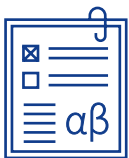


# Management Practises in Finnish Manufacturing Establishments

## EVIDENCE FROM FMOP



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### Abstract

Data collected by the recently conducted Finnish Management and Organizational Practices Survey (FMOP) by Statistics Finland is used to examine the management practices in Finnish manufacturing establishments. The FMOP project was funded by the Strategic Research Council. This paper presents the descriptive statistics, some indicative international comparisons using poststratification weighted averages and a cross-regional comparison of the large areas of Finland.

The management scores appear to be only slightly behind those of the US and approximately on par with those of Germany. This suggests that the management practices in Finnish manufacturing are on a comparatively high international level.

We also find evidence of cross-regional differences in management quality in Finland with aggregate (employment weighted) but not unweighted management scores, which suggests that the differences in the allocation of employment between establishments may explain regional disparities in Finland. To analyse the statistical significance of the regional disparities in workforce allocation in greater depth, we utilize a moment-based estimation procedure that allows for statistical inferences using the Olley-Pakes decomposition. We find evidence of regional variations in the policy relevant allocation component.

## Tiivistelmä

### Johtamiskäytännöt Suomen tehdasteollisuudessa: Näkökulmia FMOP-aineistosta

Strategisen tutkimuksen neuvoston rahoittaman Taidot Työhön -hankkeen osana toteutetulla Suomen johtamis- ja organisaatiokäytäntöjen kyselyllä (FMOP) on hankittu laajaa vertailutietoa Suomen teollisuuden toimipaikkojen johtamiskäytännöistä. Kysely seuraa tarkasti Yhdysvalloissa toteutettua Management and Organizational Practices Survey (MOPS) -kyselyä.

Kyselyaineistoon perustuvien tulosten perusteella Suomen teollisuuden johtamispistemäärät vaikuttavat olevan vain vähän heikommät kuin Yhdysvalloissa. Lisäksi Suomen johtamiskäytännöt ovat joko hiukan edellä tai samaa tasoa Saksan kanssa. Näiden vertailujen perusteella Suomen teollisuuden johtamiskäytännöt ovat hyvää kansainvälistä tasoa.

Suomen sisäisissä alueellisissa vertailuissa havaittiin vaihtelua työvoiman määrällä painotetuissa keskiarvoissa eli niin kutsutuissa kokonaispistemäärissä, mutta ei painottamattomissa keskiarvoissa. Erot työvoiman kohdentumisessa toimipaikkojen välillä saattavat siis selittää alueellisia eroavuuksia Suomessa. Työvoiman kohdentumisen alueellisten erojen tarkempaan tutkimiseen hyödynnetään momenttiestimaattoreihin perustuvaa menetelmää, joka mahdollistaa keskivirheiden laskemisen ja tilastollisten hypoteesien testauksen hajotelman osille. Menetelmän avulla havaittiin viitteitä kilpailukyvyn kannalta relevantin allokaatiovaikutuksen alueellisista eroista.

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**Keywords:** Management practices, Management survey, FMOP, MOPS, Olley-Pakes decomposition, Competitiveness, Allocation effect, Reallocation

**Asiasanat:** Johtamiskäytännöt, FMOP, MOPS, Olley-Pakes-hajotelma, Kilpailukyky, Allokaatiovaikutus, Uudelleenkohdentuminen

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# 1 INTRODUCTION

In his survey of empirical research on productivity differences, Syverson (2011, 336) states that “perhaps no potential driver of productivity differences has seen a higher ratio of speculation to actual empirical study” when discussing the aptitudes of managers and the quality of management practices. At the forefront of amending this shortcoming is the Management and Organizational Practices Survey (MOPS), which is a quantitative survey tool that was developed by Nick Bloom, John Van Reenen and Erik Brynjolfsson together with the United States Census Bureau and the National Science Foundation. With funding from the Strategic Research Council and as a part of the Skills, Education and the Future of Work research project, this tool has been translated and adapted to collect data on the quality of management practices in Finnish manufacturing establishments. The survey was conducted by Statistics Finland.

After the development of the MOPS, studies have found repeated evidence on the significance of management practices in explaining productivity differences. Bloom, Brynjolfsson, Foster, Jarmin, Patnaik, Saporta-Eksten and Van Reenen (2019) find that management practices are highly correlated with productivity and can account for as much as 22% of the cross-firm differences in labour productivity. As a comparison, the labour productivity differences that are explained by research and development, information and communications technology investment per worker and human capital are 21.6%, 12% and 15.9%, respectively. These factors have traditionally been considered to significantly explain the observed variation of productivity.

Jointly, with management practices included, all of the above can explain approximately 44% of the observed labour productivity differences, according to Bloom et al. (2019). Similar results are found with other measures of productivity. This implies that management practices, as measured by the MOPS management score, are a very significant part of firm productivity. The quantitative analysis of the differences in management practices can therefore reveal valuable information concerning the differences in productivity and economic competitiveness. Encouraging establishments to adopt more structured management practices on a large scale could potentially have tangible effects on the economy.

The goal of this paper is to use the Finnish Management and Organizational Practices Survey (FMOP) data to examine the quality of management practices in the Finnish manufacturing sector. An indicative cross-country comparison using post-stratification weighted averages is presented in addition to the descriptive statistics and a cross-regional analysis of Finnish management practices. Based on a rudimentary examination of averages, the Finnish management scores appear to be only slightly behind those of the US and approximately on par with those of Germany. This suggests that the management practices in Finnish manufacturing are on an internationally competitive, high quality level.

The domestic cross-regional analysis focuses specifically on the differences in the quality of the management practices between the large areas of Finland. An Olley-Pakes (OP) decomposition is used to determine the components of the aggregate (employment weighted) average management score. These components are the unweighted average score and a covariance-like allocation term. To conduct the statistical inference and hypothesis testing of the possible cross-regional differences in the components of the management score, a moment-based estimation method, which was developed by Hyytinen, Ilmakunnas and Maliranta (2016), is used.

The allocation term has gained notice in the productivity literature (Bartelsman, Haltiwanger and Scarpetta 2013) and more recently in the management literature (Bloom, Sadun and Van Reenen 2016). In productivity studies, the reallocation of resources has been shown to account for a large part of cross-country productivity differences<sup>1</sup>. The covariance term also seems to be a good measure of resource allocation, as argued for example by Bartelsman, Haltiwanger and Scarpetta (2013). They empirically show that differences in the Olley-Pakes covariance term of productivity account for a significant part of the observed cross-country productivity dispersion (Bartelsman et al. 2013).

The structure of the remainder of this paper is organized as follows. Section 2 provides an overview of the FMOP survey instrument and data, the indicative international comparisons and the descriptive statistics of the FMOP data. A short description of the decomposition methods and the results from the moment-based estimation and hypothesis testing are presented in section 3. Section 4 concludes.

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<sup>1</sup> See for example Foster, Haltiwanger & Krizan (2001) for an overview.

## 2 DATA AND METHODS

### 2.1 Data

The sample for the 2016 FMOP data collection consisted of 2509 Finnish manufacturing establishments with more than 4 employees.<sup>2</sup> The final number of valid responses was 731, with a response rate of approximately 31% after accounting for overcoverage. An analysis of the total non-responses that was conducted by Statistics Finland showed that the distribution of the respondents is skewed towards larger establishments, as measured by the number of personnel. Statistics Finland also conducted a post-stratification test to provide sample weights that correct for some of the non-response bias in the data. Additional restrictions<sup>3</sup> dropped the final number of establishments that was used in the analysis down to 609.

The FMOP questionnaire has a total of 35 questions, of which 16 concern management practices. In addition to the 16 management questions, the questionnaire has 13 questions on organizational practices and 6 background questions. The questions concern the year 2016, but most of the questions also have a recall component, where respondents are asked to give an answer regarding the circumstances five years earlier. The complete FMOP questionnaire form is included as appendix C.

The responses for each question are normalized on a scale of 0 – 1 and the establishment-level management score is calculated as the unweighted average of the normalized responses. The answer options corresponding with the management practices that are considered to be the most structured are assigned a value of 1 and the least structured practices are assigned a value of 0. Bloom et al. (2019) define more structured management practices as “those that are more specific, formal, frequent or explicit” (Bloom et al. 2019, 28).

The management questions can be divided into three sections: monitoring, targets and incentives. The monitoring section consists of questions 1 – 5 and they ask about the utilization and gathering of information and data in the monitoring of production. Questions 6 – 8 are about the setting of production targets and questions 9 – 16 ask about practices concerning bonuses and incentives, policies on recruitment and promotion and policies concerning the dismissal and reassignment of managers and non-managers. All the questions measure practical (often plant floor level) operating models and in-place practices, not personnel related factors such as managerial skills.

For parts of the empirical analysis, the control variables and regional subdivisions for the establishments in the FMOP data are acquired from the Establishments 2015 and 2016 data sets of the Finnish Business Register by Statistics

<sup>2</sup> Note that firms employing less than 50 employees are excluded from the sample (see appendix B).

<sup>3</sup> A more detailed description is provided in appendix B.

Finland. Only data for the establishments that responded to the questionnaire were used. All handling of data has been conducted following disclosure avoidance procedures to ensure the confidentiality of the individual surveyed units.

## 2.2 International comparisons

The FMOP design meticulously follows the US Management and Organizational Practices Survey. The United States is a useful benchmark for international comparisons because its management practices have been recognized as the best in the world in studies that utilize the World Management Survey. Comparing the management scores between countries is challenging since the samples are constructed differently in each country. Studies have found a clear positive correlation between the size of establishments and the management score, which means that different size limits for the establishments that are included in each country's data will also affect the comparability of the management scores.

For example, the FMOP data do not contain establishments that belong to firms with fewer than 50 employees. To improve the international comparability of the results, the management scores of small establishments within small firms had to be estimated using the existing Finnish data and results from other countries, namely, the United Kingdom. The establishments in the Finnish data were divided into categories based on their size and the size of the firm to which they belong (see FIGURE A.4 and FIGURE A.5 in Appendix A). These categories were then used to calculate the differences between different size groups.

