A Quest for Management Practices in Vietnam's Manufacturing Firms

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Abstract

Although technology is a primary input for productivity, it may be a burden to seek, acquire and adopt modern and expensive technology for firms in developing countries such as Vietnam. Management practices may substitute costly technology to improve labor productivity in the manufacturing sector. This study of 35 countries recognizes the strong positive correlation between labor productivity and management, merging the World Management Survey and Conference Board datasets. A closer analysis of 11,702 observations in the manufacturing sector shows that larger firms tend to use more management practices. A comparative analysis of adopting management practices indicates that Vietnam's firms have lower mean management scores than high-income nations on average. In Vietnam, firms in the low-tech manufacturing sectors, such as furniture and textile production, have lower management scores. Other results are that Vietnam's operations management and talent management scores are poorer than overall management scores. The results suggest that managers in Vietnam's manufacturing firms must invest more in adopting management practices, which leads to a better output rate. This investment will also enhance human capital for firms.

Keywords
Management Practice, Operations, Performance, Manufacturing, Vietnam

1. Introduction
Technology investments are undeniably a primary driver for output growth. However, technology is not a panacea for productivity (Triebs and Kumbhakar 2018; Rico and Cabrer-Borrás 2021). Solow's 1957 study discovered that 88% of the US output growth per worker was due to factors other than capital accumulation (Rico and Cabrer-Borrás 2021). Costly technology investments, for example, would be a burden for a financially struggling firm to seek, acquire and assimilate suitable technology, not to mention to upgrade the skills of their existing workforce to use those new technologies (Bloom et al. 2016). Management contributes to firm-level productivity. It saves enterprises from financial constraints for capital and labor investments. According to a firm-level study in six European countries (France, Germany, Greece, Portugal, Spain and the United Kingdom), firms with more adoption of management practices are more likely to increase labor productivity (Bloom et al. 2019; Rico and Cabrer-Borrás 2021). A study in the US found that firm productivity growth is attributed to 52% of management practices, leaving only 10% for labor and approximately 38% for technology (Heizer and Render 2014). Therefore, there needs to be more recognition of the importance of management in operations.

1.1 Problem Statement
Firm growth cannot be explained entirely by capital alone, as management is required to utilize capital (Bloom et al. 2019; Scur et al. 2021). Management is also an input for sales growth (Bloom et al., 2016). Empirical studies have shown positive associations between labor productivity, sales growth, and management scores (World Bank 2020). Therefore, too much emphasis on technology and labor input would ignore the importance of management practices, causing a problem with efficiency otherwise achieved by good management. In Vietnam, identifying problems concerning adopting management practices helps firm managers recognize the need to bridge the management gap between local and foreign firms in high-income nations.

1.2 Objectives
Based on the above need, this study aims to achieve the following objectives:

1. To benchmark management practices in Vietnam's manufacturing firms with others in the world.
2. To test the association between management quality and output per capita.
3. To evaluate management quality between Vietnam's manufacturing firms and US firms.
4. To identify poor management aspects in Vietnam's manufacturing firms for improvement.

2. Literature Review

Productivity growth can be attributed to capital, labor and management. A study in the US indicated that an increase in management explains nearly half of productivity growth.mTechnology is a primary input for productivity growth. However, upgrading technology is a costly investment (Bloom et al. 2007)**.**

"the technical efficiency of a firm or plant indicates the undisputed gain that can be achieved by simply 'gingering up' the management" (Farrell 1957)

Management serves as technology because with better management practices, firms are capable of improving efficiency for higher productivity. Better management practices are significantly associated with higher productivity, profitability, sales growth rates, and survival rates. (McKenzie and Woodruff 2017).

