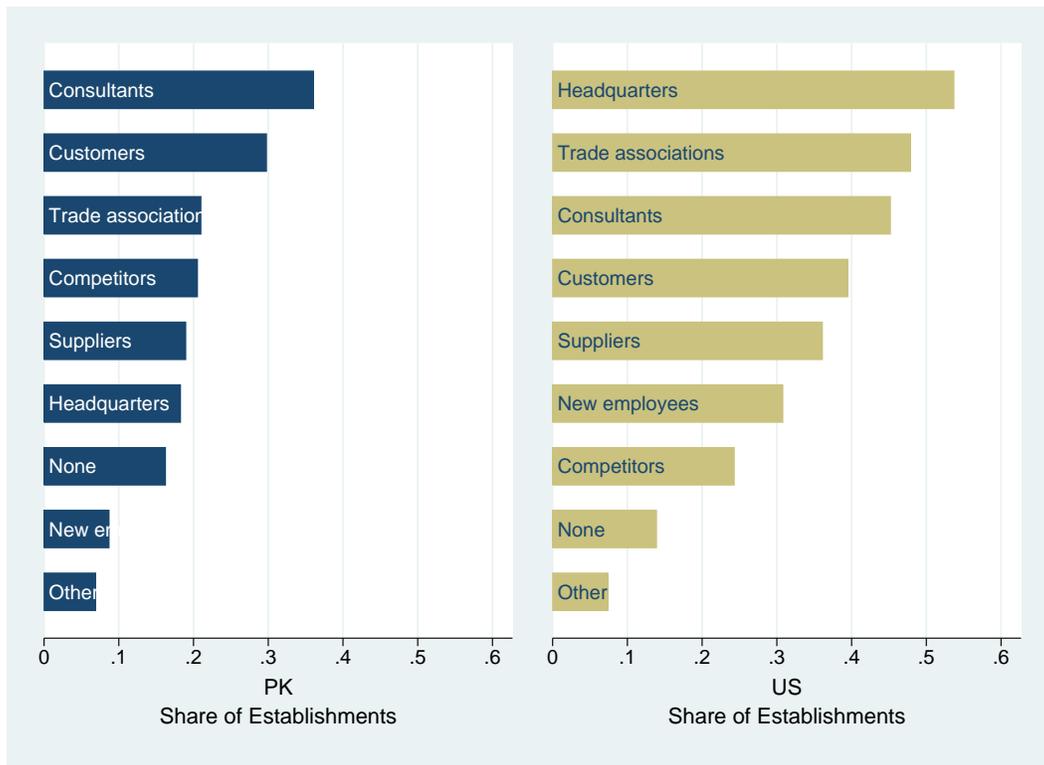
Notes: The sample includes all MOPS observations with at least 11 non-missing responses to management questions and with observations in both 2005 and 2010 (1731 establishments). The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0 - 1 scale. The management scores in both years in the US is constructed based on the bar graphs displayed in Figure 5 in Bloom et al (2013). As noted by the authors, the US sample includes all MOPS observations with at least 11 non-missing responses to the management questions and with observations in both 2005 and 2010 (US data has been weighted using ASM 2010 weights).

Figure 6: Changes in management by question



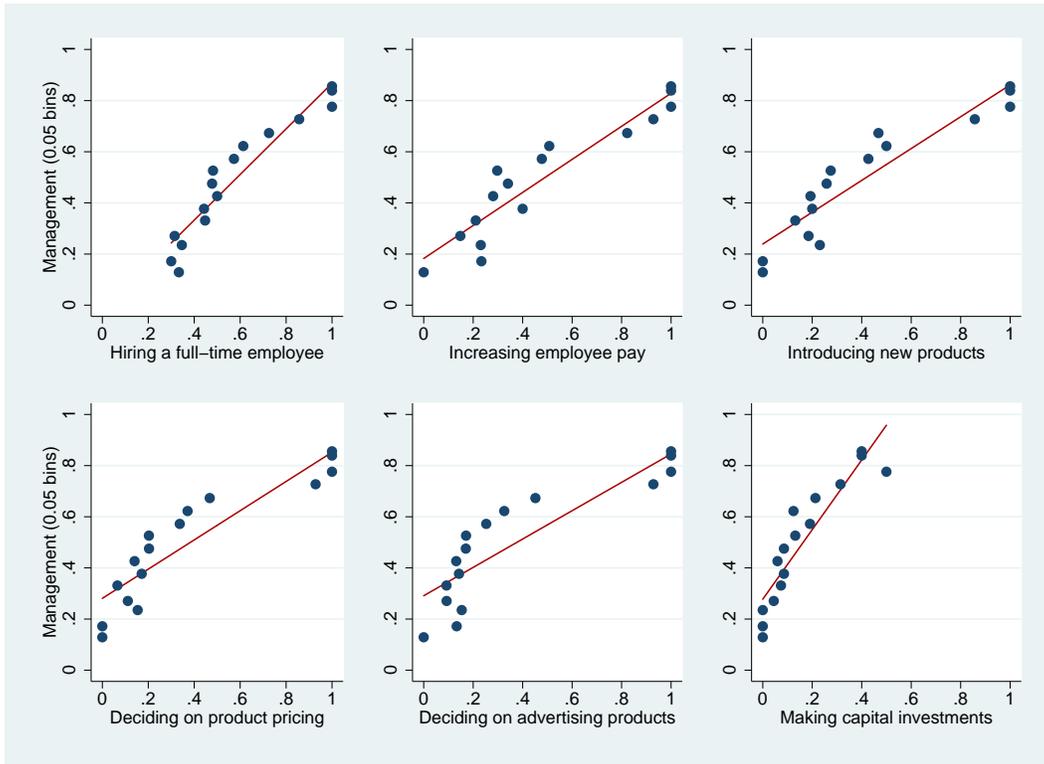
Notes: The sample includes all MOPS observations with at least 11 non-missing responses to management questions and with observations in both 2005 and 2010 (1731 establishments). The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0 - 1 scale.

Figure 7: Sources of learning about management



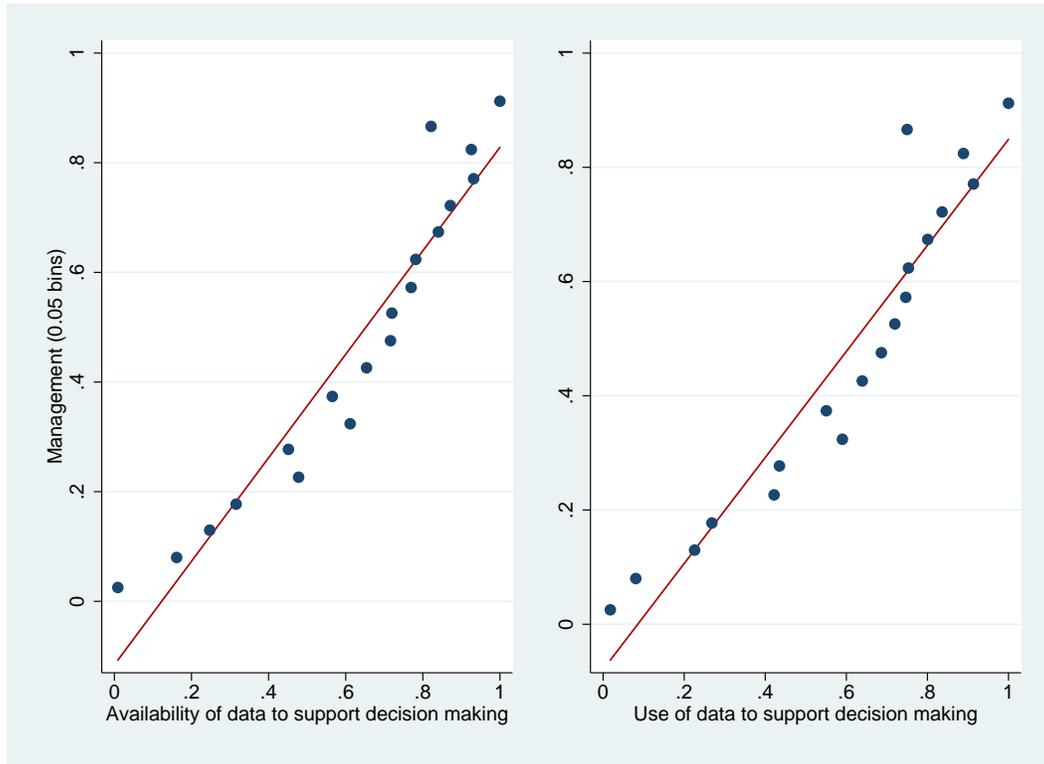
Notes: The sample includes all MOPS observations from establishments with no missing responses to this question and with at least 11 non-missing responses to management questions (3692 observations from 1974 establishments). The share of establishments reporting sources of management learnings is calculated from answers to the multiple answer question “In 2005-06 and 2010-11, did the managers at this establishment learn about management practices from any of the following? (1) Consultants, (2) Competitors, (3) Suppliers, (4) Customers, (5) Trade associations or conferences, (6) New employees, (7) Headquarters, (8) Other, (9) None of the above”.