The analysis showed that small establishments in large firms have, on average, higher management scores than small establishments in smaller firms. This observation and the results from the United Kingdom were used when constructing the imputation scores for the missing establishments that belong to firms with less than 50 employees. Two different imputation methods were used to estimate the management scores for these missing establishments: a baseline one and a conservative one.

More detailed information on the imputation methods with additional cross-country comparisons can be found in Maliranta and Ohlsbom (2017). FIGURE 1 is a simple comparison of the post-stratification weighted averages without using an imputation method. Because small firms are missing from the FMOP data, the Finnish scores in the figure are slightly overestimated.



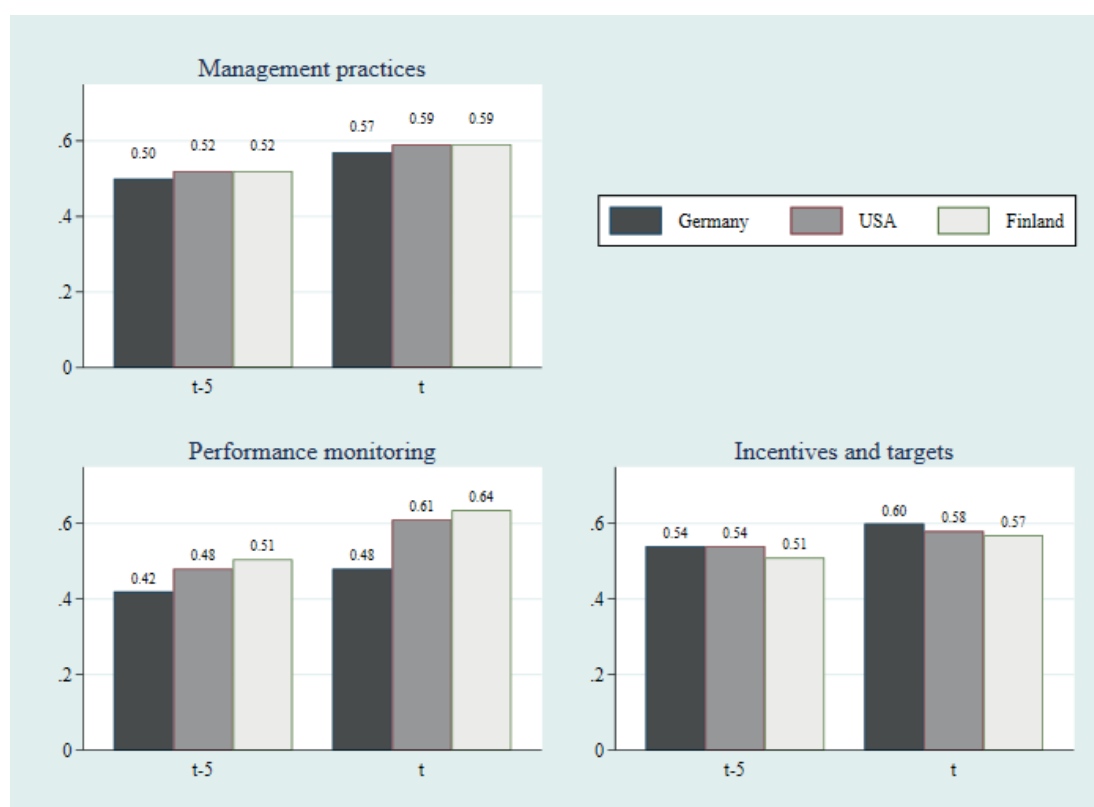


FIGURE 1 Comparison between Germany, the USA and Finland. Year t denotes 2010 for the US, 2013 for Germany and 2016 for Finland. The Finnish scores are weighted using industry-level post-stratification weights. Germany (Broszeit, Fritsch, Görg & Laible 2016) and the USA (Bloom, Brynjolfsson, Foster, Jarmin, Saporta-Eksten and Van Reenen 2013).

Despite the uncertainty of the measurements, management practices in Finnish manufacturing appear to be on a comparatively high international level. When the absence of establishments that belong to smaller firms in the Finnish data is taken into consideration, Finnish management scores appear to be somewhat behind those of the US. Furthermore, restricting the Finnish data to match the establishment size limits in the US and German data does not significantly change the comparison results. Finland also seems to have higher scores in performance monitoring than in incentives and targets when compared to Germany and the US. When incentives and targets are further divided into two categories, it is the incentives part that results in the lowest scores in the Finnish data.

Another factor that might contribute to the overestimation of the Finnish scores compared to the US is the clearly the lower response rate. The FMOP had a response rate of 31%, whereas 78% of establishments responded in the US. The different reference years in each country also hinder their comparability, especially if the management scores vary over time. Comparisons utilizing the FMOP and the most recent US data have yet to be conducted.

All these comparisons have been conducted using simple post-stratification weighted averages. Comparing employment weighted (aggregate) averages instead of these simple average scores would provide valuable insight into the cross-regional differences in management practices in terms of how they relate to competitiveness. Employment weighted averages would be more robust since

the biggest measurement issues most likely stem from small, rather than big, establishments. Using employment weights would decrease the impact of the smallest establishments on the results. Moreover, the employment weighted (aggregate) management score is more relevant in terms of competitiveness, as is explained in more detail in subsection 3.2.

## 2.3 Descriptive statistics

With a standard deviation of 0.13, the dispersion of the management practices of Finnish manufacturing establishments is evident. As described by Maliranta and Ohlsbom (2017), approximately 7% of establishments have a management score higher than 0.8, whereas establishments with a score of less than 0.4 make up a little over 5% of the data. Furthermore, FIGURE 2 shows that the distribution is skewed slightly to the left, which means that the mass of the establishments is concentrated on the right side of the distribution. A rudimentary examination of the data shows that a considerable part of this dispersion is related to differences in establishment size. This aspect of the dispersion is analysed more carefully in Maliranta and Ohlsbom (2017), where we find a positive correlation between establishment size, firm size and management scores.

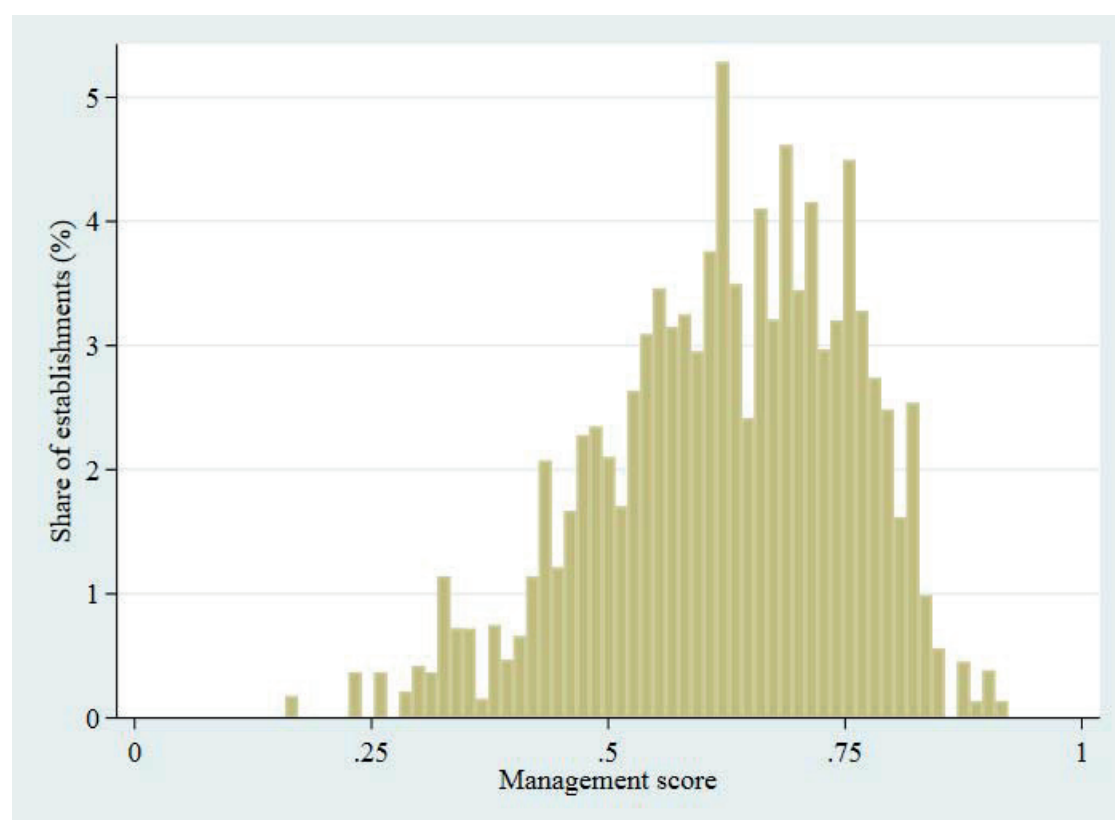


FIGURE 2 Distribution of the unweighted management scores.



The empirical analysis in the following section is focused on the possible role of cross-regional differences in the dispersion of management practices. The subdivision of large areas<sup>4</sup> was chosen to ensure that the individual areas have enough establishments in the data. Åland, with only two establishments included in the data, was omitted for the same reason. Helsinki-Uusimaa is used as a baseline since it has the highest employment weighted (aggregate) and unweighted average management scores (0.71 and 0.64, respectively). TABLE 1 provides the descriptive statistics of the data for the division of the Finnish large areas that are used in the analysis.

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<sup>4</sup> Level 2 of the subdivisions in the Nomenclature of Territorial Units for Statistics (NUTS) codes of Finland.