Bloom et al. (Bloom et al. 2013) asserted that with their superior management practices, developed nations lead developing nations in labor productivity. Empirical studies in many countries have also proven the links among management practices, exports and labor productivity. For example, firms in WTO nation members are more likely to adopt best management practices through global trade, hence enhancing labor productivity (Bai et al. 2017). Bloom et al. (2013) postulated that the labor productivity of developing countries is much lower than that of developed countries due to the failure to adopt best management practices. However, it is still unclear whether the adoption of international standards, e.g., quality standards, directly improves labor productivity (e.g., by reducing repair time) or indirectly does so through innovative capacity. Previous studies have shown contradictory results. Calza, Goedhuys, and Trifković (2018) found that Vietnam's manufacturing SMEs, adopting international management standards, are more productive than non-adopters. The findings show that by acquiring international standard certification, these firms are obliged to follow stricter management practices; hence, more productive processes are generated.

According to Bloom et al. (2007), a Cobb–Douglas production function for firm i at time t in country c is expressed as:

$$y_{it}^{c} = \alpha_{l}^{c} l_{it}^{c} + \alpha_{k}^{c} k_{it}^{c} + \alpha_{n}^{c} n_{it}^{c} + \beta^{c} M_{i}^{c} + \gamma^{c'} Z_{it}^{c} + u_{it}^{c},$$

where
Y = sales,
L = labor,
K = capital,
N = intermediate inputs (materials)
M = management practices
Z = controls (workforce education, firm age, sector, country)
U = unobservable
of firm i at time t in country c

This study examined approximately 15,000 medium-sized manufacturing operations in Europe, the US, and Asia and found that firms that apply accepted management practices well perform significantly better than those that do not. The spread of management performance between firms is broad, suggesting that management excellence is a matter of internal policy and not just the business environment. The study also found that multinational companies tend to outperform local competitors and raise the average performance of domestic firms in the countries where they are prevalent. The research suggests that companies can access dramatic improvements in performance by adopting good practices used elsewhere. However, the adoption of management practices differs by firm size. Bloom et al. (2013) found that formal management practices are not necessary in small enterprises.

3. Methods

3.1 Measures

Survey instruments for this study can be found at http://worldmanagementsurvey.org/survey-data/methodology/
Table 1 indicates the measures of management practices. Managers of surveyed firms reported their firm performance of these indicators. The overall management score is the average value of all 18 management management items. The survey form uses a 5-point measurement scale with 1 as "worst practice" and 5 as "best practices".

Table 1. Items and Definitions

Dimension	Items	Definitions
Management (mean)	18 management indicators	The mean of all management items (2 "lean" items, 10 "performance" items, 6 "talent" items).
Operations (mean)	lean 1	Introduction to Lean (Modern) Manufacturing
	lean 2	Rationale for Lean (Modern) Manufacturing
Monitoring (mean)	perf1	Process Documentation
	perf2	Performance Tracking
	perf3	Performance Review
	perf4	Performance Dialogue
	perf5	Consequence Management
Target (mean)	perf6	Type of Targets
	perf7	Interconnection of Goals
	perf8	Time Horizon
	perf9	Goals are Stretching
	perf10	Clarity of Goals and Measurement
People (mean)	talent1	Instilling a Talent Mindset
	talent2	Building a High-Performance Culture
	talent3	Making Room for Talent
	talent4	Developing Talent
	talent5	Creating a Distinctive EVP?
	talent6	Retaining Talent

Source: World Management Survey

3.2 Analysis Tools

The management construct consists of 18 items (Table 1). The author tests the reliability of this construct using the calculated Cronbach's alpha values. This test is toi confirm whether 18 variables of the management factor reflect the

degree of close correlation in the same factor. Normally, a Cronbach's alpha value greater than 0.7 suggests acceptable scale reliability of the variables within the factor (Habing 2003).
Those tools for data analysis in this paper include benchmarking, correlation in addition to descriptive statistics.