Figure 8: Management and decentralization of decision making power



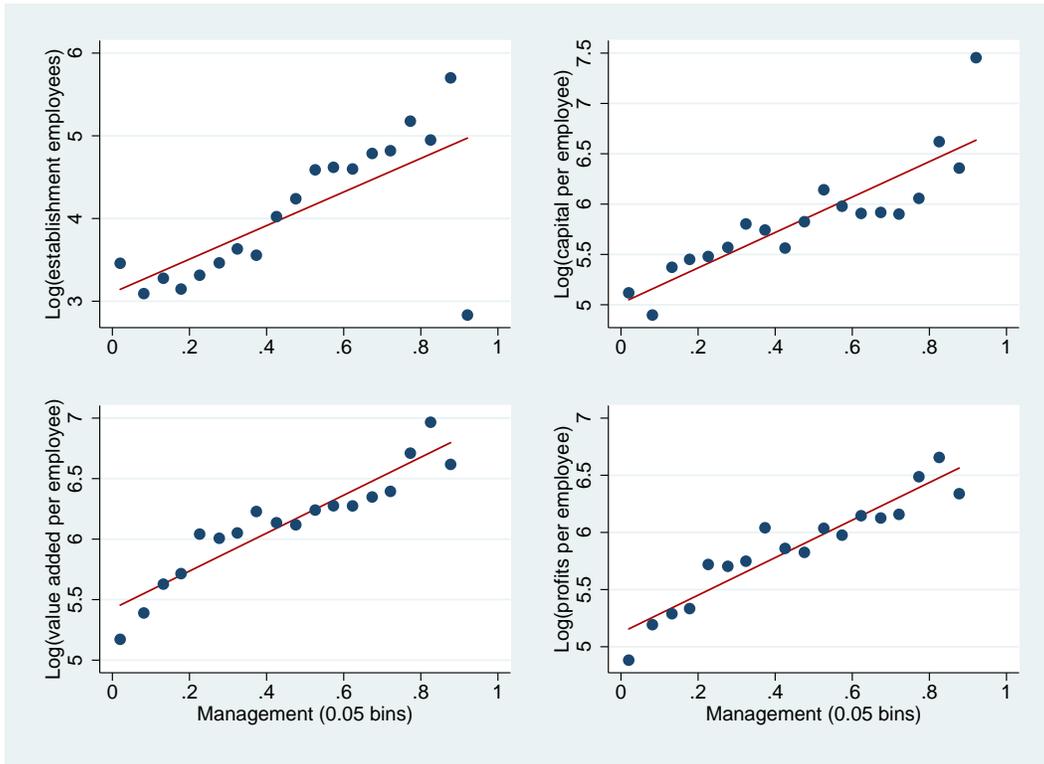
Notes: The sample includes all MOPS observations from establishments reporting that the headquarters at a different location, with no missing responses to the autonomy questions and with at least 11 non-missing responses to management questions (591 observations from 317 establishments). The establishment management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale, and averaged across establishments in bins of 0.05. The autonomy measures are also normalized to be on a 0 - 1 scale. The average management score for establishments with headquarters on site is .508 while for establishments with headquarters at a different location the average is 0.487. The difference of 0.21 is statistically significant at the 1% level.

Figure 9: Management and usage of data for decision making



Notes: The sample includes all MOPS observations from establishments reporting availability and usage of data information and with at least 11 non-missing responses to management questions (3674 observations from 1964 establishments). The establishment management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale, and averaged across establishments in bins of 0.05. The availability and usage of data measures are also normalized to be on a 0 - 1 scale. .

Figure 10: Management and performance



Notes: The sample includes all MOPS observations with at least 11 non-missing responses to management questions and with some accounts data (1842 observations from 1342 establishments). The establishment management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale, and averaged across establishments in bins of 0.05. Log of establishment employees is the number of employees reported in the MOPS. The following three measures are extracted from the CMI survey: log of capital per employee is the stock of capital reported in the beginning of the period, log of value added per employee is calculated as  $((\text{total sales} - \text{total materials}) / \text{total employment})$  and log of profits per employee is calculated as  $((\text{total value added} - \text{total wages}) / \text{total employment})$ .

Table 1: Establishment characteristics

	Pakistan						
	Mean	S.D.	p(10)	p(25)	p(50)	p(75)	p(90)
Size	189.10	678.6	11.0	17.0	38.0	131.5	415.0
Establishment age	17.77	12.8	5.0	8.0	16.0	24.0	34.0
Exporter	0.36	0.5	0.0	0.0	0.0	1.0	1.0
% of union members	6.19	19.8	0.0	0.0	0.0	0.0	10.0
Ownership: private limited	0.07	0.3	0.0	0.0	0.0	0.0	0.0
Ownership: private limited	0.37	0.5	0.0	0.0	0.0	1.0	1.0
Ownership: individual	0.29	0.5	0.0	0.0	0.0	1.0	1.0
Ownership: partnership	0.27	0.4	0.0	0.0	0.0	1.0	1.0
	US						
	Mean	S.D.	p(10)	p(25)	p(50)	p(75)	p(90)
Size	167.00	385.1	15.0	33.6	80.0	174.9	359.0
Establishment age	22.00	12.1	4.0	11.0	24.0	35.0	35.0
Exporter	0.42	0.49	0.0	0.0	0.0	1.0	1.0
% of union members	7.80	21.7	0.0	0.0	0.0	0.0	30.0

*Note:* For Pakistan, the sample in all columns is all MOPS observations with at least 11 non-missing responses to management questions (3714 observations from 1983 establishments). Size is a measure of the number of employees as reported in the MOPS. Establishment age is defined by the date when the establishment became operative. Exporter is equal to 1 if establishment reported to export production. In observations with missing values for the % of union members, we replaced with the means in the sample to keep a constant sample size. Ownership categories defined in MOPS question A2. P(n) is the value at the n-th percentile, e.g. p(50) is the median value. For the US, data is sourced from Table A2 in Bloom et al (2013).

Table 2: Management descriptives

	Pakistan						
	Mean	S.D.	p(10)	p(25)	p(50)	p(75)	p(90)
Management score	0.443	(0.174)	0.206	0.311	0.454	0.573	0.667
Data driven performance monitoring	0.523	(0.207)	0.250	0.400	0.533	0.667	0.767
Incentives and targets	0.419	(0.227)	0.114	0.227	0.432	0.603	0.714
	US						
	Mean	S.D.	p(10)	p(25)	p(50)	p(75)	p(90)
Management score	0.640	(0.152)	0.427	0.553	0.667	0.753	0.812
Data driven performance monitoring	0.665	(0.180)	0.417	0.556	0.694	0.806	0.868
Incentives and targets	0.623	(0.176)	0.381	0.526	0.650	0.750	0.825

*Note:* For Pakistan, the sample in all columns is all MOPS observations with at least 11 non-missing responses to management questions (3714 observations from 1983 establishments). The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The data-driven performance monitoring score is the unweighted average of the score for questions 1 to 5 and the incentives and targets score is the unweighted average of the score for questions 6 to 16. P(n) is the value at the n-th percentile, e.g. p(50) is the median value. For the US, data is sourced from Table A2 in Bloom et al (2013).

Table 3: Accounting for differences in management practices

	Management					
	(1)	(2)	(3)	(4)	(5)	(6)
Ownership: public limited	ref.					ref.
Ownership: private limited	-0.039*** (0.013)					0.061*** (0.013)
Ownership: partnership	-0.108*** (0.014)					0.056*** (0.015)
Ownership: individual	-0.180*** (0.013)					0.015 (0.016)
Log(establishment employees)		0.057*** (0.002)				0.039*** (0.003)
Log(establishment age)			0.024*** (0.005)			-0.000 (0.004)
Exporter				0.112*** (0.008)		0.046*** (0.008)
% of non-managers with degree					0.001*** (0.000)	0.000** (0.000)
% of managers with degree					0.001*** (0.000)	0.000*** (0.000)
Firm controls	No	No	No	No	No	Yes
Noise controls	No	No	No	No	No	Yes
Observations	3714	3714	3714	3714	3714	3714
# of firms (clusters)	1983	1983	1983	1983	1983	1983
Year	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Standard errors in parentheses.

*Note:* All columns estimated by OLS. Standard errors are clustered at the establishment level. The **management score** is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The log of capital per employee is the stock of capital reported in the beginning of the period. The sample in all columns is all MOPS observations with at least 11 non-missing responses to management questions. Year fixed effects are included in all regressions. **Firm controls** include the share of managers and non-managers with a degree and the share of union members. **Noise controls** are (1) a dummy indicating whether the survey was filled prior to the interview, (2) a dummy indicating whether a representative from the State Bank Pakistan was present during the interview, (3) number of establishment visits, (4) date of filing, (5) day of week, (6) company tenure of the respondent, (7) seniority of the respondent, and (8) a dummy indicating whether enumerator received additional training prior to interview.

Table 4: Establishments with higher management quality are more productive, more profitable, and faster growing

	Log(Value Added Per Employee)					Log(Profitability)			Employment Growth	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Management	1.137*** (0.167)	1.193*** (0.171)	0.826*** (0.171)	0.756*** (0.173)	1.624 (1.023)	4.789*** (0.295)	0.913*** (0.197)	2.602** (1.302)	0.233*** (0.066)	0.215*** (0.075)
Log(capital/employee)			0.234*** (0.029)	0.226*** (0.028)	0.115 (0.084)		0.268*** (0.030)	0.118 (0.081)		0.006 (0.006)
Log(employees)			0.047* (0.026)	0.066** (0.027)	-0.496*** (0.155)		1.081*** (0.030)	0.428*** (0.140)		-0.035*** (0.012)
Noise controls	No	No	No	Yes	No	No	Yes	No	No	Yes
Observations	1842	1842	1842	1842	1000	1770	1770	928	776	776
# of firms (clusters)	1342	1342	1342	1342	500	1306	1306	464	776	776
Dep. var. mean	6.16	6.16	6.16	6.16	6.08	10.06	10.06	10.25	0.15	0.15
Dep. var. SD	1.21	1.21	1.21	1.21	1.17	2.12	2.12	2.19	0.31	0.31
Year	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs	Both yrs
Fixed effects	None	Industry	Industry	Industry	Establishment	None	Industry	Establishment	None	Industry

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Standard errors in parentheses.

*Note:* All columns estimated by OLS. Standard errors are clustered at the establishment level. The **management score** is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The log of capital per employee is the stock of capital reported in the beginning of the period. The sample in all columns is all MOPS observations with at least 11 non-missing responses to management questions and a successful match to CMI, have positive value added, positive employment and positive imputed capital stock in the CMI. Year fixed effects are included in all regressions using both 2005 and 2010 samples. **Dependent variables:** In column 1 to 5 the dependent variable is the log of value added per employee where value added per employee is calculated as ((total sales - total materials)/total employment). In columns 6 and 7 the dependent variable is log of profitability calculated as (total value added - total wages). In column 8 and 9 the dependent variable is employment growth measured between 2005 and 2010  $(\text{emp2010} - \text{emp2005}) / ((.5 * \text{emp2010}) + (.5 * \text{emp2005}))$ , sourcing this information from MOPS. **Noise controls** are (1) the distance between CMI and MOPS reported employment for 2005 and 2010, (2) a dummy indicating whether the survey was filled prior to the interview, (3) a dummy indicating whether a representative from the State Bank Pakistan was present during the interview, (4) number of establishment visits, (5) date of filing, (6) day of week, (7) company tenure of the respondent, (8) seniority of the respondent, and (9) a dummy indicating whether enumerator received additional training prior to interview.