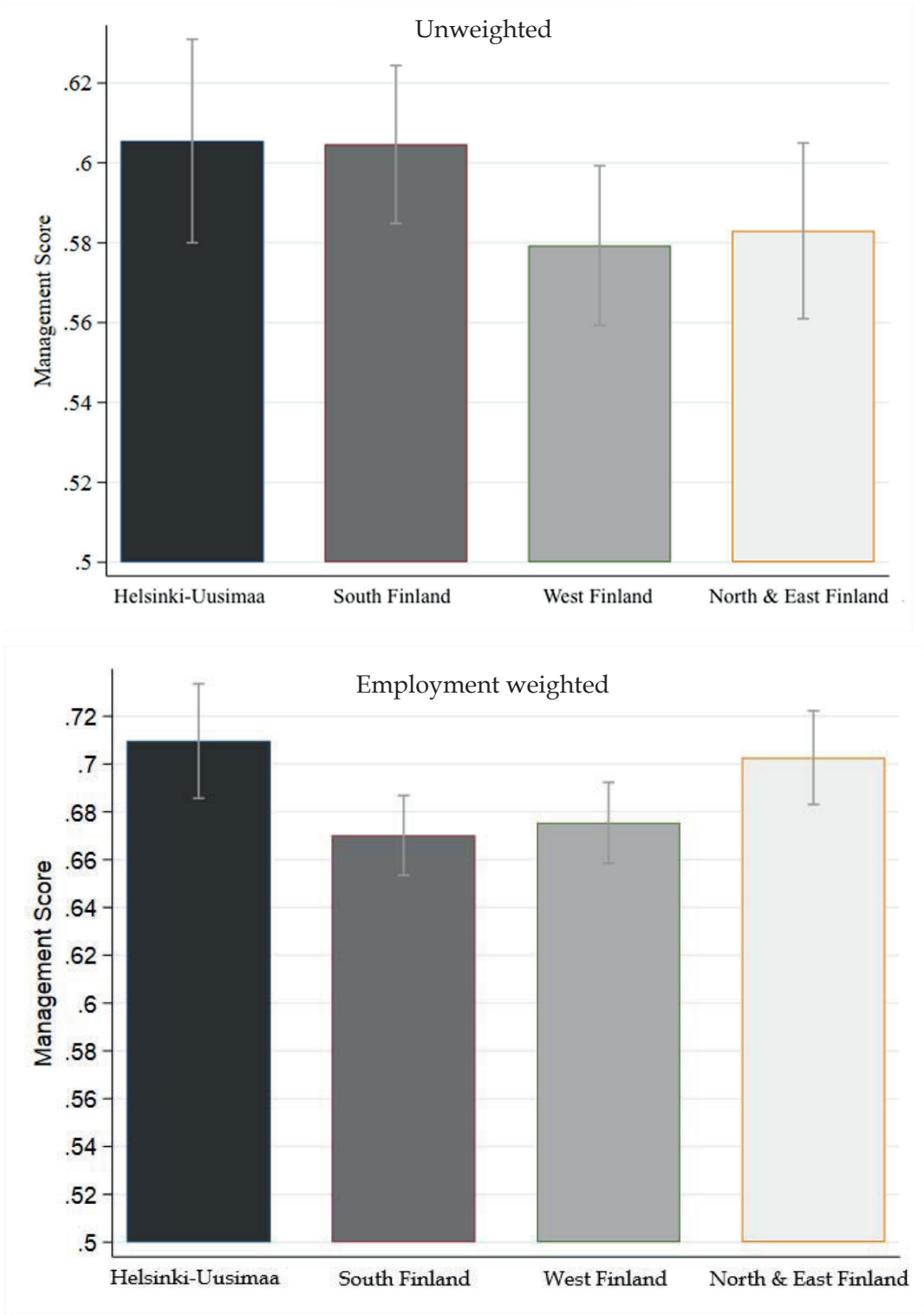


FIGURE 3 Unweighted and employment weighted average management scores for large areas with confidence intervals. Åland is omitted since it has only two establishments in the FMOP data.

Studies from other countries have found significant differences in the un-weighted management scores of different geographical areas (i.e., Bloom et al. (2013) and Bloom, Genakos, Sadun & Van Reenen (2012)). By looking at only the

descriptive statistics, these differences are not as apparent in Finnish large areas. FIGURE 3 demonstrates that the differences in the unweighted average management scores of the Finnish large areas are quite small, especially in relation to the confidence intervals. The differences in the unweighted averages, which do not take the allocation of the workforce into consideration, are also not statistically significant. FIGURE 3 also includes the employment weighted, or aggregate, management scores, and the related statistical inference is presented in section 3.

TABLE 1 Descriptive statistics.

	Number of establishments	Total number of employees	Aggregate management score	Unweighted management
Helsinki-Uusimaa	97	12175		0.71
West Finland	146	14090		0.67
South Finland	209	24646		0.68
North & East Finland	149	15461		0.70
Total	601	66371		0.69

In terms of economic and policy significance, the workforce that is allocated to establishments with good management practices is an important measure. This allocation of the workforce is one part of the aggregate or employment weighted management score, and the other part is the unweighted average. A decomposition of aggregate management practices could potentially reveal statistically significant cross-regional differences in the allocation term, despite there being none when considering only the unweighted averages.

## 3 RESULTS

### 3.1 Premise

The descriptive statistics that are presented in the previous section would suggest that there are no significant differences in the management practices of the large areas of Finland when measured using unweighted management scores. However, a simple inspection of the means gives no insight into the possible differences in the covariance-like allocation term. As pointed out by Hyytinen et al. (2016), a simple Olley-Pakes decomposition does not produce standard errors for the OP components or allow for any statistical inference regarding the policy relevant allocation term. They show, however, that this can be done by means of a procedure that is based on a generalized method of moments (GMM) estimation.

### 3.2 Methods

The empirical decomposition of the micro-level components of the levels of aggregate management practices in Finnish regions is performed using the method proposed by Olley and Pakes (1996). In the economics literature, these kinds of decompositions have often been used to analyse productivity levels. In the decomposition, aggregate productivity is divided into two terms: the unweighted average productivity and a covariance term of the productivity and firm size. The latter, which is also known as the allocation term, is essential because it describes how much of the input activity is allocated to more productive establishments or enterprises (Hyytinen et al. 2016).

A significant part of the growth and cross-country dispersion of productivity may be caused by the reallocation of resources from enterprises with low productivity to those with high productivity (Maliranta & Määttänen 2015). The covariance-like allocation term of the Olley-Pakes decomposition is a much-used measure for this reallocation since it is straightforward and has been theoretically and empirically shown to provide meaningful information. Bartelsman et al. (2013), for example, argue that the allocation term is a robust indicator for the misallocation of resources and that it interacts strongly with frictions and policy-induced market distortions.

As with productivity, these qualities make the Olley-Pakes covariance term essential in the analysis of the cross-regional differences in management practices, especially in terms of how they relate to competitiveness. The aggregate (employment weighted) management score can be decomposed into the unweighted average score and the allocation effect, which is a covariance-like term for the management score and the size of the workforce in an establishment. Here, the allocation term is economically significant because it measures the workforce that is

allocated to establishments with high management scores. The larger the term is, the larger the share of the workforce that is working under better managed establishments. This means that, in terms of competitiveness, the allocation term may play a crucial role when studying cross-regional differences.

To obtain the standard errors of the OP decomposition, a moment-based procedure, which was introduced by Hyytinen, Ilmakunnas and Maliranta (2016), is used. This method allows for statistical inference and hypothesis testing of the magnitude of the OP components, which in turn allows for more statistically meaningful cross-regional comparisons of the allocation term.

The procedure is based on a method of moments estimation, which is a way of motivating an ordinary least squares (OLS) estimator (Davidson 2001). Hyytinen et al. (2016) show how the components of the OP decomposition of aggregate labour productivity can be captured using a generalized method of moments (GMM) approach. Here, the basis of the same procedure will be outlined for the aggregate management score in a cross-sectional setting. Following Olley and Pakes (1996), the decomposition is described by the expression

$$M_i = \bar{m} + \sum_{i=1}^N (s_i - \bar{s}) (m_i - \bar{m}), \quad (18)$$

where  $m_i$  is the management score of establishment  $i$ .  $s_i$  is the activity share of establishment  $i$ , as measured using labour input shares. This means that  $s_i = L_i / \sum_{i=1}^N L_i$ , where  $L_i$  is the number of employees in establishment  $i$  and  $N$  is the total number of establishments. In equation (18),  $\bar{m}_i$  denotes the unweighted mean of the management scores, whereas the weighted or aggregate management score is  $M_i = \sum_{i=1}^N s_i m_i$ . The remaining term  $\sum_{i=1}^N (s_i - \bar{s})(m_i - \bar{m})$  is the allocation term, where the unweighted mean of the labour input shares is  $\bar{s} = 1/N$  and  $s_i - \bar{s}$  is the difference of the labour share of establishment  $i$  from the unweighted mean. Similarly,  $m_i - \bar{m}$  denotes the difference of the management score of establishment  $i$  from the unweighted average.

It follows from the population moments expression of the regression

$$E[m_i | s_i] = E[m_i] + cov(m_i, s_i) var(s_i)^{-1} (s_i - E[s_i]), \quad (19)$$

as described by Hyytinen et al. (2016), that a GMM estimation can capture the two components of the OP decomposition. Thus, by regressing the management score  $m_i$  on a scaled labour input share measure  $s_i^*$  and a constant, the two terms on the right-hand side of equation (18) can be jointly estimated using an OLS regression. To obtain point estimates for these two components, the activity share measure  $s_i$  needs to be scaled as follows:  $s_i^* = (s_i - \bar{s}) / \hat{\sigma}^2 N$ , where  $\hat{\sigma}^2$  denotes the sample variance of  $s_i$ :  $\hat{\sigma}^2 = N^{-1} \sum_{i=1}^N (s_i - \bar{s})^2$ . Then, an OLS regression, where  $m_i$  is regressed on  $s_i^*$  and a constant, is conducted. The unweighted mean of the management scores  $\bar{m}_i$  is obtained from the OLS estimator for the constant,

and the allocation term  $\sum_{i=1}^N (s_i - \bar{s})(m_i - \bar{m})$  equals the coefficient of the slope in the OLS estimation. (Hyytinen et al. 2016.)