4. Data

This study employs secondary data. Data come from two sources. The first data source is the World Management Survey dataset[1]. The survey was designed by Stanford University and the Massachusetts Institute of Technology. Senior managers of surveyed firms are respondents. The survey was first conducted in mid-2004 to measure management practices in approximately 700 mid-sized firms in the United States, France, Germany, and the United Kingdom. After that, it was employed in 35 countries to collect data on management practices for over 15,000 manufacturing firms, which is used for this study (for the data collection method, see http://worldmanagementsurvey.org/survey-data/methodology/).

The second data source is from the Conference Board - Total Ecomony Dataset. Output per worker in this study uses the data from this source.

5. Results and Discussion

5.1 Descriptive Statistics

Table 2 indicates the descriptive statistics of overall management, operations, performance monitoring, target management and people management.

Table 2. Descriptive Statistics

management		*operations*	*monitor*	*target*	*people*
Mean	2.82	2.73	3.08	2.75	2.70
Standard Error	0.01	0.01	0.01	0.01	0.01
Median	2.83	2.83	3.20	2.80	2.67
Mode	2.67	3.00	3.20	3.00	2.67
Standard Deviation	0.65	1.01	0.82	0.76	0.61
Sample Variance	0.43	1.01	0.67	0.57	0.37
Kurtosis	(0.24)	(0.61)	(0.32)	(0.36)	0.23
Skewness	0.03	(0.09)	(0.21)	0.02	0.21
Range	3.89	4.00	4.00	4.00	4.00
Minimum	1.00	1.00	1.00	1.00	1.00
Maximum	4.89	5.00	5.00	5.00	5.00
Count	11,702	11,689	11,702	11,701	11,700

The result of the running reliability test shows a Cronbach's alpha value of 0.933, suggesting that all 18 management variables are closely dependent on each other and that the scale reliability of the management factor for these variables is excellent (greater than the acceptable level of 0.7) (Habing 2003).

5.2 Management Practices in Vietnam Compared to Other Countries

The World Bank conducted World Management Surveys from 2010 at the firm level in a group of countries. According to their survey in 2015, Vietnam's management score is at a low level compared to all high-income countries. Vietnam's overall management score is lower than that of high-income countries, with the best-performing being the

[1] Bloom, N., Lemos, R., Sadun, R., Scur, D., and Van Reenen, J. (n.d.). World Management Survey - Manufacturing (V1 ed.). Harvard Dataverse. https://doi.org/doi:10.7910/DVN/OY6CBK

United States (3.28). This ranking suggests that Vietnam's manufacturing firms must improve management quality. Given the positive associations between management scores and firm performance indices, such as sales growth and labor productivity, it is vital to investigate the challenges in adopting management practices in Vietnam.