Table 5: Management and performance in 2005 and in 2010

	Log(Value Added Per Employee)				Log(Profitability)		Log(Value Added Per Employee)				Log(Profitability)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Management	0.916*** (0.268)	1.162*** (0.272)	0.757*** (0.293)	0.612** (0.277)	4.504*** (0.437)	0.732** (0.313)	1.267*** (0.186)	1.367*** (0.195)	1.012*** (0.201)	0.945*** (0.205)	4.959*** (0.310)	1.118*** (0.226)
Log(capital/employee)			0.192*** (0.045)	0.171*** (0.041)		0.180*** (0.042)			0.272*** (0.031)	0.272*** (0.031)		0.351*** (0.032)
Log(employees)			0.067 (0.044)	0.084** (0.040)		1.118*** (0.046)			0.038 (0.029)	0.065** (0.031)		1.070*** (0.035)
Noise controls	No	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes
Observations	699	699	699	699	679	679	1143	1143	1143	1143	1091	1091
# of firms (clusters)	699	699	699	699	679	679	1143	1143	1143	1143	1091	1091
Dep. var. mean	5.86	5.86	5.86	5.86	9.91	9.91	6.35	6.35	6.35	6.35	10.16	10.16
Dep. var. SD	1.18	1.18	1.18	1.18	2.15	2.15	1.18	1.18	1.18	1.18	2.09	2.09
Year	2005	2005	2005	2005	2005	2005	2010	2010	2010	2010	2010	2010
Fixed effects	None	Industry	Industry	Industry	None	Industry	None	Industry	Industry	Industry	None	Industry

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Standard errors in parentheses.

*Note:* All columns estimated by OLS. Standard errors are clustered at the establishment level. The **management score** is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The log of capital per employee is the stock of capital reported in the beginning of the period. The sample in all columns is all MOPS observations with at least 11 non-missing responses to management questions and a successful match to CMI, have positive value added, positive employment and positive imputed capital stock in the CMI. Year fixed effects are included in all regressions using both 2005 and 2010 samples. **Dependent variables:** In column 1 to 4 and 7 to 10, the dependent variable is the log of value added per employee where value added per employee is calculated as ((total sales - total materials)/total employment). In columns 5 to 6 and 11 to 12 the dependent variable is log of profitability calculated as (total value added - total wages). **Noise controls** are (1) the distance between CMI and MOPS reported employment for 2005 and 2010, (2) a dummy indicating whether the survey was filled prior to the interview, (3) a dummy indicating whether a representative from the State Bank Pakistan was present during the interview, (4) number of establishment visits, (5) date of filing, (6) day of week, (7) company tenure of the respondent, (8) seniority of the respondent, and (9) a dummy indicating whether enumerator received additional training prior to interview.

# Appendices

## A Additional figures and tables

Table A1: PK-MOPS sample design, by responders and non-responders in CMI

Number of Establishments	Responders in 2010 CMI	Non- Responders in 2010 CMI	Total
<i>MOPS sample</i>			
Total sample from CMI	2465	2076	4541
Non-eligible establishments*	224	432	656
Eligible establishments	2241	1644	3885
<i>MOPS responders</i>			
Total sample from CMI eligible establishments	1503	496	1999
Total response rate	66.4%	30.1%	51.1%
<i>MOPS clean baseline</i>			
Total sample	1488	495	1983
Total sample matched with CMI	1227	115**	1342

*Note:* (\*) Non-eligible establishments include establishments that have closed down, no longer exist, or are not traceable. (\*\*) 115 non-responders in the 2010 CMI had responded to the 2005 CMI and thus had some accounts data available.

Table A2: Difference in means between MOPS respondents in CMI and not in CMI

	Responders in 2010 CMI	Non- Responders in 2010 CMI	Diff in means	T Stat	Responders in 2010 CMI	Non- Responders in 2010 CMI
	Mean	Mean			N	N
Management score	0.45	0.43	0.02***	3.56	2799	915
Data driven performance monitoring	0.53	0.50	0.03***	3.89	2798	915
Incentives and targets	0.42	0.40	0.02*	2.34	2799	915
Log(sales/employee), '000 Rs	25631.48	20826.85	4804.63	1.19	1629	802
Size	179.21	219.68	-40.47	-1.56	2784	900
Establishment age	18.40	15.86	2.54***	5.15	2718	884
Exporter	0.36	0.36	-0.00	-0.01	2799	915
% of managers with degree	74.67	69.81	4.86**	3.23	2799	915
% of non-managers with degree	13.64	8.70	4.94***	5.06	2799	915
% of union members	7.19	3.12	4.07***	5.42	2799	915

*Note:* The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The data-driven performance monitoring score is the unweighted average of the score for questions 1 to 5 and the incentives and targets score is the unweighted average of the score for questions 6 to 16. Log of sales per employee is calculated using CMI establishment accounts data when available and replace with values reported for approximate value of goods sold in the MOPS (this question was only asked to establishments that did not respond to the 2010 CMI). Size is a measure of the number of employees as reported in the MOPS. Establishment age is defined by the date when the establishment became operative. Exporter is equal to 1 if establishment reported to export production. In observations with missing values for the % of manager and non-manager with a degree and the % of union members, we replaced with the means in the sample to keep a constant sample size. P(n) is the value at the n-th percentile, e.g. p(50) is the median value.

Table A3: Selection analysis using the full sample, responders and non-responders in 2010 CMI

	Full Sample		Non-Responders in 2010 CMI		Responders in 2010 CMI					
	(1) Surveyed	(2) Surveyed	(3) Surveyed	(4) Surveyed	(5) Surveyed	(6) Surveyed	(7) Surveyed	(8) Surveyed	(9) Surveyed	(10) Surveyed
Log(employees)	0.007 (0.017)	-0.052*** (0.018)	-0.065** (0.032)	-0.082** (0.033)	0.028 (0.022)	-0.061*** (0.024)	-0.054** (0.024)	-0.055** (0.024)	-0.024 (0.033)	-0.062** (0.025)
Log(age)		0.036 (0.027)		-0.024 (0.048)		0.055 (0.034)	0.052 (0.034)	0.052 (0.034)	0.055 (0.034)	0.047 (0.035)
Log(value added/employee)							-0.022 (0.029)			
Log(capital/employee)								-0.040 (0.026)		
Log(profitability)									-0.035 (0.024)	
Log(wages/employee)										0.077 (0.063)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3885	3885	1642	1642	2241	2241	2241	2241	2241	2241
Dep. var. mean	0.51	0.51	0.30	0.30	0.66	0.66	0.66	0.66	0.66	0.66

*Note:* All columns estimated by Probit ML. Marginal effects reported with robust standard errors in parentheses. **Surveyed** is a dummy indicating whether the establishment was surveyed in MOPS. Establishment age is defined by the date when the establishment became operative reported for MOPS responders as reported in the survey, and the date the establishment was formally registered for MOPS non-responders as reported in the CMI. The correlation between these two age measures for the 2,209 establishments for which we have both values is .85. In observations with missing values, we replaced with the median in the within-industry (3-digit PSIC) sample. Log of value added per employee is calculated as ((total sales - total materials)/total employment). Log of capital per employee is calculated as (stock of capital reported in the beginning of the period/total employment). Log of profitability calculated as (total value added - total wages). CMI establishment accounts variables have been winsorized at 99%.

Table A4: Management-performance relationship is largely robust to the inclusion of sampling weights

	Log(Value Added Per Employee)				Log(Profitability)				Employment Growth
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Management	0.598*** (0.174)	0.599** (0.265)	0.967*** (0.204)	1.364 (1.080)	0.778*** (0.211)	0.735** (0.307)	1.195*** (0.246)	2.440* (1.397)	0.235*** (0.079)
Log(capital/employee)	0.224*** (0.028)	0.180*** (0.041)	0.273*** (0.033)	0.114 (0.086)	0.251*** (0.031)	0.192*** (0.042)	0.312*** (0.040)	0.107 (0.077)	0.006 (0.007)
Log(employees)	0.064** (0.028)	0.082* (0.043)	0.025 (0.033)	-0.557*** (0.198)	1.103*** (0.039)	1.120*** (0.050)	1.059*** (0.048)	0.398*** (0.141)	-0.035*** (0.013)
Noise controls	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Sampling weights	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Observations	1842	699	1143	1000	1770	679	1091	928	776
# of firms (clusters)	1342	699	1143	500	1306	679	1091	464	776
Dep. var. mean	6.12	5.82	6.30	6.01	10.04	9.84	10.16	10.11	0.20
Dep. var. SD	1.16	1.15	1.13	1.16	2.11	2.18	2.05	2.23	0.33
Year	Both yrs	2005	2010	Both yrs	Both yrs	2005	2010	Both yrs	Both yrs
Fixed effects	Industry	Industry	Industry	Establishment	Industry	Industry	Industry	Establishment	Industry

*Note:* All columns estimated by OLS. Standard errors are clustered at the establishment level. Sampling weights are constructed by taking the the inverse probability of establishment selection into the sample using the specification in column (2), bottom panel of Table A3. The **management score** is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale. The log of capital per employee is the stock of capital reported in the beginning of the period. The sample in all columns is all MOPS observations with at least 11 non-missing responses to management questions and a successful match to CMI, have positive value added, positive employment and positive imputed capital stock in the CMI. Year fixed effects are included in all regressions using both 2005 and 2010 samples. **Dependent variables:** In column 1 to 4 the dependent variable is the log of value added per employee where value added per employee is calculated as ((total sales - total materials)/total employment). In columns 5 to 8 the dependent variable is log of profitability calculated as (total value added - total wages). In column 9 the dependent variable is employment growth measured between 2005 and 2010 ( $\text{emp}_{2010} - \text{emp}_{2005} / ((.5 * \text{emp}_{2010}) + (.5 * \text{emp}_{2005}))$ ), sourcing this information from MOPS. **Noise controls** are (1) the distance between CMI and MOPS reported employment for 2005 and 2010, (2) a dummy indicating whether the survey was filled prior to the interview, (3) a dummy indicating whether a representative from the State Bank Pakistan was present during the interview, (4) numbers of establishment visits, (5) date of filing, (6) day of week, (7) company tenure of the respondent, (8) seniority of the respondent, and (9) a dummy indicating whether enumerator received additional training prior to interview.