### 3.3 Results from the moment-based approach

TABLE 2 shows the results of the moment-based estimation. The left column shows the point estimates for all areas, whereas the right column shows the associated 95% confidence intervals. The first four numbers of each column are for the unweighted average management score of each area. The second four numbers show the results for the allocation term of each area, and at the bottom is the aggregate (employment weighted) average, which is the sum of the first two components.

The results in TABLE 2 show that the confidence intervals for North & East Finland, especially for the allocation term, are clearly wider than those for the other large areas. Furthermore, the allocation terms for Helsinki-Uusimaa and North & East Finland account for approximately 10% of the aggregate management score, whereas for West Finland and South Finland, these ratios are only 6% and 7%, respectively.

The statistical tests that were performed using the moment-based procedure show that the differences in allocation terms are not statistically significant at conventional significance levels, except for the difference in the allocation terms between Helsinki-Uusimaa and West Finland ( $3\% = 7\% - 4\%$ ), which is significant at the 10% significance level. The difference in the allocation terms accounts for approximately  $\frac{3}{4}$  or 75% of the difference in the aggregate management scores between the two areas. The differences in the unweighted average scores, as mentioned in subsection 2.3, are not statistically significant.

TABLE 2 Weighted and unweighted average management scores and allocation terms for large areas with confidence intervals.

		95% confidence interval	
	Point estimate	Lower bound	Upper bound
Unweighted average management score			
Helsinki-Uusimaa	0.64	0.61	0.66
West Finland	0.63	0.61	0.65
South Finland	0.62	0.61	0.64
North & East Finland	0.63	0.61	0.65
Allocation term			
Helsinki-Uusimaa	0.07	0.04	0.11
West Finland	0.04	0.01	0.06
South Finland	0.05	0.03	0.08
North & East Finland	0.07	0.02	0.12
Aggregate average management score			
Helsinki-Uusimaa	0.71	0.67	0.75
West Finland	0.67	0.65	0.69
South Finland	0.68	0.65	0.70
North & East Finland	0.70	0.66	0.75

Unfortunately, the GMM estimation procedure that was proposed by Hyytinen et al. (2016) does not allow for measuring the allocation component when the regression models include control variables, such as industry effects. The allocation term can also be computed by performing a standard OLS estimation with and without employment weights and taking the differences of the parameter estimates of these two estimations. This, however, does not provide us with the standard errors for the allocation component as the GMM estimation procedure does.

Estimating the regression models with and without employment weights, while including control variables, can nevertheless provide evidence on the regional differences in the aggregate management practice quality levels, and at least an impression of the role of the allocation of employment between establishments. The results of the OLS regression can be found in TABLE 3, where the other large areas are compared to Helsinki-Uusimaa.

Adding employee education (average years of schooling) as a control variable (columns 5-8) shows that the education level of employees might have a positive relationship with the management quality in Helsinki-Uusimaa, but the inclusion of this factor does not dramatically change the results for regional differences. Productivity ( $\log(\text{revenue}) / \text{number of employees}$ ) is, as expected, also



positively related to the management score. When industry fixed effects are included, the regional differences become larger by a small margin, but the conclusions remain unchanged. Furthermore, we now find more evidence that the aggregate (employment weighted) management quality is greater in Helsinki-Uusimaa than in West Finland and in South Finland (but not in North & East Finland).

Qualitatively more or less similar conclusions concerning regional differences are obtained from the regressions that include both education and productivity effects, with and without industry fixed effects. Helsinki-Uusimaa has an aggregate score that is between 0.05 and 0.06 higher than West Finland ( $p < 0.05$ ) and approximately 0.04 higher than South Finland ( $p < 0.10$ ) based on the OLS results. These differences could be considered somewhat economically significant in magnitude since the management scores are normalized on a scale of 0 – 1. As with the moment-based estimation, no statistically significant differences are found between South Finland and North & East Finland. The differences in all the unweighted means also remain non-significant, which could imply, speculatively, that the differences in the aggregate scores are caused by differences in the allocative efficiency of these regions.

TABLE 3 OLS Regression results

Management score	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Employment weighted		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
West Finland	-0.005 (0.016)	-0.040 (0.024)	-0.010 (0.017)	-0.046* (0.025)	-0.014 (0.018)	-0.036 (0.026)	-0.019 (0.018)	-0.043 (0.027)	-0.006 (0.017)	-0.052** (0.021)	-0.009 (0.017)	-0.057** (0.024)	-0.014 (0.018)	-0.055** (0.023)	-0.018 (0.018)	-0.058** (0.025)
South Finland	-0.013 (0.016)	-0.034 (0.025)	-0.013 (0.016)	-0.036 (0.026)	-0.020 (0.018)	-0.032 (0.026)	-0.020 (0.017)	-0.032 (0.028)	-0.010 (0.016)	-0.039 (0.022)	-0.010 (0.016)	-0.041* (0.025)	-0.017 (0.018)	-0.040* (0.024)	-0.017 (0.017)	-0.041 (0.026)
North & East Finland	-0.007 (0.017)	-0.007 (0.032)	-0.014 (0.017)	-0.019 (0.028)	-0.005 (0.019)	-0.001 (0.033)	-0.013 (0.019)	-0.014 (0.030)	-0.004 (0.017)	-0.008 (0.030)	-0.010 (0.017)	-0.018 (0.027)	-0.001 (0.019)	-0.010 (0.031)	-0.009 (0.019)	-0.020 (0.029)
Employee education					0.017*** (0.005)	0.005 (0.008)	0.017*** (0.006)	0.005 (0.008)					0.014*** (0.005)	-0.004 (0.008)	0.012** (0.006)	-0.006 (0.008)
Productivity (log)									0.030*** (0.007)	0.046*** (0.009)	0.027*** (0.007)	0.043*** (0.009)	0.033*** (0.007)	0.047*** (0.009)	0.029*** (0.007)	0.044*** (0.010)
Observations	601	601	601	601	517	517	517	517	601	601	601	601	517	517	517	517
Industry Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes
R <sup>2</sup>	0.001	0.019	0.039	0.056	0.022	0.020	0.061	0.061	0.044	0.103	0.070	0.123	0.073	0.101	0.0982	0.1243
Prob > F	0.872	0.287	0.003	0.050	0.011	0.395	0.000	0.074	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: The coefficient for each large region shows the difference in the mean of the management score compared to Helsinki-Uusimaa. Productivity (log) is measured as log(revenue/number of employees). Employee education is measured as the employees' average years of schooling for each establishment. Prob > F is the p-value of the F-test. Standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

### 3.4 Validity of the results

As mentioned in section 2, the data are skewed towards larger establishments and establishment size seems to be positively correlated with the management score. This means that the sample means that are calculated from the data are very likely to be too high compared to the population means unless post-stratification weights are used to correct for this non-response bias. It is plausible that the bias could be bigger in one large area than in another, in which case the management scores of the large area with greater non-response bias would be over-estimated.

Furthermore, the number of establishments in the data is relatively small, which might partly explain the apparent lack of statistically significant results. The partitioning into large areas was chosen partly because of the small sample size, and yet the number of data points for each area remains low. The measured cross-regional differences are also somewhat small in magnitude, which is a result that most likely would not be affected by a larger sample size. However, more could be concluded from the small but clearly statistically significant differences, the economic significance or non-significance of which could then be stated with more certainty.

The FMOP, like any large-scale survey, almost certainly suffers from survey noise, but there should be no systematic differences in the amount or type of survey noise between the large areas. Therefore, it is unlikely to interfere with the comparisons. Some rudimentary descriptive analysis was also conducted using Finnish regions (NUTS 3) instead of large areas (FIGURE A.6 in Appendix A). The results suggest that the apparent statistical non-significance of the cross-regional differences is likely preserved for this geographical division. However, for some of the regions, the number of establishments in the data is extremely small.

We have also conducted the OLS and the moment-based estimations in log-units, which returned similar results. All the analysis is descriptive, and no causal inferences can be made based on the calculations that are presented.

## 4 CONCLUSIONS

It has long been believed that the quality of management could play a significant role in explaining differences in productivity. The development of the Management and Organizational Practices Survey tool and its derivatives has greatly aided the empirical scrutiny of this subject. Empirical studies have already found compelling evidence on the link between management practices and productivity, along with other firm-level performance indicators. In many countries, large differences in the quality of management practices have been found between establishments, firms, industries and geographical areas. Bloom et al. (2019) conclude that two key drivers for the differences in the management practices in the United States are the business environment and learning spillovers. They also find that management practices can indeed explain a significant part of the observed productivity differences between firms.

Since management practices are closely related to firm productivity, and therefore economic competitiveness, understanding the variations in management practices should clearly be of major policy interest. In particular, the share of the workforce that is allocated to establishments with different levels of management practices is a policy relevant piece of the productivity puzzle.

An examination of Finnish manufacturing establishments, using data from the Finnish Management and Organizational Practices Survey, showed no statistically significant cross-regional differences in the unweighted management scores when comparing the large areas of Finland. However, we find evidence for cross-regional differences in the aggregate (employment weighted) management scores, which suggest that the allocation of employment between establishments within regions plays a role in explaining regional differences. The results for the aggregate differences between regions are robust to the inclusion of the educational level of employees and the productivity level of the establishments as control variables.

An Olley-Pakes decomposition is utilized to split the aggregate (employment weighted) management score into an unweighted average component and a covariance-like allocation term. Furthermore, we examine the differences in the OP components between regions using a moment-based estimation procedure that was presented in Hyytinen et al. (2016). We find suggestive indications of small to moderate regional variations in the allocation component of the management scores of Finnish manufacturing establishments. What drives this variation is a subject for future research.