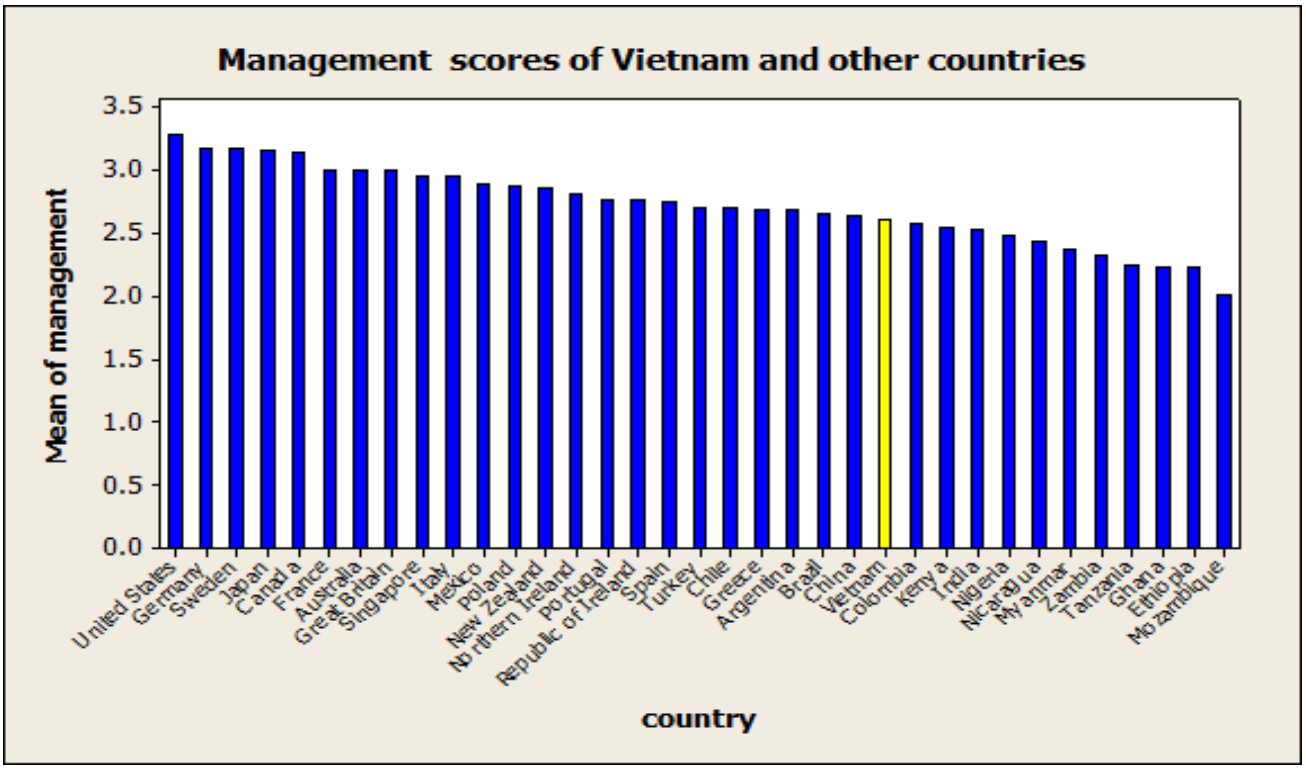

Figure 1. Overall management scores of the surveyed countries. Source: World Management Survey

Figure 1 shows the overall management score of Vietnam vs. some countries. This score measures how well firms perform in operations management, target setting, performance monitoring, and talent management on a 5-point scale. Vietnam's overall score is lower than that of high-income countries, with the best-performing being the United States (3.28). In Asia, Vietnam (2.6) performed better than India (2.53) and Myanmar (2.37). This ranking suggests that Vietnam's manufacturing firms must improve management quality.