Table A5: Management rankings within Pakistan

	Management score	Margin of error (+/-)	Obs
1 Dera Ghazi Khan	0.558	0.026	98
2 Rawalpindi	0.523	0.033	72
3 Multan	0.518	0.021	198
4 Islamabad	0.486	0.026	167
5 Lahore	0.461	0.010	996
6 Sargodha	0.455	0.039	49
7 Gujranwala	0.433	0.010	1091
8 Faisalabad	0.401	0.012	808
9 Bahawalpur	0.399	0.029	156
10 Sahiwal	0.386	0.038	79

*Note:* The sample is all MOPS observations with at least 11 non-missing responses to management questions (3714 observations from 1983 establishments). The management score is the unweighted average of the score for each of the 16 questions, where each question is first normalized to be on a 0-1 scale.

## B Data

### B.1 Selection analysis

We compare the responders with the non-responders in MOPS against a number of potential selection bias. For establishments which did not respond to the 2010 CMI, we compare the group of responders and non-responders in MOPS against establishment size (number of employees) and establishment age (year in which establishment was formally registered). For the establishments which responded to the 2010 CMI, in addition to establishment size and age, we also compare against establishment accounts measures, including labor productivity (value added per employee), capital/labor ratio, profitability, and average wages. In this analysis we do exclude establishments that have ceased to exist or were no longer manufacturing and thus could not be interviewed.

The results of this analysis are in Table A3. Overall and within each group of non-responders and of responders in the 2010 CMI, it seems that smaller establishments are more likely to be interviewed in MOPS, even when controlling for establishment age. Interestingly, conditional on these two establishment characteristics, it does not seem that there is any bias in terms of establishment accounts measures described above - these coefficients are small in magnitude and not significant. All specifications include dummies for the 10 regions within the province of Punjab as detailed in Table A5.

To address any sample selection bias concerns in the management-performance regressions, we use the regression in column (2) in the bottom panel of Table A4 to construct sampling weights. We take the inverse probability of establishment selection into the sample and re-run the main results in Table 4 and Table 5 using the estimated weights in order to check if this size selection issue is biasing the results. Table A3 shows this analysis and confirms that the results remain largely consistent to the results when no sampling weights are used.

### B.2 Establishment accounts

Below is a summary of the measures available in the 2005 and 2010 CMI which are used in this analysis:

- **Year of registration** is the year in which establishment was registered
- **Total employment** is calculated using total number of males and females including regular employees, contract employees, casual paid employees, average number of seasonal employees contributing family workers, working proprietor & active partners
- **Total wages** is the sum of values reported for wages & salaries, other cash payment, and payment in kind

- **Total sales** is the value reported for sales of finished/semi finished goods, own production
- **Total materials** is the value reported for payments for raw materials, chemicals & dyes parts, components, packing materials, etc
- **Capital** is the value reported for total fixed assets/stock in the beginning of the reporting period
- **Value added per employee** is calculated as  $((\text{Total sales} - \text{Total materials}) / \text{Total employment})$
- **Profitability** calculated as  $(\text{Total value added} - \text{Total wages})$

### B.3 Noise controls

Below is a summary of the noise controls used in the analysis:

- Distance between CMI and MOPS reported employment for 2005 and 2010, calculated as the absolute values of the difference between the reported values for MOPS and CMI for each year (added only when CMI accounts data is used)
- Indicator for whether survey was completed before Pakistan Bureau of Statistics enumerator conducted interview as reported in question 38-4 of the MOPS questionnaire. In such cases enumerators were instructed to confirm the responses to 10 questions in the survey (Q2, Q3, Q9, Q11, Q15, Q16, Q17, Q25, Q27, and Q28)
- Indicator for whether a representative from the State Bank Pakistan was present during the interview as reported in question 38-5 of the MOPS questionnaire
- Number of establishment physical visits, indicated by the number of attempts made by the enumerator for the interview as reported in question 38-2 of the MOPS questionnaire
- Date of filing, that is, the date the interview was completed and filed
- Day of week, that is, the day of the week the interview was completed and filed
- Company tenure of the respondent, calculated as number of years since the respondent started working at the establishment as reported in question 31 of the MOPS questionnaire
- Seniority of the respondent, introduced as a set of dummy variables to capture the categories reported in question 30 of the MOPS questionnaire (CEO or Executive Officer, Manager of multiple establishments, Manager of one establishment, Non-manager, Other)
- Indicator for whether enumerators received additional training prior to interview.

## C Questionnaire and Normalization of MOPS Responses

We normalize the responses of each question on a 0-1 scale for (i) questions 1 to 16 (management topics), (ii) 18 to 23 (autonomy topics), and (iii) 27 to 28 (data availability and usage topics). For management, the response which is associated with the most structured management practice is normalized to 1, and the one associated with the least structured is normalized to zero. We define more structured management practices as those that are more specific, formal, frequent or explicit. The management score is calculated as the unweighted average of the normalized responses for the 16 management questions. For establishment autonomy, the response associated with highest establishment autonomy in decision making is normalized to 1, and the one associated with lowest autonomy is normalized to zero. These questions are only recorded for establishments reporting to be in a different location than the headquarters. For data availability and usage, the response associated with highest availability and usage of data in decision making is normalized to 1, the one associated with lowest is normalized to zero. Categories in between are assigned in between values. Sections C.1, C.2, C.3 show how values are assigned to the responses of each question in more detail.

### C.1 Management Practices

1. What best describes what happened at this establishment when a problem in the production process arose?
  - 0.00 No action was taken
  - 0.33 We fixed it but did not take further action
  - 0.67 We fixed it and took action to make sure that it did not happen again
  - 1.00 We fixed it and took action to make sure that it did not happen again, and had a continuous improvement process to anticipate problems like these in advance
2. How many key performance indicators were monitored at this establishment?
  - 0.00 No key performance indicators (If no key performance indicators in both years, skip to 6)
  - 0.33 1-2 key performance indicators
  - 0.67 3-9 key performance indicators
  - 1.00 10 or more key performance indicators
3. How frequently were the key performance indicators reviewed by managers at this establishment?
  - 0.00 Never
  - 0.17 Yearly
  - 0.33 Quarterly
  - 0.50 Monthly
  - 0.67 Weekly
  - 0.83 Daily
  - 1.00 Hourly or more frequently
4. How frequently were the key performance indicators reviewed by non-managers at this establishment?
  - 0.00 Never

- 0.17 Yearly
  - 0.33 Quarterly
  - 0.50 Monthly
  - 0.67 Weekly
  - 0.83 Daily
  - 1.00 Hourly or more frequently
5. Where were the production display boards/notice board showing output and other key performance indicators located at this establishment?
- 0.00 We did not have any display / notice boards
  - 0.50 All display / notice boards were located in one place (e.g. at the end of the production line)
  - 1.00 Display / notice boards were located in multiple places (e.g. at multiple stages of production)
6. What best describes the time frame of production targets at this establishment?
- 0.00 No production targets (If no production targets in both years, skip to 13)
  - 0.33 Main focus was on short-term (less than one year) production targets
  - 0.67 Main focus was on long-term (more than one year) production targets
  - 1.00 Combination of short-term and long-term production targets
7. How easy or difficult was it for this establishment to achieve its production targets?
- 0.00 No production targets (Possible to achieve without much effort)
  - 0.25 Only possible to achieve with extraordinary effort
  - 0.50 Possible to achieve with some effort
  - 1.75 Possible to achieve with normal amount of effort
  - 1.00 Possible to achieve with more than normal effort
8. Who was aware of the production targets at this establishment?
- 0.00 Only senior managers
  - 0.33 Most managers and some production workers
  - 0.67 Most managers and most production workers
  - 1.00 All managers and most production workers
9. What were non-managers' performance bonuses usually based on?
- 0.00 No performance bonuses (If no performance bonuses in both years, skip to 11)
  - 0.25 Their company's performance as measured by production targets
  - 0.50 Their establishment's performance as measured by production targets
  - 0.75 Their team or shift performance as measured by production targets
  - 1.00 Their own performance as measured by production targets
10. When production targets were met, what percent of non-managers at this establishment received performance bonuses?
- 0.00 Production targets not met
  - 0.20 0%
  - 0.40 1-33%
  - 0.60 34-66%
  - 0.80 67-99%
  - 1.00 100%
11. What were managers' performance bonuses usually based on?
- 0.00 No performance bonuses (If no performance bonuses in both years, skip to 13)
  - 0.25 Their company's performance as measured by production targets
  - 0.50 Their establishment's performance as measured by production targets
  - 0.75 Their team or shift performance as measured by production targets
  - 1.00 Their own performance as measured by production targets

12. When production targets were met, what percent of managers at this establishment received performance bonuses?
- 0.00 Production targets not met
  - 0.20 0%
  - 0.40 1-33%
  - 0.60 34-66%
  - 0.80 67-99%
  - 1.00 100%
13. What was the primary way non-managers were promoted at this establishment?
- 0.00 Non-managers are normally not promoted
  - 0.33 Promotions were based mainly on factors other than performance and ability (for example, tenure or family connections)
  - 0.67 Promotions were based partly on performance and ability, and partly on other factors (for example, tenure or family connections)
  - 1.00 Promotions were based solely on performance and ability
14. What was the primary way managers were promoted at this establishment?
- 0.00 Managers are normally not promoted
  - 0.33 Promotions were based mainly on factors other than performance and ability (for example, tenure or family connections)
  - 0.67 Promotions were based partly on performance and ability, and partly on other factors (for example, tenure or family connections)
  - 1.00 Promotions were based solely on performance and ability
15. When was an under-performing non-manager reassigned or dismissed?
- 0.00 Rarely or never
  - 0.50 After 6 months of identifying non-manager under-performance
  - 1.00 Within 6 months of identifying non-manager under-performance
16. When was an under-performing manager reassigned or dismissed?
- 0.00 Rarely or never
  - 0.50 After 6 months of identifying manager under-performance
  - 1.00 Within 6 months of identifying manager under-performance