More robust results could be achieved by repeating the survey for a larger sample, which should also contain the establishments that were included in the 2016 FMOP data. Combining more comprehensive data with the exceptionally rich microdata of Statistics Finland would allow for more potent robustness tests and further analysis. Creating a time series of Finnish management practices using the FMOP methodology would also enable researchers to study how the

adoption of structured management practices evolves over time. Furthermore, cross-country comparisons of the Olley-Pakes components of the management score would provide new insights into the differences in the allocation of resources, management practices and the aggregate productivity of countries. This would complement existing and upcoming analyses of global competitiveness.

What does the cross-regional variation of management practices, or the lack thereof, mean for the economy or competitiveness? Management practices, even the allocation term, are potentially manipulable by policymakers and firms themselves. Simply making establishments more aware of their floor level practices could easily raise the management scores in below-average firms or areas. Based on the results that are presented here, huge productivity gains would be unlikely in Finland. The sluggish productivity growth of post financial crisis Finland compared to other countries is unlikely to be significantly improved by investing heavily in management practices, but the topic deserves consideration, nonetheless. If these methods were used to analyse the management differences of cities and industries, in other countries or between countries, one might find results that are of major policy relevance for the purpose of improving productivity and economic competitiveness.

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APPENDIX A: FIGURES

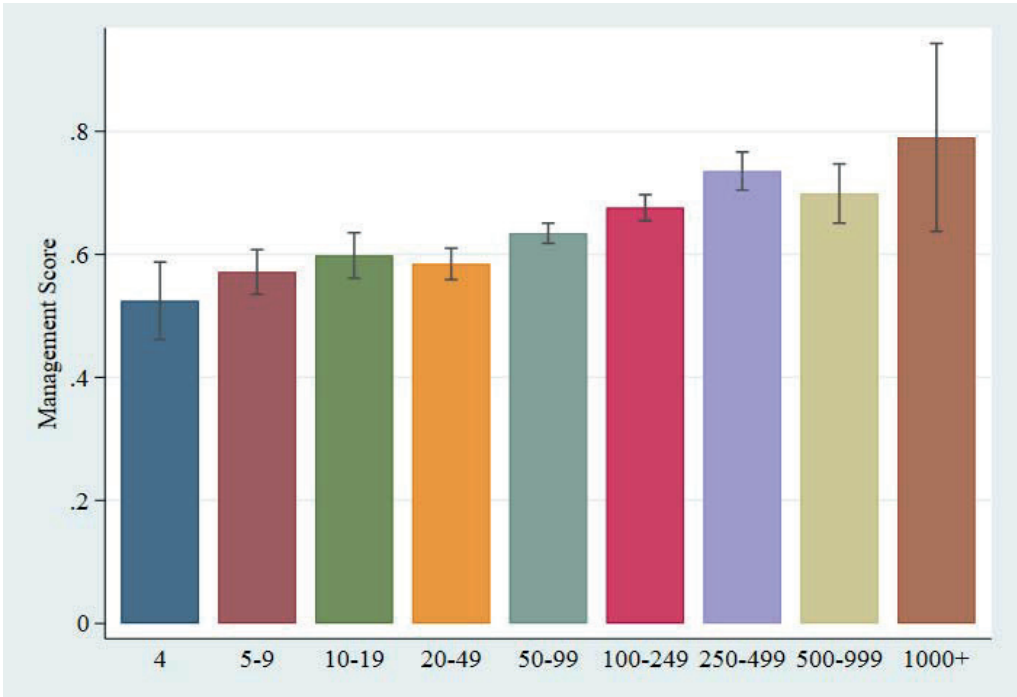


FIGURE A.4 Unweighted average management scores by establishment size (number of employees) with confidence intervals.

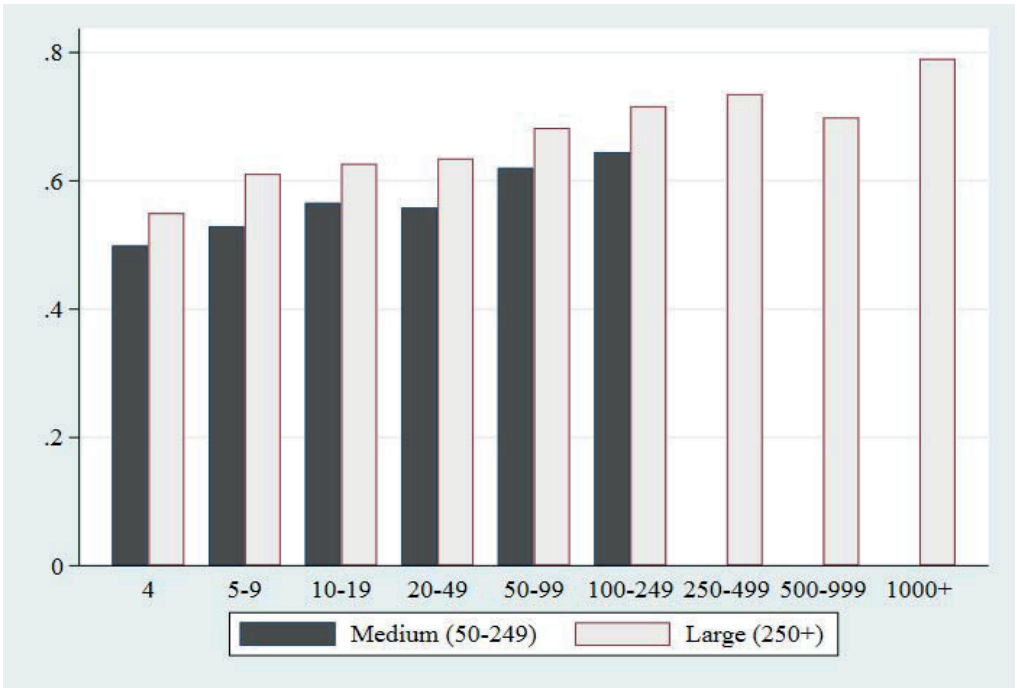


FIGURE A.5 Unweighted average management scores by establishment size (number of employees) for medium and large enterprises.

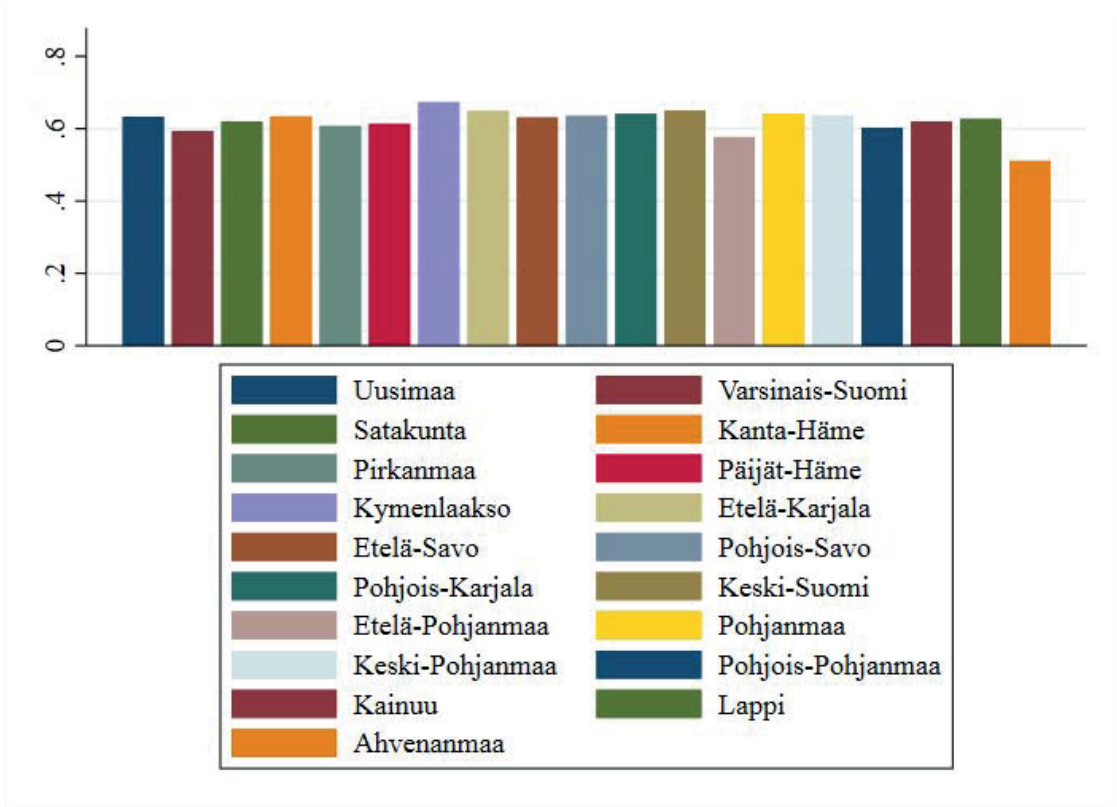


FIGURE A.6 Unweighted average management scores by region.

## TIIVISTELMÄ

Viimeaikaiset tutkimukset ovat osoittaneet, että tutkimuskäytäntöjen tasoa kuvaavat mittarit korreloivat voimakkaasti yritystason kannattavuuden, tuottavuuden ja kasvun kanssa. Strategisen tutkimuksen neuvoston rahoittaman Taidot Työhön -hankkeen osana toteutetulla Suomen johtamis- ja organisaatiokäytäntöjen kyselyllä (FMOP) on hankittu laajaa vertailutietoa Suomen teollisuuden toimipaikkojen johtamiskäytännöistä. Kysely seuraa tarkasti Yhdysvalloissa toteutettua Management and Organizational Practices Survey (MOPS) -kyselyä.