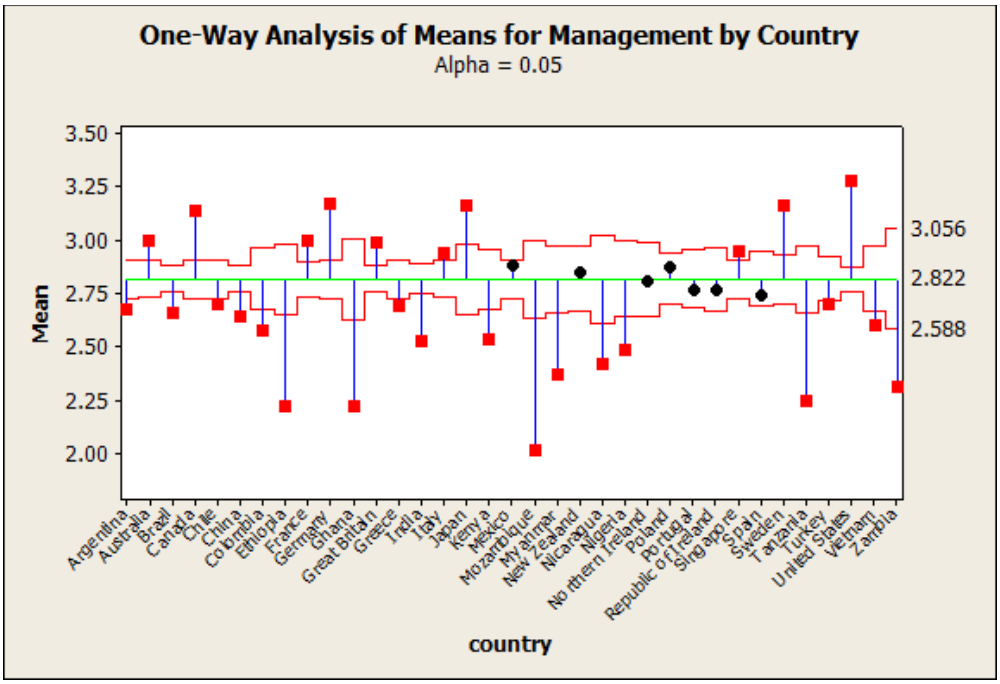

Figure 2. One-way Analysis of Means. Source: World Management Survey

Figure 2 shows the deviation of management scores around the mean score (2.8). Vietnam's management scores are more widespread than those of developed countries, such as the US, Great Britain, Australia, France and Germany.

5.3 Association Between Management Quality and Output per Capital

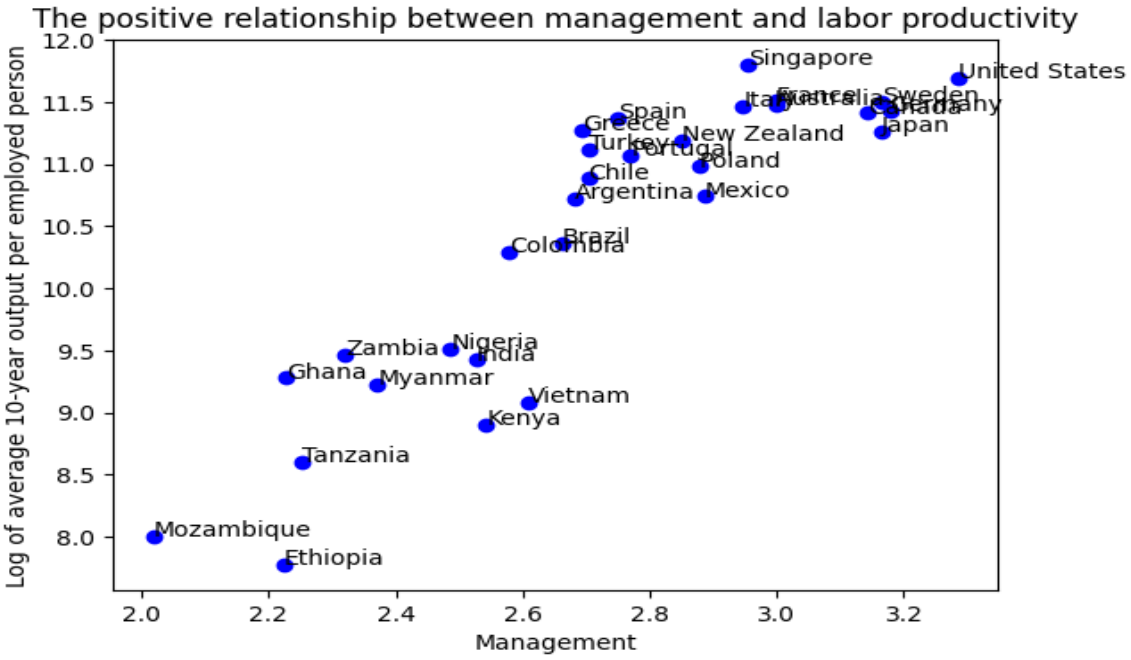

Figure 3. Positive Correlation of Management Quality and 10-year Output per Employed Person. Source: World Management Survey

Figure 3 shows a positive correlation between management quality, measured by the overall management score, and the output per worker, measured by the natural logarithm of the average 10-year output per worker. The value of R-squared, a measure for model fit, is 0.89 (close to the perfect value of 1), suggesting that the higher management quality is, the more output per capita. Vietnam fits well in this model pattern. In Southeast Asia, Singapore has the highest management score and output per worker. However, we expect Singapore's management score to be higher if the regression line is perfect.