## C.2 Decentralization of Decision Making Power

18. Where were decisions on hiring permanent full-time employees made?
- 0.00 Only at headquarters
  - 0.50 Both at this establishment and at headquarters
  - 1.00 Only at this establishment
  - Other (please specify)
19. Where were decisions to give an employee a regular pay increase of at least 10% made? Regular pay includes, basic pay, perks, and allowances, but excludes bonuses.
- 0.00 Only at headquarters
  - 0.50 Both at this establishment and at headquarters
  - 1.00 Only at this establishment
  - Other (please specify)
20. Where were decisions on new product introductions made?
- 0.00 Only at headquarters
  - 0.50 Both at this establishment and at headquarters
  - 1.00 Only at this establishment
  - Other (please specify)

21. Where were product pricing decisions made?
- 0.00 Only at headquarters
  - 0.50 Both at this establishment and at headquarters
  - 1.00 Only at this establishment
  - Other (please specify)
22. Where were advertising decisions for product made?
- 0.00 Only at headquarters
  - 0.50 Both at this establishment and at headquarters
  - 1.00 Only at this establishment
  - Other (please specify)
23. What was the rupee amount that could be used to purchase a fixed/capital asset at this establishment without prior authorization from headquarters (HQ)? Fixed / capital asset means property, plant, machinery and equipment.
- 0.00 Not authorized without prior permission from HQ
  - 0.20 Under Rs. 100,000
  - 0.40 Rs. 100,000 to Rs. 999,999
  - 0.60 Rs. 1,000,000 to Rs. 9,999,999
  - 0.80 Rs. 10,000,000 to Rs. 99,999,999
  - 1.00 Rs. 100 million or more

### **C.3 Data Usage in Decision Making**

27. Who prioritized or allocated tasks to production workers at this establishment?
- 0.00 Data to support decision making were not available
  - 0.25 A small amount of data to support decision making was available
  - 0.50 A moderate amount of data to support decision making was available
  - 0.75 A great deal of data to support decision making was available
  - 1.00 All the data we need to support decision making was available
28. What best describes the availability of data to support decision making at this establishment?
- 0.00 Decision making did not use data
  - 0.25 Decision making relies slightly on data
  - 0.50 Decision making relies moderately on data
  - 0.75 Decision making relies heavily on data
  - 1.00 Decision making relies entirely on data



**Section B - Management Practices** **حصہ ب۔ انتظامی طور طریقے**

Q No. 1	In 2005-06 and 2010-11, what best describes what happened at this establishment when a problem in the production process arose? <i>Check one box for each year</i> Examples: Finding a quality defect in a product or a piece of machinery breaking down. سوال نمبر 1: 2005-06 اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں پیداواری عمل میں جب کوئی مسئلہ پیدا ہوا تو کیا کیا گیا؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔ مثلاً کسی پراڈکٹ کے معیار میں نقص دیکھا گیا یا مشینری کا کوئی پرزہ ٹوٹ گیا۔	2010-11	2005-06	
1	We fixed it but did not take further action	<input type="checkbox"/>	<input type="checkbox"/>	ہم نے اسے درست کر دیا لیکن مزید کوئی قدم نہیں اٹھایا
2	We fixed it and took action to make sure that it did not happen again	<input type="checkbox"/>	<input type="checkbox"/>	ہم نے اسے درست کیا اور آئندہ ایسے واقعات سے بچنے کے لیے اقدامات کیے
3	We fixed it and took action to make sure that it did not happen again, and had a continuous improvement process to anticipate problems like these in advance	<input type="checkbox"/>	<input type="checkbox"/>	ہم نے اسے درست کیا اور آئندہ ایسے واقعات سے بچنے کے لیے اقدامات کیے، اور بہتری کا ایک مسلسل عمل اختیار کیا تاکہ ایسے مسائل کا پھیلنے سے اندازہ لگایا جاسکے
4	No action was taken	<input type="checkbox"/>	<input type="checkbox"/>	کوئی قدم نہیں اٹھایا گیا

Q No. 2	In 2005-06 and 2010-11, how many key performance indicators were monitored at this establishment? <i>Check one box for each year</i> Examples of indicators: Metrics on production, cost, waste, quality, inventory, energy, absenteeism, deliveries on time, customer satisfaction, overall equipment effectiveness, actual production time, labour cost per unit, productivity of labour. سوال نمبر 2: 2005-06 اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں کارکردگی کے کتنے اہم بیانات پر نظر رکھی گئی؟ ہر سال کے ایک خانے پر نشان لگائیں۔ مثلاً پیداوار، لاگت، زیاں، معیار، ذخیرہ توانائی، غیر حاضری، مال وقت پر پہنچانا، صارفین کا اطمینان، آلات کی مجموعی کارکردگی، پیداوار کا اصل دورانیہ، فی یونٹ لیبر لاگت اور لیبر کی پیداواریت	2010-11	2005-06	
1	1-2 key performance indicators	<input type="checkbox"/>	<input type="checkbox"/>	1 سے 2 کارکردگی کے اہم بیانات
2	3-9 key performance indicators	<input type="checkbox"/>	<input type="checkbox"/>	3 سے 9 کارکردگی کے اہم بیانات
3	10 or more key performance indicators	<input type="checkbox"/>	<input type="checkbox"/>	10 یا زیادہ کارکردگی کے اہم بیانات
4	No key performance indicators (If no key performance indicators in both years, SKIP to 6)	<input type="checkbox"/>	<input type="checkbox"/>	کوئی بیانات نہیں (اگر دونوں برسوں میں کارکردگی کا کوئی اہم بیانات نہ ہو تو سوال 6 پر جائیں)

Q No. 3	During 2005-06 and 2010-11, how frequently were the key performance indicators reviewed by managers at this establishment? <i>Mark all that apply</i> A manager is someone who has employees directly reporting to them, with whom they meet on a regular basis, and whose pay and promotion he may be involved with, e.g., Plant Manager, Human Resource Manager, Quality Manager. سوال نمبر 3: 2005-06 اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں کارکردگی کے اہم بیانات کو کیسے بار بار جانچا گیا؟ تمام متعلقہ جوابات پر نشان لگائیں۔ منیجر وہ فرد ہے جس کے ماتحت ملازمین اس کو براہ راست رپورٹ کرتے ہوں، جس کے ساتھ وہ باقاعدہ ملاقات کرتے ہوں، اور جو ان کی تنخواہ اور ترقی کے امور میں بھی شامل ہو سکتا ہے، مثال کے طور پر پلانٹ منیجر، ہیومن ریسورس منیجر، کوالٹی منیجر	2010-11	2005-06	
1	Yearly	<input type="checkbox"/>	<input type="checkbox"/>	سالانہ
2	Quarterly	<input type="checkbox"/>	<input type="checkbox"/>	سہ ماہی
3	Monthly	<input type="checkbox"/>	<input type="checkbox"/>	ماہانہ
4	Weekly	<input type="checkbox"/>	<input type="checkbox"/>	ہفتہ وار
5	Daily	<input type="checkbox"/>	<input type="checkbox"/>	یومیہ
6	Hourly or more frequently	<input type="checkbox"/>	<input type="checkbox"/>	گھنٹہ وار یا اس سے بھی پہلے
7	Never	<input type="checkbox"/>	<input type="checkbox"/>	کبھی نہیں

Q No. 4	During 2005-06 and 2010-11, how frequently were the key performance indicators reviewed by non-managers at this establishment? <b>Mark all that apply</b> Non-managers are all employees at the establishment who are not managers as defined in Q3.			
	سوال نمبر 4: 2005-06 اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں کارکردگی کے اہم پیمانوں کا غیر منیجرز نے کتنی بار جائزہ لیا؟ تمام متعلقہ جوابات پر نشان لگائیں اسٹبلشمنٹ کے وہ تمام افراد غیر منیجرز ہیں جو سوال 3 کی تشریح کے مطابق منیجرز نہ ہوں۔			
		2010-11	2005-06	
1	Yearly	<input type="checkbox"/>	<input type="checkbox"/>	سالانہ
2	Quarterly	<input type="checkbox"/>	<input type="checkbox"/>	سہ ماہی
3	Monthly	<input type="checkbox"/>	<input type="checkbox"/>	ماہانہ
4	Weekly	<input type="checkbox"/>	<input type="checkbox"/>	ہفتہ وار
5	Daily	<input type="checkbox"/>	<input type="checkbox"/>	یومیہ
6	Hourly or more frequently	<input type="checkbox"/>	<input type="checkbox"/>	گھنٹہ وار یا اس سے بھی پہلے
7	Never	<input type="checkbox"/>	<input type="checkbox"/>	کبھی نہیں

Q No. 5	During 2005-06 and 2010-11, where were the production display boards / notice board showing output and other key performance indicators located at this establishment? <i>Check one box for each year</i> سوال نمبر 5: 2005-06 اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں پیداواری مقدار اور دیگر کارکردگی کے اہم پیمانوں کی تفصیل بتانے والے ڈسپلے بورڈز/نوٹس بورڈز کہاں لگائے گئے؟ ہر سال کے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	All display / notice boards were located in one place (e.g. at the end of the production line)	<input type="checkbox"/>	<input type="checkbox"/>	تمام ڈسپلے/نوٹس بورڈ ایک جگہ پر لگائے گئے (مثال کے طور پر پروڈکشن لائن کے اختتام پر)
2	Display / notice boards were located in multiple places (e.g. at multiple stages of the production line)	<input type="checkbox"/>	<input type="checkbox"/>	ڈسپلے/نوٹس بورڈز کئی جگہوں پر لگائے گئے (مثال کے طور پر پروڈکشن لائن کے مختلف مراحل پر)
3	We did not have any display / notice boards	<input type="checkbox"/>	<input type="checkbox"/>	ہمارے یہاں ڈسپلے/نوٹس بورڈ نہیں ہوتے