Kyselyt on suunniteltu niin kutsuttujen strukturoitujen johtamiskäytäntöjen kvantitatiiviseen mittaamiseen. Toimipaikkojen käytössä olevien johtamiskäytäntöjen tasoa arvioidaan sen mukaan, kuinka täsmällisiä, formaaleja ja säännöllisiä ne ovat. Käytetty kyselymetodologia on käynyt läpi Yhdysvaltain väestönlaskentaviraston laatuvaatimusten mukaiset testausmenetelmät, kuten kognitiiviset haastattelut ja asiantuntijakatselmuksen.

Tässä tutkimuksessa kuvataan johtamiskäytäntöjen tasoa suomalaisissa tehdasteollisuuden toimipaikoissa ja esitetään suuntaa-antavia kansainvälisiä vertailuja jälkiosituspainotettuja keskiarvoja hyödyntäen. Suomen teollisuuden kohdalla keskitytään erityisesti suuralueiden välisiin eroihin. Suurin osa toimipaikoista, jotka kuuluvat alle 50 hengen yrityksiin, on jäänyt ulos FMOP-aineiston keruusta. Aineiston edustavuuden parantamiseksi pienten yritysten toimipaikoille on imputoitu johtamispistemäärät kahta eri menettelyä käyttäen. Ensimmäinen imputointimenetelmä on arviomme mukaan uskottavampi ja toimii vertailukohtana, kun taas toinen on tarkoituksella erittäin konservatiivinen ja toimii eräänlaisena alarajana pistemäärien keskiarvoille.

Tulosten perusteella Suomen teollisuuden johtamispistemäärät vaikuttavat olevan vain vähän heikommät kuin Yhdysvalloissa. Tämä on kuvaavaa, sillä Yhdysvaltojen johtamiskäytännöt on todettu maailman parhaiksi pitkään kestäneessä World Management Survey -hankkeessa, jossa taustalla on sama teoreettinen viitekehikko kuin MOPS-metodologiassa. Lisäksi Suomen johtamiskäytännöt ovat joko hiukan edellä tai samaa tasoa Saksan kanssa, käytetyn imputointimenetelmän mukaan. Näiden vertailujen perusteella Suomen teollisuuden johtamiskäytännöt ovat hyvää kansainvälistä tasoa. Suomen finanssikriisin jälkeinen työn tuottavuuden kehitys ja kriisistä toipuminen on ollut heikompaa kuin vertailumaissa (Valtiovarainministeriön tuottavuuslautakunta 2019). Koska johtamiskäytännöt ovat jo niin korkealla tasolla kansainvälisesti vertailtuna, tuottavuuden verrattain heikko kehitys ei todennäköisesti ole korjattavissa suurillaan johtamiskäytäntöjen parantamiseen pyrkivillä panostuksilla.

Suomen sisäisissä alueellisissa vertailuissa havaittiin vaihtelua työvoiman määrällä painotetuissa keskiarvoissa eli niin kutsutuissa kokonaispistemäärissä, mutta ei painottamattomissa keskiarvoissa. Erot työvoiman kohdentumisessa toimipaikkojen välillä saattavat siis selittää alueellisia eroavuuksia Suomessa. Työvoiman määrällä painotettuja keskiarvoja koskevat tulokset ovat robusteja työntekijöiden koulutustason ja toimipaikkojen tuottavuuden kontrolloinnille.

Lisäksi kokonaispistemäärä jaetaan osatekijöihinsä käyttäen Olleyn ja Pakesin staattista hajotelmaa. Työvoiman kohdentumisen alueellisten erojen tarkempaan tutkimiseen hyödynnetään momenttiestimaattoreihin perustuvaa menetelmää, joka mahdollistaa keskivirheiden laskemisen ja tilastollisten hypoteesien testausten hajotelman osille. Menetelmän avulla havaittiin viitteitä kilpailukyvyn kannalta relevantin allokaatiovaikutuksen alueellisista eroista.

## APPENDIX B: DATA DESCRIPTION

### Survey Design

#### Sampling frame

The enterprise-level sampling frame for the 2016 FMOP is based on the total sample of Statistics Finland's Financial statements inquiry for enterprises (TILKES). The TILKES concerns all enterprises that employ over 50 people, or who alternatively have a turnover of more than EUR 40 million or whose balance sheet exceeds EUR 300 million. The inquiry also includes 10-50 employee enterprises, which have been selected using random sampling, some enterprises with less than 10 employees and all enterprises that are owned by municipalities. The inquiry includes approximately 6000 enterprises in total. The FMOP sampling frame consists mainly of the over 4-employee manufacturing establishments of the over 50-employee enterprises that are included in the TILKES inquiry. (Statistics Finland 2017.)

#### Sample

The sample for the 2016 FMOP data collection consisted of 2509 manufacturing establishments with at least 4 employees that were extracted from the manufacturing and non-manufacturing enterprises that were included in the TILKES based sampling frame. Establishments were classified as manufacturing if they belong to industries 05-39 in the Standard Industrial Classification TOL 2008 (Statistics Finland 2017). A manufacturing establishment with at least 4 employees was picked from the sampling frame if it was a part of an enterprise that meets at least one of the following criteria: (1) More than 50 employees, (2) greater than a EUR 40 million turnover, or (3) a balance sheet of more than EUR 300 million. The main rule for the sample selection was the number of personnel, but the sample includes 38 enterprises with less than 50 employees, which is due to the other conditions. Because the establishments in the sample were chosen using nonprobability sampling, most of the results can only be generalized to the subset of manufacturing establishments that have at least 4 employees and are a part of an enterprise with at least one of the qualities that were listed above. (Statistics Finland 2017.)

#### Data collection

The first step of data collection was to find a respondent for each establishment in the sample. Telephone interviews were conducted to find the plant managers to whom to send the questionnaire. 10% of the original sample was lost at this phase due to over-coverage and recipients' unwillingness to answer. The survey was conducted as an internet questionnaire, and the description, instructions and link for it were sent out as an email to the target respondents. Responding was voluntary, and three follow-ups were sent to establishments that could not be

reached or did not respond. Over-coverage and establishments that were explicitly unwilling to answer were dropped after each follow-up.

### **Questionnaire content**

To ensure comparability between results, the FMOP questionnaire followed the United States 2010 MOPS<sup>5</sup> as closely as possible. The questionnaire has a total of 35 questions, 16 of which concern management practices. In addition to the 16 management questions, the questionnaire has 13 questions on organizational practices and 6 background questions. The questionnaire concerns the past year (2016), but most of the questions also have a recall component where respondents are asked to give an answer regarding the circumstances five years earlier (2011). The questions are in Finnish and have been translated to correspond with the questions of the US MOPS. The complete FMOP questionnaire can be found at the end of this document.

### **Data**

The final number of valid responses was 731 with a response rate of approximately 31% after accounting for over-coverage. According to the feedback from the establishments, the voluntary nature of the survey was a major negative factor in their willingness to respond. This can also be seen when comparing the 31% response rate of the FMOP to the 78% response rate of the original 2010 MOPS in the United States where the survey was mandatory. Technical issues also affected the response rate since the survey was conducted solely through the internet. The analysis of the total non-responses that was conducted by Statistics Finland showed that the distribution of the respondents was skewed towards larger establishments, as measured by the number of personnel. Statistics Finland conducted post-stratification to provide sample weights that correct for non-response bias. The over-coverage of 146 establishments was also taken into account when constructing the sample weights.

### **Restriction of data**

The industries in the FMOP sample, which are those that correspond to codes 05-39 in the Standard Industrial Classification, include mining and utilities (in addition to manufacturing), which were not included in the United States MOPS sample. Therefore, the FMOP analysis is conducted with and without the two additional industries, and removing the industries restricts the data by 98 observations. Furthermore, in accordance with the United States MOPS, only establishments with at least 11 non-missing responses to the 2016 management questions are included in the analysis. This means that an additional 24 (or 28 if mining and utilities are included) establishments, or approximately 3.8% of the data, are dropped due to item non-response and the final number of establishments that

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<sup>5</sup> Available at <https://www.census.gov/programs-surveys/mops/technical-documentation/questionnaires.html>.

was used in most of the analysis is 609. Item non-response was more severe in the 2011 recall questions, where a total of 146 establishments had less than 11 non-missing responses. However, the included establishments were chosen based solely on the responses for 2016. There are no establishments in the data that have at least 11 non-missing responses for 2011 but less than 11 non-missing responses for 2016 in the data. Item non-response does not distort the management scores, which are calculated as the unweighted average of the responses, but it would bias the estimates regarding individual questions.

### Scoring

The responses for each question are normalized on a scale of 0 – 1 and the establishment-level management score is calculated as the unweighted average of the normalized responses. The answer options corresponding with management practices that are considered to be the most structured are assigned a value of 1 and the least structured practices are assigned a value of 0. Bloom et al. (2019) define more structured management practices as “those that are more specific, formal, frequent or explicit” (Bloom et al. 2019, 28).

The management questions can be divided into three sections: monitoring, targets and incentives. The monitoring section consists of questions 1 – 5 and they ask about the utilization and gathering of information and data in the monitoring of production. Questions 6 – 8 are about the setting of production targets and questions 9 – 16 ask about practices concerning bonuses and incentives, policies on recruitment and promotion and policies concerning the dismissal and reassignment of managers and non-managers.



## APPENDIX C: FMOP QUESTIONNAIRE FORM

Osa A – Johtaminen			
1	<p>Mikä seuraavista kuvaa parhaiten toimipaikassa tehtyjä toimenpiteitä, kun tuotannossa havaittiin ongelma vuosina 2011 ja 2016?</p> <p>Esimerkki: laadullisen vian löytäminen tuotteesta tai koneiston hajoaminen.</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p> <input type="checkbox"/> Ongelma korjattiin, mutta muita toimenpiteitä ei tehty  <input type="checkbox"/> Ongelma korjattiin ja varmistettiin, ettei ongelmaa ilmene uudelleen  <input type="checkbox"/> Ongelma korjattiin ja varmistettiin, ettei ongelmaa ilmene uudelleen. Lisäksi meillä on jatkuvan kehittämisen prosessi tällaisten ongelmien ennakoinniseksi  <input type="checkbox"/> Mitään toimenpiteitä ei tehty  <input type="checkbox"/> Mitään ongelmaa ei havaittu  <input type="checkbox"/> Toimipaikan tietoja ei ole saatavilla vuodelta 2011         </p>	2011	2016
2011	2016		
2	<p>Kuinka montaa suoritusmittaria toimipaikassa seurattiin vuosina 2011 ja 2016?</p> <p>Esimerkiksi tuotannon, kustannusten, hävikin, laadun, varastojen, energian, poissaolojen ja toimitusaikojen mittarit.</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p> <input type="checkbox"/> 1-2 mittaria  <input type="checkbox"/> 3-9 mittaria  <input type="checkbox"/> 10 tai useampaa mittaria  <input type="checkbox"/> Ei ollenkaan suorituskykymittareita         </p> <p><i>Jos suoritusmittareita ei ollut kumpanakaan vuonna, lomake hyppää kysymykseen 6.</i></p>	2011	2016
2011	2016		
3	<p>Kuinka usein toimipaikan johtajat seurasivat suoritusmittareita vuosina 2011 ja 2016?</p> <p>Johtajaksi tässä tulkitaan henkilö, jolla on sellaisia suoria alaisia, joita hän tapaa säännöllisesti, joiden rekrytoimiseen, työehtojen sopimiseen ja ylennyksien tekemiseen hän on osallistunut (esimerkiksi laitoksen johtaja, henkilöstöjohtaja tai laatu päällikkö).</p> <p><i>Merkitse kaikki sopivat vaihtoehdot molempien vuosien sarakkeeseen.</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p> <input type="checkbox"/> Vuosittain  <input type="checkbox"/> Vuosineljänneksittäin  <input type="checkbox"/> Kuukausittain  <input type="checkbox"/> Viikoittain  <input type="checkbox"/> Päivittäin  <input type="checkbox"/> Tunneittain tai useammin  <input type="checkbox"/> Ei koskaan         </p>	2011	2016
2011	2016		
4	<p>Kuinka usein joku muu kuin toimipaikan johtaja seurasi suoritusmittareita tässä toimipaikassa vuosina 2011 ja 2016?</p> <p>Muilla kuin johtajilla viitataan tässä kaikkiin muihin toimipaikan työntekijöihin, joita ei voida määritellä johtajiksi edellisen kysymyksen määritelmän mukaisesti.</p> <p><i>Merkitse kaikki sopivat vaihtoehdot molempien vuosien sarakkeeseen.</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p> <input type="checkbox"/> Vuosittain  <input type="checkbox"/> Vuosineljänneksittäin  <input type="checkbox"/> Kuukausittain  <input type="checkbox"/> Viikoittain  <input type="checkbox"/> Päivittäin  <input type="checkbox"/> Tunneittain tai useammin  <input type="checkbox"/> Ei koskaan         </p>	2011	2016
2011	2016		

5	<p>Mihin tuotannosta ja muista suoritusmittareista kertovat tiedot oli sijoitettu toimipaikassa vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="text-align: right;"> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> </div> <p>Kaikki tiedot olivat nähtävissä vain yhdessä ja samassa paikassa (esim. tuotantolinjan päässä)</p> <p>Tietoja oli nähtävissä useassa paikassa (esim. useassa kohtaa pitkin tuotantolinjaa)</p> <p>Toimipaikassa ei ollut nähtävillä kyseisiä tietoja</p>	2011	2016
2011	2016		
6	<p>Mikä seuraavista kuvaa parhaiten tuotantotavoitteiden aikajännettä toimipaikassa vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="text-align: right;"> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> </div> <p>Pääpaino oli lyhyen aikavälin tuotantotavoitteissa (alle yksi vuosi)</p> <p>Pääpaino oli pitkän aikavälin tuotantotavoitteissa (yli yksi vuosi)</p> <p>Sekä lyhyen että pitkän aikavälin tuotantotavoitteissa</p> <p>Ei tuotantotavoitteita</p> <p><i>Jos tuotantotavoitteita ei ollut kumpanakaan vuonna, lomake hyppää kysymykseen 13a.</i></p>	2011	2016
2011	2016		
7	<p>Kuinka helppoa tai vaikeaa tavoitteiden saavuttaminen oli vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="text-align: right;"> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> </div> <p>Mahdollista saavuttaa ilman suurempaa vaivannäköä</p> <p>Mahdollista saavuttaa pienellä vaivannäöllä</p> <p>Mahdollista saavuttaa normaalilla vaivannäöllä</p> <p>Mahdollista saavuttaa normaalia suuremmalla vaivannäöllä</p> <p>Mahdollista saavuttaa vain aivan poikkeuksellisella vaivannäöllä</p>	2011	2016
2011	2016		
8	<p>Ketkä tiesivät tämän toimipaikan tuotantotavoitteista vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="text-align: right;"> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> </div> <p>Vain ylimmät johtajat</p> <p>Useimmat johtajat ja osa tuotantotyöntekijöistä</p> <p>Useimmat johtajat ja useimmat tuotantotyöntekijät</p> <p>Kaikki johtajat ja kaikki tuotantotyöntekijät</p>	2011	2016
2011	2016		
9	<p>Mihin muiden kuin johtajien tulospalkkiot perustuivat vuosina 2011 ja 2016?</p> <p><i>Merkitse kaikki sopivat vaihtoehdot molempien vuosien sarakkeeseen.</i></p> <div style="text-align: right;"> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> </div> <p>Työntekijöiden omaan suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Tiimien tai työvuorojen suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Toimipaikan suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Yrityksen suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Ei ollut tulospalkkiota</p> <p><i>Jos tulospalkkiota ei ollut kumpanakaan vuonna, lomake hyppää kysymykseen 11.</i></p>	2011	2016
2011	2016		

10	<p>Jos tuotantotavoitteet saavutettiin, mikä osa muista kuin johtajista sai tulospalkkion tässä toimipaikassa vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p>0 %</p> <p>1 - 33 %</p> <p>34 - 66 %</p> <p>67 - 99 %</p> <p>100 %</p> <p>Tuotantotavoitteita ei saavutettu</p>	2011	2016
2011	2016		
11	<p>Mihin johtajien tulospalkkiot yleensä perustuivat vuosina 2011 ja 2016?</p> <p><i>Merkitse kaikki sopivat vaihtoehdot molempien vuosien sarakkeeseen.</i></p> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p>Johtajien omaan suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Tiimin tai työvuoron suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Toimipaikan suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Yrityksen suoritukseen, jota mitattiin tuotantotavoitteiden avulla</p> <p>Ei tulospalkkioita</p> <p><i>Jos tulospalkkioita ei ollut kumpanakaan vuonna, lomake hyppää kysymykseen 13a.</i></p>	2011	2016
2011	2016		
12	<p>Jos tuotantotavoitteet saavutettiin, mikä osa johtajista sai tulospalkkion tässä toimipaikassa vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p>0 %</p> <p>1 - 33 %</p> <p>34 - 66 %</p> <p>67 - 99 %</p> <p>100 %</p> <p>Tuotantotavoitteita ei saavutettu</p>	2011	2016
2011	2016		
13a	<p>Mikä oli ensisijainen tapa muiden kuin johtajien <u>ylentämiseen</u> tässä toimipaikassa vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p>Ylennykset perustuivat ainoastaan suoritukseen ja kyvykkyyteen</p> <p>Ylennykset perustuivat osittain suoritukseen ja kyvykkyyteen, ja osittain muihin tekijöihin (esimerkiksi tuttava- tai perhesuhteet)</p> <p>Ylennykset perustuivat pääosin muihin tekijöihin kuin suoritukseen tai kyvykkyyteen (esimerkiksi tuttava- tai perhesuhteet)</p> <p>Muita kuin johtajia ei yleensä yllennetä</p>	2011	2016
2011	2016		
13b	<p>Mitkä alla olevista vaihtoehdoista olivat ensisijaiset kriteerit muiden kuin johtajien <u>rekrytoimiseen</u> muualta vuosina 2011 ja 2016?</p> <p><i>Numeroi tärkeysjärjestyksessä molempina vuosina asteikolla 1-5. 1 on tärkein, 2 toiseksi tärkein, ... ja 5 vähiten tärkeä.</i></p> <table border="1"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p>Tehtävään liittyvä tietämys ja kyvyt</p> <p>Vuorovaikutus- ja neuvottelutaidot</p> <p>Tuttu sosiaalisten verkostojen kautta (työskennellyt aikaisemmin tässä yrityksessä/toimipaikassa, kollegojen tuttu, perhesuhteet tms.)</p> <p>Täsmällisyys ja luotettavuus annettujen tehtävien suorittamisessa</p> <p>Motivaatio suorittamisessa</p>	2011	2016
2011	2016		