Q No. 6	In 2005-06 and 2010-11, what best describes the time frame of production targets at this establishment? <i>Check one box for each year</i> Examples of production targets are: production, quality, efficiency, waste, on-time delivery. سوال نمبر 6: 2005-06 اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں پیداواری ہدف (ٹارگٹس) کے ٹائم فریم کو کون سا بیان بہتر طور پر واضح کرتا ہے؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔ پیداواری اہداف (ٹارگٹس) کی مثالیں ہیں: پیداوار، معیار، پیداواری صلاحیت، زیاں، مال وقت پر پہنچانا			
		2010-11	2005-06	
1	Main focus was on short-term (less than one year) production targets	<input type="checkbox"/>	<input type="checkbox"/>	مختصر مدت (ایک سال سے کم) کے پیداواری اہداف (ٹارگٹس) پر زیادہ توجہ دی گئی
2	Main focus was on long-term (more than one year) production targets	<input type="checkbox"/>	<input type="checkbox"/>	لمبی مدت (ایک سال سے زیادہ) کے پیداواری اہداف (ٹارگٹس) پر زیادہ توجہ دی گئی
3	Combination of short-term and long-term production targets	<input type="checkbox"/>	<input type="checkbox"/>	دونوں مختصر اور لمبی مدت کے پیداواری اہداف (ٹارگٹس) پر توجہ دی گئی
4	No production targets (If no production targets in both years, SKIP to 13)	<input type="checkbox"/>	<input type="checkbox"/>	کوئی پیداواری ہدف (ٹارگٹس) نہیں (اگر کوئی پیداواری ہدف (ٹارگٹس) دونوں برسوں میں نہ ہوں تو سوال 13 پر چلے جائیں)



Q No. 10	In 2005-06 and 2010-11, when production targets were met, what percent of <b>non-managers</b> at this establishment received performance bonuses? <i>Check one box for each year</i>			
	سوال نمبر 10: 2005-06ء اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں جب پیداواری اہداف (ٹارگٹس) پورے کیے گئے تو کتنے فیصد غیر منیجرز کو کارکردگی بونس دیے گئے؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	0%	<input type="checkbox"/>	<input type="checkbox"/>	صفر فیصد
2	1-33%	<input type="checkbox"/>	<input type="checkbox"/>	1 سے 33 فیصد
3	34-66%	<input type="checkbox"/>	<input type="checkbox"/>	34 سے 66 فیصد
4	67-99%	<input type="checkbox"/>	<input type="checkbox"/>	67 سے 99 فیصد
5	100%	<input type="checkbox"/>	<input type="checkbox"/>	100 فیصد
6	Production targets not met	<input type="checkbox"/>	<input type="checkbox"/>	پیداواری اہداف (ٹارگٹس) پورے نہ ہوئے

Q No. 11	In 2005-06 and 2010-11, what were <b>managers'</b> performance bonuses usually based on? <i>Mark all that apply</i>			
	سوال نمبر 11: 2005-06ء اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں منیجرز کے کارکردگی بونس کی بنیاد عموماً کیا تھی؟ تمام متعلقہ جوابات پر نشان لگائیں			
		2010-11	2005-06	
1	Their own performance as measured by production targets	<input type="checkbox"/>	<input type="checkbox"/>	پیداواری اہداف (ٹارگٹس) کے لحاظ سے ان کی اپنی کارکردگی کی پیمائش
2	Their team or shift performance as measured by production targets	<input type="checkbox"/>	<input type="checkbox"/>	پیداواری اہداف (ٹارگٹس) کے لحاظ سے ان کی ٹیم یا شفٹ کی کارکردگی کی پیمائش
3	Their establishment's performance as measured by production targets	<input type="checkbox"/>	<input type="checkbox"/>	پیداواری اہداف (ٹارگٹس) کے لحاظ سے ان کی اسٹبلشمنٹ کی کارکردگی کی پیمائش
4	Their company's performance as measured by production targets	<input type="checkbox"/>	<input type="checkbox"/>	پیداواری اہداف (ٹارگٹس) کے لحاظ سے ان کی کمپنی کی کارکردگی کی پیمائش
5	No performance bonuses (If no performance bonuses in both years, SKIP to 13)	<input type="checkbox"/>	<input type="checkbox"/>	کوئی کارکردگی بونس نہیں دیا گیا (اگر دونوں برسوں میں کوئی کارکردگی بونس نہیں دیا گیا تو سوال 13 پر چلے جائیں)

Q No. 12	In 2005-06 and 2010-11, when production targets were met, what percentage of <b>managers</b> at this establishment received performance bonuses? <i>Check one box for each year</i>			
	سوال نمبر 12: 2005-06ء اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں جب پیداواری اہداف (ٹارگٹس) پورے کیے گئے تو کتنے فیصد منیجرز کو کارکردگی بونس دیے گئے؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	0%	<input type="checkbox"/>	<input type="checkbox"/>	صفر فیصد
2	1-33%	<input type="checkbox"/>	<input type="checkbox"/>	1 سے 33 فیصد
3	34-66%	<input type="checkbox"/>	<input type="checkbox"/>	34 سے 66 فیصد
4	67-99%	<input type="checkbox"/>	<input type="checkbox"/>	67 سے 99 فیصد
5	100%	<input type="checkbox"/>	<input type="checkbox"/>	100 فیصد
6	Production targets not met	<input type="checkbox"/>	<input type="checkbox"/>	پیداواری اہداف (ٹارگٹس) پورے نہ ہوئے

Q No. 13	In 2005-06 and 2010-11, what was the primary way <b>non-managers</b> were promoted at this establishment? <i>Check one box for each year</i>			
	سوال نمبر 13: 2005-06ء اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں غیر منیجرز کی ترقی کا بنیادی طریقہ کار کیا تھا؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	Promotions were based solely on performance and ability	<input type="checkbox"/>	<input type="checkbox"/>	ترقی کی بنیاد صرف اور صرف کارکردگی اور قابلیت تھی
2	Promotions were based partly on performance and ability, and partly on other factors (for example, tenure or family connections)	<input type="checkbox"/>	<input type="checkbox"/>	ترقی کی بنیاد کسی حد تک کارکردگی اور قابلیت تھی، اور کچھ دیگر عوامل بھی تھے (مثلاً مدت ملازمت یا خاندانی تعلقات)
3	Promotions were based mainly on factors other than performance and ability (for example, tenure or family connections)	<input type="checkbox"/>	<input type="checkbox"/>	ترقی کی بنیاد کارکردگی اور قابلیت کے علاوہ دیگر عوامل پر زیادہ تھی (مثلاً مدت ملازمت یا خاندانی تعلقات)
4	Non-managers are normally not promoted	<input type="checkbox"/>	<input type="checkbox"/>	نان منیجرز کو عموماً ترقی نہیں دی جاتی

Q No. 14	In 2005-06 and 2010-11, what was the primary way <b>managers</b> were promoted at this establishment? <i>Check one box for each year</i>			
	سوال نمبر 14: 2005-06ء اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں منیجرز کی ترقی کا بنیادی طریقہ کار کیا تھا؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	Promotions were based solely on performance and ability	<input type="checkbox"/>	<input type="checkbox"/>	ترقی کی بنیاد صرف اور صرف کارکردگی اور قابلیت تھی
2	Promotions were based partly on performance and ability, and partly on other factors (for example, tenure or family connections)	<input type="checkbox"/>	<input type="checkbox"/>	ترقی کی بنیاد کسی حد تک کارکردگی اور قابلیت تھی، اور کچھ دیگر عوامل بھی تھے (مثلاً مدت ملازمت یا خاندانی تعلقات)
3	Promotions were based mainly on factors other than performance and ability (for example, tenure or family connections)	<input type="checkbox"/>	<input type="checkbox"/>	ترقی کی بنیاد کارکردگی اور قابلیت کے علاوہ دیگر عوامل پر زیادہ تھی (مثلاً مدت ملازمت یا خاندانی تعلقات)
4	Managers are normally not promoted	<input type="checkbox"/>	<input type="checkbox"/>	منیجرز کو عموماً ترقی نہیں دی جاتی

Q No. 15	In 2005-06 and 2010-11, when was an under-performing <b>non-manager</b> reassigned or dismissed? <i>Check one box for each year</i>			
	سوال نمبر 15: 2005-06ء اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں معیار سے کم کارکردگی دکھانے والے غیر منیجرز کو کب نوکری سے نکال دیا گیا یا کہیں اور لگا دیا گیا؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	Within 6 months of identifying non-manager under-performance	<input type="checkbox"/>	<input type="checkbox"/>	غیر منیجرز کی معیار سے کم کارکردگی دکھانے کے 6 ماہ کے اندر
2	After 6 months of identifying non-manager under-performance	<input type="checkbox"/>	<input type="checkbox"/>	غیر منیجرز کی معیار سے کم کارکردگی دکھانے کے 6 ماہ بعد
3	Rarely or never	<input type="checkbox"/>	<input type="checkbox"/>	کبھی کبھار یا کبھی نہیں

Q No. 16	In 2005-06 and 2010-11, when was an under-performing <b>manager</b> reassigned or dismissed? <i>Check one box for each year</i> سوال نمبر 16: 2005-06 اور 2010-11ء کے دوران اس اسٹبلشمنٹ میں معیار سے کم کارکردگی دکھانے والے منیجر کو کب نوکری سے نکال دیا گیا یا کہیں اور لگا دیا گیا؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	Within 6 months of identifying manager under-performance	<input type="checkbox"/>	<input type="checkbox"/>	منیجر کی معیار سے کم کارکردگی دکھانے کے 6 ماہ کے اندر
2	After 6 months of identifying manager under-performance	<input type="checkbox"/>	<input type="checkbox"/>	منیجر کی معیار سے کم کارکردگی دکھانے کے 6 ماہ بعد
3	Rarely or never	<input type="checkbox"/>	<input type="checkbox"/>	کبھی کبھار یا کبھی نہیں

<b>Section C - Organization</b>	حصہ ج - تنظیم
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Q No. 17	In 2005-06 and 2010-11, was the headquarters for this company at the same location as this establishment? <i>Check one box for each year</i> سوال نمبر 17: 2005-06 اور 2010-11ء میں کیا اس کمپنی کا ہیڈ کوارٹر اسی جگہ تھا جہاں موجودہ اسٹبلشمنٹ ہے؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	Yes (If yes in both years, SKIP to 24)	<input type="checkbox"/>	<input type="checkbox"/>	ہاں (اگر دونوں سال کے لیے ہاں تو سوال نمبر 24 پر جائیے)
2	No	<input type="checkbox"/>	<input type="checkbox"/>	نہیں