14a	Mikä oli ensisijainen tapa johtajien ylentämiseen tässä toimipaikassa vuosina 2011 ja 2016? <i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i>	2011	2016
	Ylennykset perustuivat ainoastaan suoritukseen ja kyvykkyyteen Ylennykset perustuivat osittain suoritukseen ja kyvykkyyteen, ja osittain muihin tekijöihin (esimerkiksi tuttava- tai perhesuhteet) Ylennykset perustuivat pääosin muihin tekijöihin kuin suoritukseen tai kyvykkyyteen (esimerkiksi tuttava- tai perhesuhteet) Johtajia ei yleensä ylennetä		
14b	Mitkä alla olevista vaihtoehtoista olivat ensisijaiset kriteerit johtajien rekrytoimiseen muualta vuosina 2011 ja 2016? <i>Numeroi tärkeysjärjestyksessä molempina vuosina asteikolla 1-5. 1 on tärkein, 2 toiseksi tärkein, ... ja 5 vähiten tärkeä.</i>	2011	2016
	Tehtävään liittyvä tietämys ja kyvyt Vuorovaikutus- ja neuvottelutaidot Tuttu sosiaalisten verkostojen kautta (työkennellyt aikaisemmin tässä yrityksessä/toimipaikassa, kollegojen tuttu, perhesuhteet yms.) Täsmällisyys ja luotettavuus annettujen tehtävien suorittamisessa Motivaatio suorittamisessa		
15	Milloin alisuoriutuva muu kuin johtaja erotettiin tai siirrettiin uuteen tehtävään vuosina 2011 ja 2016? <i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i>	2011	2016
	Alle kuuden kuukauden jälkeen siitä, kun alisuoriutuminen havaittiin Yli kuuden kuukauden kuluttua siitä, kun alisuoriutuminen havaittiin Harvoin tai ei koskaan		
16	Milloin alisuoriutuva johtaja erotettiin tai siirrettiin uuteen tehtävään vuosina 2011 ja 2016? <i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i>	2011	2016
	Alle kuuden kuukauden jälkeen siitä, kun alisuoriutuminen havaittiin Yli kuuden kuukauden kuluttua siitä, kun alisuoriutuminen havaittiin Harvoin tai ei koskaan		
<b>Osa B - Organisaatio</b>			
17	Sijaitisiko yrityksen pääkonttori samassa paikassa kuin toimipaikka vuosina 2011 ja 2016? <i>Mikäli kyseessä on yksitoimipaikkainen yritys, merkitse molempien vuosien sarakkeisiin "kyllä".</i>	2011	2016
	Kyllä Ei <i>Jos kyllä molempina vuosina, lomake hyppää kysymykseen 24.</i>		
18	Missä tehtiin päätökset pysyvien kokoaikaisten työntekijöiden palkkaamisesta vuosina 2011 ja 2016? <i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i>	2011	2016
	Vain tässä toimipaikassa Vain pääkonttorissa Sekä tässä toimipaikassa että pääkonttorissa Muualla, missä? _____		



19	<p>Missä tehtiin päätökset yli 10 % palkankorotuksien toteuttamisesta vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="border: 1px solid black; padding: 2px 10px;">2011</div> <div style="border: 1px solid black; padding: 2px 10px;">2016</div> </div> <p>Vain tässä toimipaikassa</p> <p>Vain pääkonttorissa</p> <p>Sekä tässä toimipaikassa että pääkonttorissa</p> <p>Muulla, missä? _____</p>
20	<p>Missä tehtiin uusia tuotteita koskevat päätökset?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="border: 1px solid black; padding: 2px 10px;">2011</div> <div style="border: 1px solid black; padding: 2px 10px;">2016</div> </div> <p>Vain tässä toimipaikassa</p> <p>Vain pääkonttorissa</p> <p>Sekä tässä toimipaikassa että pääkonttorissa</p> <p>Muulla, missä? _____</p>
21	<p>Missä tehtiin tuotteiden hinnoittelua koskevat päätökset vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="border: 1px solid black; padding: 2px 10px;">2011</div> <div style="border: 1px solid black; padding: 2px 10px;">2016</div> </div> <p>Vain tässä toimipaikassa</p> <p>Vain pääkonttorissa</p> <p>Sekä tässä toimipaikassa että pääkonttorissa</p> <p>Muulla, missä? _____</p>
22	<p>Missä tehtiin tuotteiden markkinointia koskevat päätökset vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="border: 1px solid black; padding: 2px 10px;">2011</div> <div style="border: 1px solid black; padding: 2px 10px;">2016</div> </div> <p>Vain tässä toimipaikassa</p> <p>Vain pääkonttorissa</p> <p>Sekä tässä toimipaikassa että pääkonttorissa</p> <p>Muulla, missä? _____</p>
23	<p>Kuinka paljon euromääräisesti voitiin käyttää investointeihin tässä toimipaikassa ilman valtuutusta pääkonttorista vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="border: 1px solid black; padding: 2px 10px;">2011</div> <div style="border: 1px solid black; padding: 2px 10px;">2016</div> </div> <p>Alle 1000 €</p> <p>1000 € - 9999 €</p> <p>10 000 € - 99 999 €</p> <p>100 000 € - 999 999 €</p> <p>1 000 000 € tai enemmän</p>
24	<p>Kuinka moni toimipaikan henkilöstöstä on suoraan tämän toimipaikan johtajan alaisia (raportoivat johtajalle suoraan) vuosina 2011 ja 2016?</p> <p>Toimipaikan johtajan alaisia ovat sellaiset työntekijät, jotka ovat organisaatiossa seuraavalla alemmalla tasolla, tapaavat toimipaikan johtajaa säännöllisesti ja joiden rekrytoimiseen, palkkaukseen ja ylenemiseen toimipaikan johtaja on vaikuttanut.</p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="border: 1px solid black; padding: 2px 10px;">2011</div> <div style="border: 1px solid black; padding: 2px 10px;">2016</div> </div> <p>Alaisten määrä (arviokin riittää)</p>

25	Kuinka monta organisaatiotasoa tällä toimipaikalla on tuotantotasolta toimipaikan johtotasolle saakka laskettuna vuosina 2011 ja 2016? Esimerkki: toimipaikassa, jossa on tuotantotaso, tuotannon esimiehet sekä laitoksen johtaja, tasojen lukumäärä on 3.	2011	2016
Tasojen määrä (arviokin riittää)			
26	Kuka jakoi työtehtäviä tuotantotyöntekijöille tässä toimipaikassa vuosina 2011 ja 2016? <i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i>	2011	2016
Vain johtajat			
Pääosin johtajat			
Johtajat ja tuotantotyöntekijät yhdessä			
Pääosin tuotantotyöntekijät			
Vain tuotantotyöntekijät			
Joku muu, kuka? _____			
27	Mikä seuraavista kuvaa parhaiten tiedon saatavuutta päätöksenteon tueksi tässä toimipaikassa vuosina 2011 ja 2016? <i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i>	2011	2016
Tietoa ei ollut saatavilla			
Vähän tietoa oli saatavilla			
Kohtuullisesti tietoa oli saatavilla			
Paljon tietoa oli saatavilla			
Kaikki tarvittava tieto päätöksenteon tueksi oli saatavilla			
28	Mikä seuraavista kuvaa parhaiten tiedon käyttöä päätöksenteon tukena tässä toimipaikassa vuosina 2011 ja 2016? <i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i>	2011	2016
Tietoa ei käytetty päätöksenteon tukena			
Päätöksenteko perustuu hieman käytettyyn tietoon			
Päätöksenteko perustuu kohtuullisesti käytettyyn tietoon			
Päätöksenteko perustuu vahvasti käytettyyn tietoon			
Päätöksenteko perustuu kokonaan käytettyyn tietoon			
29	Oppivatko johtajat tässä toimipaikassa käytännön johtamisesta miltään seuraavista? <i>Merkitse kaikki sopivat vaihtoehdot molempien vuosien sarakkeeseen.</i>	2011	2016
Konsultit			
Kilpailijat			
Alihankkijat, tavarantoimittajat			
Asiakkaat			
Yhdistykset tai konferenssit			
Uudet työntekijät			
Pääkonttori			
Muut, mitkä? _____			
Ei mikään ylläolevista			

Osa C – Taustatiedot			
30	<p>Millä organisaation tasolla työskentelit vuonna 2016?</p> <p><input type="checkbox"/> Toimitusjohtaja tai muu johtaja, esim. talousjohtaja</p> <p><input type="checkbox"/> Usean toimipaikan johtaja</p> <p><input type="checkbox"/> Yhden toimipaikan johtaja</p> <p><input type="checkbox"/> Jokin muu kuin johtaja</p> <p><input type="checkbox"/> Jokin muu, mikä? _____</p>		
31	Minä vuonna aloitit työskentelyn tässä toimipaikassa? _____		
32	<p>Kuinka monta johtajaa tässä toimipaikassa työskenteli 31. joulukuuta 2011 ja työskentelee tällä hetkellä?</p> <p>Johtajaksi tässä tulkitaan henkilö, jolla on sellaisia suoria alaisia, joita hän tapaa säännöllisesti, joiden rekrytoimiseen, työehtojen sopimiseen ja ylennyksien tekemiseen hän on osallistunut (esimerkiksi laitoksen johtaja, henkilöstöjohtaja tai lautupäällikkö).</p> <div style="text-align: right;"> <table border="1"> <tr> <td>31.12.2011</td> <td>tällä hetkellä</td> </tr> </table> </div> <p>Johtajien lukumäärä tässä toimipaikassa (arviokin riittää)</p>	31.12.2011	tällä hetkellä
31.12.2011	tällä hetkellä		
33	<p>Kuinka monta osa-aikaista ja kokoaikaista työntekijää tässä toimipaikassa työskenteli 31. joulukuuta 2011 ja työskentelee tällä hetkellä?</p> <div style="text-align: right;"> <table border="1"> <tr> <td>31.12.2011</td> <td>tällä hetkellä</td> </tr> </table> </div> <p>Muiden kuin johtajien lukumäärä tässä toimipaikassa (arviokin riittää)</p>	31.12.2011	tällä hetkellä
31.12.2011	tällä hetkellä		
34	<p>Kuinka suurella osalla johtajista tässä toimipaikassa oli vähintään alempi korkeakoulututkinto vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p>20 % tai vähemmän</p> <p>21 % - 40 %</p> <p>41 % - 60 %</p> <p>61 % - 80 %</p> <p>Enemmän kuin 80 %</p>	2011	2016
2011	2016		
35	<p>Kuinka suurella osalla muista kuin johtajista oli tässä toimipaikassa vähintään alempi korkeakoulututkinto vuosina 2011 ja 2016?</p> <p><i>Merkitse yksi vaihtoehto molempien vuosien sarakkeeseen.</i></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>2011</td> <td>2016</td> </tr> </table> <p>0 %</p> <p>1 % - 10 %</p> <p>11 % - 20 %</p> <p>Enemmän kuin 20 %</p>	2011	2016
2011	2016		
<p>Paljon kiitoksia vastaamisesta!</p>			





# ETLA



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