Q No. 18	In 2005-06 and 2010-11, where were decisions on <b>hiring permanent full-time employees</b> made? <i>Check one box for each year</i> سوال نمبر 18: 2005-06 اور 2010-11ء میں مستقل ملازمین کو بھرتی کرنے کے فیصلے کہاں کیے گئے؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔			
		2010-11	2005-06	
1	Only at this establishment	<input type="checkbox"/>	<input type="checkbox"/>	صرف اس اسٹبلشمنٹ میں
2	Only at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	صرف ہیڈ کوارٹر میں
3	Both at this establishment and at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	دونوں جگہ (اس اسٹبلشمنٹ میں بھی اور ہیڈ کوارٹر میں بھی)
4	Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)

Q No. 19	In 2005-06 and 2010-11, where were decisions to <b>give an employee a regular pay increase of at least 10%</b> made? <i>Check one box for each year</i> Regular pay includes, basic pay, perks, and allowances, but excludes bonuses. سوال نمبر 19: 2005-06 اور 2010-11ء میں کسی ملازم کی باقاعدہ تنخواہ میں کم از کم 10 فیصد اضافے کے فیصلے کہاں کیے گئے؟ ہر سال کے لیے ایک خانے پر نشان لگائیں۔ باقاعدہ تنخواہ سے مراد بنیادی تنخواہ اور الائنڈس ہیں، لیکن بونس شامل نہیں۔			
		2010-11	2005-06	
1	Only at this establishment	<input type="checkbox"/>	<input type="checkbox"/>	صرف اس اسٹبلشمنٹ میں
2	Only at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	صرف ہیڈ کوارٹر میں
3	Both at this establishment and at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	دونوں جگہ (اس اسٹبلشمنٹ میں بھی اور ہیڈ کوارٹر میں بھی)
4	Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)

<b>Q No. 20</b>	In 2005-06 and 2010-11, where were decisions on <b>new product introductions</b> made? <i>Check one box for each year</i> سوال نمبر 20: 2005-06 اور 2010-11ء میں نئی پراڈکٹس متعارف کرانے کے فیصلے کہاں کیے گئے؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔			
		<b>2010-11</b>	<b>2005-06</b>	
1	Only at this establishment	<input type="checkbox"/>	<input type="checkbox"/>	صرف اس اسٹبلشمنٹ میں
2	Only at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	صرف ہیڈ کوارٹر میں
3	Both at this establishment and at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	دونوں جگہ (اس اسٹبلشمنٹ میں بھی اور ہیڈ کوارٹر میں بھی)
4	Other ( <i>please specify</i> )	<input type="checkbox"/>	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)

<b>Q No. 21</b>	In 2005-06 and 2010-11, where were <b>product pricing</b> decisions made? <i>Check one box for each year</i> سوال نمبر 21: 2005-06 اور 2010-11ء میں پراڈکٹ کی قیمت طے کرنے کے فیصلے کہاں کیے گئے؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔			
		<b>2010-11</b>	<b>2005-06</b>	
1	Only at this establishment	<input type="checkbox"/>	<input type="checkbox"/>	صرف اس اسٹبلشمنٹ میں
2	Only at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	صرف ہیڈ کوارٹر میں
3	Both at this establishment and at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	دونوں جگہ (اس اسٹبلشمنٹ میں بھی اور ہیڈ کوارٹر میں بھی)
4	Other ( <i>please specify</i> )	<input type="checkbox"/>	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)

<b>Q No. 22</b>	In 2005-06 and 2010-11, where were <b>advertising</b> decisions for product made? <i>Check one box for each year</i> سوال نمبر 22: 2005-06 اور 2010-11ء میں پراڈکٹس کے اشتہارات کے فیصلے کہاں کیے گئے؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔			
		<b>2010-11</b>	<b>2005-06</b>	
1	Only at this establishment	<input type="checkbox"/>	<input type="checkbox"/>	صرف اس اسٹبلشمنٹ میں
2	Only at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	صرف ہیڈ کوارٹر میں
3	Both at this establishment and at headquarters	<input type="checkbox"/>	<input type="checkbox"/>	دونوں جگہ (اس اسٹبلشمنٹ میں بھی اور ہیڈ کوارٹر میں بھی)
4	Other ( <i>please specify</i> )	<input type="checkbox"/>	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)

<b>Q No. 23</b>	In 2005-06 and 2010-11, what was the rupee amount that could be used to purchase a fixed/capital asset at this establishment without prior authorization from headquarters (HQ)? <i>Check one box for each year</i> Fixed/capital asset means property, plant, machinery and equipment. سوال نمبر 23: 2005-06 اور 2010-11ء میں اس اسٹبلشمنٹ میں ہیڈ کوارٹر کی پہلے سے اجازت کے بغیر کتنی رقم کا کوئی فیکسڈ/کیپٹل اثاثہ خریدیا جاسکتا تھا؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔ (فیکسڈ/کیپٹل اثاثے سے مراد پراپرٹی، پلانٹ، مشینری اور پرزہ جات ہیں)			
		<b>2010-11</b>	<b>2005-06</b>	
1	Under Rs. 100,000	<input type="checkbox"/>	<input type="checkbox"/>	100,000 روپے سے کم
2	Rs. 100,000 to Rs. 999,999	<input type="checkbox"/>	<input type="checkbox"/>	100,000 سے 999,999 روپے تک
3	Rs. 1,000,000 to Rs. 9,999,999	<input type="checkbox"/>	<input type="checkbox"/>	1,000,000 سے 9,999,999 روپے تک
4	Rs. 10,000,000 to Rs. 99,999,999	<input type="checkbox"/>	<input type="checkbox"/>	10,000,000 سے 99,999,999 روپے تک
5	Rs. 100 million or more	<input type="checkbox"/>	<input type="checkbox"/>	10 کروڑ یا زائد روپے
6	Not authorized without prior permission from HQ	<input type="checkbox"/>	<input type="checkbox"/>	ہیڈ کوارٹر سے پیشگی اجازت کے بغیر خریداری کے مجاز نہیں

Q No. 24	In 2005-06 and 2010-11, what was the number of employees reporting directly to the plant manager at this establishment? A plant manager's direct report is someone in the organizational level directly below them, with whom they meet on a regular basis, and whose pay and promotion they may be involved with.			
	سوال نمبر 24: 2005-06ء اور 2010-11ء میں اس اسٹبلشمنٹ میں کتنے ملازمین براہ راست پلانٹ مینجر کو رپورٹ کرتے تھے؟ پلانٹ مینجر کو رپورٹ کرنے والے سے مراد وہ ملازمین ہیں جو ادارے میں براہ راست اس کے ماتحت کام کرتے ہیں، جن کے ساتھ اس کی باقاعدگی سے ملاقات ہوتی ہے اور جن کی تنخواہ اور ترقی کے امور میں بھی وہ شامل ہو سکتا ہے۔			
		2010-11	2005-06	
	Number of direct reports (Estimates are acceptable)			براہ راست رپورٹ کرنے والوں کی تعداد (گجھگ بھی بتائے جاسکتے ہیں)

Q No. 25	In 2005-06 and 2010-11, how many layers of direct reports were there for this establishment in between the factory floor and the plant manager? Example 1: If the shopfloor worker reports to a shift supervisor who then reports to the plant manager, the number of levels in between the factory floor and the plant manager is '1'. Example 2: If the shopfloor worker reports to a team supervisor who then reports to a production manager who then reports to the plant manager, the number of levels in between the factory floor and the plant manager is '2'. Example 3: If the shopfloor worker reports to team supervisor, who then reports to a division incharge, who then reports to the department incharge, who then reports to the plant controller, the number of levels in between the factory floor and the plant controller is '3'.			
	سوال نمبر 25: 2005-06ء اور 2010-11ء میں فیکٹری فلور سے پلانٹ مینجر کے درمیان براہ راست رپورٹ کے کتنے لیول تھے؟ مثال 1: اگر شاپ فلور ورکر اپنے شفٹ سپروائزر کو رپورٹ کرتا ہے جو کہ اپنے پلانٹ مینجر کو رپورٹ کرتا ہے تو فیکٹری فلور اور پلانٹ مینجر کے درمیان ایک لیول ہوگا۔ مثال 2: اگر شاپ فلور ورکر اپنے ٹیم سپروائزر کو رپورٹ کرتا ہے جو کہ اپنے پروڈکشن مینجر کو رپورٹ کرتا ہے جو کہ اپنے پلانٹ مینجر کو رپورٹ کرتا ہے تو فیکٹری فلور اور پلانٹ مینجر کے درمیان 2 لیول ہوں گے۔ مثال 3: اگر شاپ فلور ورکر اپنے ٹیم سپروائزر کو رپورٹ کرتا ہے جو کہ اپنے ڈویژن انچارج کو رپورٹ کرتا ہے جو کہ اپنے ڈیپارٹمنٹ انچارج کو رپورٹ کرتا ہے جو کہ اپنے پلانٹ کنٹرولر کو رپورٹ کرتا ہے تو فیکٹری فلور اور پلانٹ کنٹرولر کے درمیان 3 لیول ہوں گے۔			
		2010-11	2005-06	
	1 Number of layers (Estimates are acceptable)			کتنے لیول تھے (گجھگ بھی بتائے جاسکتے ہیں)

Q No. 26	In 2005-06 and 2010-11, who prioritized or allocated tasks to production workers at this establishment? <i>Check one box for each year</i>			
	سوال نمبر 26: 2005-06ء اور 2010-11ء میں اس اسٹبلشمنٹ میں پروڈکشن ورکرز کو مختلف ذمہ داریاں دینے یا انکی ترجیحات طے کرنے کا فیصلہ کون کرتا تھا؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔			
		2010-11	2005-06	
1	Only managers	<input type="checkbox"/>	<input type="checkbox"/>	صرف مینجرز
2	Mostly managers	<input type="checkbox"/>	<input type="checkbox"/>	زیادہ تر مینجرز
3	Managers and production workers jointly	<input type="checkbox"/>	<input type="checkbox"/>	مینجرز اور پروڈکشن ورکرز مل کر
4	Mostly production workers	<input type="checkbox"/>	<input type="checkbox"/>	زیادہ تر پروڈکشن ورکرز
5	Only production workers	<input type="checkbox"/>	<input type="checkbox"/>	صرف پروڈکشن ورکرز
6	Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)

Q No. 27	In 2005-06 and 2010-11, what best describes the <b>availability</b> of data to support decision making at this establishment? <i>Check one box for each year</i>			
	سوال نمبر 27: 2005-06ء اور 2010-11ء میں اس اسٹبلشمنٹ میں فیصلہ سازی کے لیے اعداد و شمار/ڈیٹا کی دستیابی کی صورتحال کے حوالے سے مندرجہ ذیل میں کون سا بیان درست ہے؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔			
		2010-11	2005-06	
1	Data to support decision making were not available	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کے لیے اعداد و شمار دستیاب نہیں تھے
2	A small amount of data to support decision making was available	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کے لیے بہت کم اعداد و شمار/ڈیٹا دستیاب تھے
3	A moderate amount of data to support decision making was available	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کے لیے کسی قدر اعداد و شمار/ڈیٹا دستیاب تھے
4	A great deal of data to support decision making was available	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کے لیے بہت سے اعداد و شمار/ڈیٹا دستیاب تھے
5	All the data we need to support decision making was available	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کے لیے تمام ضروری اعداد و شمار/ڈیٹا دستیاب تھے

Q No. 28	In 2005-06 and 2010-11, what best describes the <b>use</b> of data to support decision making at this establishment? <i>Check one box for each year</i>			
	سوال نمبر 28: 2005-06ء اور 2010-11ء میں اس اسٹبلشمنٹ میں فیصلہ سازی کے لیے اعداد و شمار/ڈیٹا کے استعمال کی صورتحال کے حوالے سے مندرجہ ذیل میں کون سا بیان درست ہے؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔			
		2010-11	2005-06	
1	Decision making did not use data	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی میں اعداد و شمار/ڈیٹا استعمال نہیں کیے جاتے تھے
2	Decision making relies slightly on data	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کا بہت کم انحصار اعداد و شمار/ڈیٹا پر ہوتا تھا
3	Decision making relies moderately on data	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کا کسی قدر انحصار اعداد و شمار/ڈیٹا پر ہوتا تھا
4	Decision making relies heavily on data	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کا بہت سا انحصار اعداد و شمار/ڈیٹا پر ہوتا تھا
5	Decision making relies entirely on data	<input type="checkbox"/>	<input type="checkbox"/>	فیصلہ سازی کا تمام انحصار اعداد و شمار/ڈیٹا پر ہوتا تھا

Q No. 29	In 2005-06 and 2010-11, did the <b>managers</b> at this establishment learn about management practices from any of the following? <i>Mark all that apply</i>			
	سوال نمبر 29: 2005-06ء اور 2010-11ء میں کیا اس اسٹبلشمنٹ کے مینجرز نے مندرجہ ذیل میں سے کسی سے انتظامی امور (مینیجمنٹ پریکٹس) سیکھے؟ تمام متعلقہ جوابات پر نشان لگائیں			
		2010-11	2005-06	
1	Consultants	<input type="checkbox"/>	<input type="checkbox"/>	کونسلٹنٹس
2	Competitors	<input type="checkbox"/>	<input type="checkbox"/>	حریف (competitors)
3	Suppliers	<input type="checkbox"/>	<input type="checkbox"/>	سپلائرز
4	Customers	<input type="checkbox"/>	<input type="checkbox"/>	گاہک
5	Trade associations or conferences	<input type="checkbox"/>	<input type="checkbox"/>	کاروباری تنظیمیں
6	New employees	<input type="checkbox"/>	<input type="checkbox"/>	نئے ملازمین
7	Headquarters	<input type="checkbox"/>	<input type="checkbox"/>	ہیڈ کوارٹر
8	Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)
9	None of the above	<input type="checkbox"/>	<input type="checkbox"/>	ان میں سے کوئی بھی نہیں

## Section D - Background Characteristics

## حصہ D - پس منظر کی خصوصیات

Q No. 30	What was your level of seniority in 2010-11?		
	سوال نمبر 30: 2010-11ء میں آپ کا سینئرٹی لیول کیا تھا؟		
1	CEO or Executive Officer, e.g., CFO?	<input type="checkbox"/>	سی ای او یا ایگزیکٹو آفیسر مثلاً سی ایف او
2	Manager of multiple establishments, e.g., Division Manager	<input type="checkbox"/>	ایک سے زیادہ اسٹبلشمنٹس کے مینجیر مثلاً ڈویژن مینجیر
3	Manager of one establishment, e.g., Plant Manager or Controller	<input type="checkbox"/>	ایک اسٹبلشمنٹ کے مینجیر مثلاً پلانٹ مینجیر
4	Non-manager	<input type="checkbox"/>	غیر مینجیر
5	Other (please specify)	<input type="checkbox"/>	دیگر (براہ کرم بیان کیجیے)

Q No. 31	What year did you start working at this establishment?	Year سال	سوال نمبر 31: آپ نے اس سٹیبلشمنٹ میں کس سال کام شروع کیا؟
1			

Q No. 32	What was the number of <b>managers</b> at this establishment for the pay periods including March 31, 2006 and March 31, 2011?  A manager is someone who has employees directly reporting to them, with whom they meet on a regular basis, and whose pay and promotion they may be involved with, e.g., Plant Manager, Human Resource Manager, Quality Manager.  سوال نمبر 32: 31 مارچ 2006ء کو اور 31 مارچ 2011ء کو اس سٹیبلشمنٹ میں مینیجرز کی تعداد کیا تھی؟  مینیجر وہ فرد ہے جس کے ماتحت ملازمین اس کو براہ راست رپورٹ کرتے ہوں، جس کے ساتھ وہ باقاعدہ ملاقات کرتے ہوں، اور جو ان کی تنخواہ اور ترقی کے امور میں بھی شامل ہو سکتا ہے، مثال کے طور پر پلانٹ مینیجر، ہیومن ریسورس مینیجر، کوالٹی مینیجر	2010-11	2005-06	
1	Number of managers at this establishment (Estimates are acceptable)			اس سٹیبلشمنٹ میں مینیجرز کی تعداد (گگ بھگ بھی بتایا جاسکتا ہے)

Q No. 33	What was the number of all full and part-time <b>employees</b> at this establishment for the pay periods including March 31, 2006 and March 31, 2011? Full and part-time employees include permanent, temporary, contract, and seasonal/ daily wagers.  سوال نمبر 33: 31 مارچ 2006ء کو اور 31 مارچ 2011ء کو اس سٹیبلشمنٹ میں تمام کل وقت اور جزوقتی ملازمین کی تعداد کیا تھی؟ (تمام کل وقت اور جزوقتی ملازمین میں مستقل، غیر مستقل، کنٹریکٹ اور ڈیلی ویرز شامل ہیں)	2010-11	2005-06	
1	Number of employees at this establishment (Estimates are acceptable)			اس سٹیبلشمنٹ میں ملازمین کی تعداد (گگ بھگ بھی بتائے جاسکتے ہیں)

Q No. 34	In 2005-06 and 2010-11, what was the percent of <b>managers</b> in the following education levels at this establishment? (The percentages in each column should sum up to 100 percent)  سوال نمبر 34: 2005-06ء اور 2010-11ء میں اس سٹیبلشمنٹ میں مندرجہ ذیل تعلیمی قابلیت رکھنے والے مینیجرز کی شرح فیصد کیا تھی؟	2010-11	2005-06	
1	No formal education			کوئی باقاعدہ تعلیم نہیں
2	Matriculation			میٹرک
3	Bachelors			گریجویٹ
4	Masters / MBA or higher			ماسٹرز / ایم بی اے یا اس سے زائد
5	TOTAL	100%	100%	کل

Q No. 35	In 2005-06 and 2010-11, what was the percent of <b>non-managers</b> in the following education levels at this establishment? (The percentages in each column should sum up to 100 percent)  سوال نمبر 35: 2005-06ء اور 2010-11ء میں اس سٹیبلشمنٹ میں مندرجہ ذیل تعلیمی قابلیت رکھنے والے نان مینیجرز کی شرح فیصد کیا تھی؟	2010-11	2005-06	
1	No formal education			کوئی باقاعدہ تعلیم نہیں
2	Matriculation			میٹرک
3	Bachelors			گریجویٹ
4	Masters / MBA or higher			ماسٹرز / ایم بی اے یا اس سے زائد
5	TOTAL	100%	100%	کل

Q No. 36	In 2005-06 and 2010-11, what percent of all employees at this establishment were members of a labor union? Check one box for each year			
	سوال نمبر 36: 2005-06ء اور 2010-11ء میں کتنے فیصد ملازمین لیبر یونین کے ممبر تھے؟ ہر سال کے لیے ایک خانے پر نشان لگائیے۔			
		2010-11	2005-06	
1	0%	<input type="checkbox"/>	<input type="checkbox"/>	صفر فیصد
2	1-20%	<input type="checkbox"/>	<input type="checkbox"/>	1 سے 20 فیصد
3	21-40%	<input type="checkbox"/>	<input type="checkbox"/>	21 سے 40 فیصد
4	41-60%	<input type="checkbox"/>	<input type="checkbox"/>	41 سے 60 فیصد
5	61-80%	<input type="checkbox"/>	<input type="checkbox"/>	61 سے 80 فیصد
6	More than 80%	<input type="checkbox"/>	<input type="checkbox"/>	80 فیصد سے زیادہ

Q. No. 37 Respondent Remarks (If any).					
Name of the Respondent	Designation	Contact Number	Fax	Email	Signature & Date Official
1	2	3	4	5	6

### Section E - For Official Use

Q. No. 38 Number of attempt made by the enumerator for the interview.						
1	Number of phonecalls					
2	Number of Physical visits					
3	Interview lasted (hh-mm) 12 hour format (am/pm)		1	Start time:	2	End time:
4	Whether questionnaire was already filled by time of the interview?		1	Yes	2	No
5	Did SBP enumerator attended the interview?		1	Yes	2	No

Q. No. 39 Enumerator/Supervisor Remarks (If any).							
Checking of Facilitation Team (For Official Use)							
	Particular	Name	Designation	Code	Date	Cell Number	Signature
1	Enumerated By						
2	Inspected by						
Editing/Coding at PBBSH Head Quarter (For Official Use)							
3	Edited by						
4	Checked by						

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