5.4 Gap in Management Quality between Vietnam and the United States

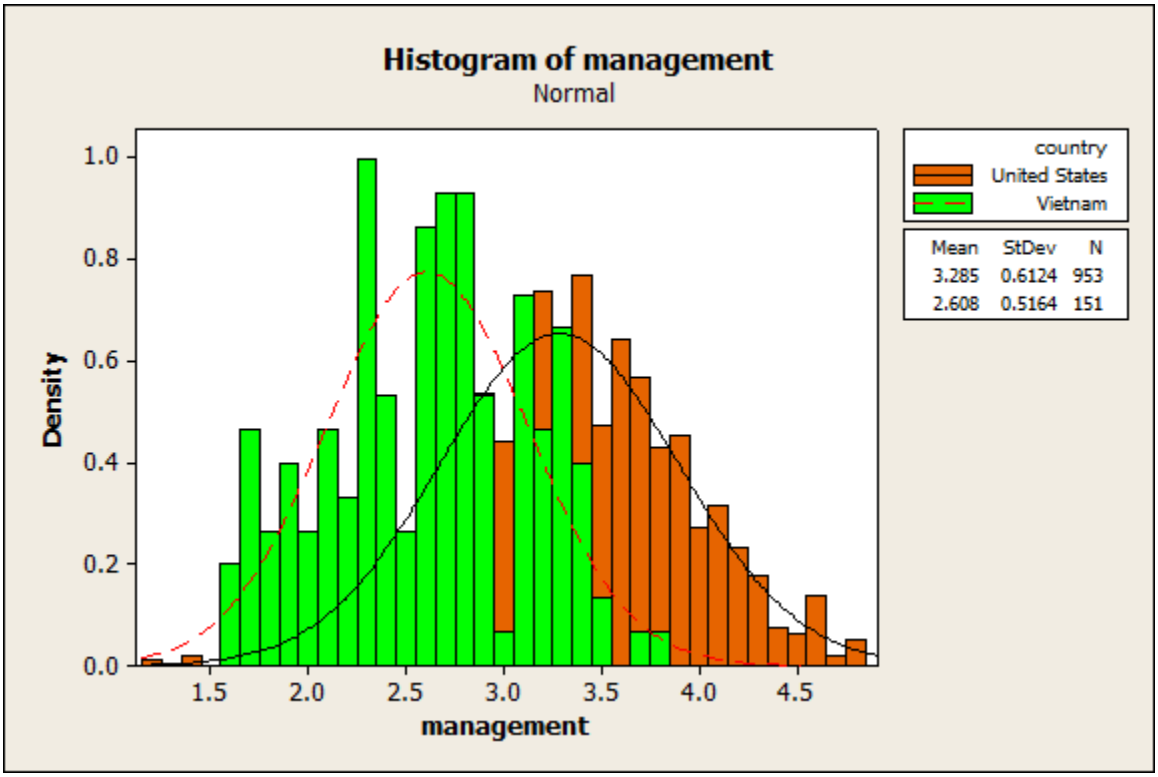

Figure 4. Comparison of Management Quality between Vietnam and the United States

Figure 4 shows the dispersion of the overall management scores in Vietnam and the United States. This comparison indicates the excellence of management in U.S. firms. The mean of this score in the United States is higher (3.285 vs. 2.608). It also reveals that management practices vary between nations and deviate in management quality within countries (Bloom and Van Reenen 2010; Malney and Sarrias 2017). Another finding is that most of Vietnam's firms have lower management scores than the mean (less than 2.6). This suggests that many local firms are poorly managed.

Figure 5. Management Scores in Vietnam by Firm Size

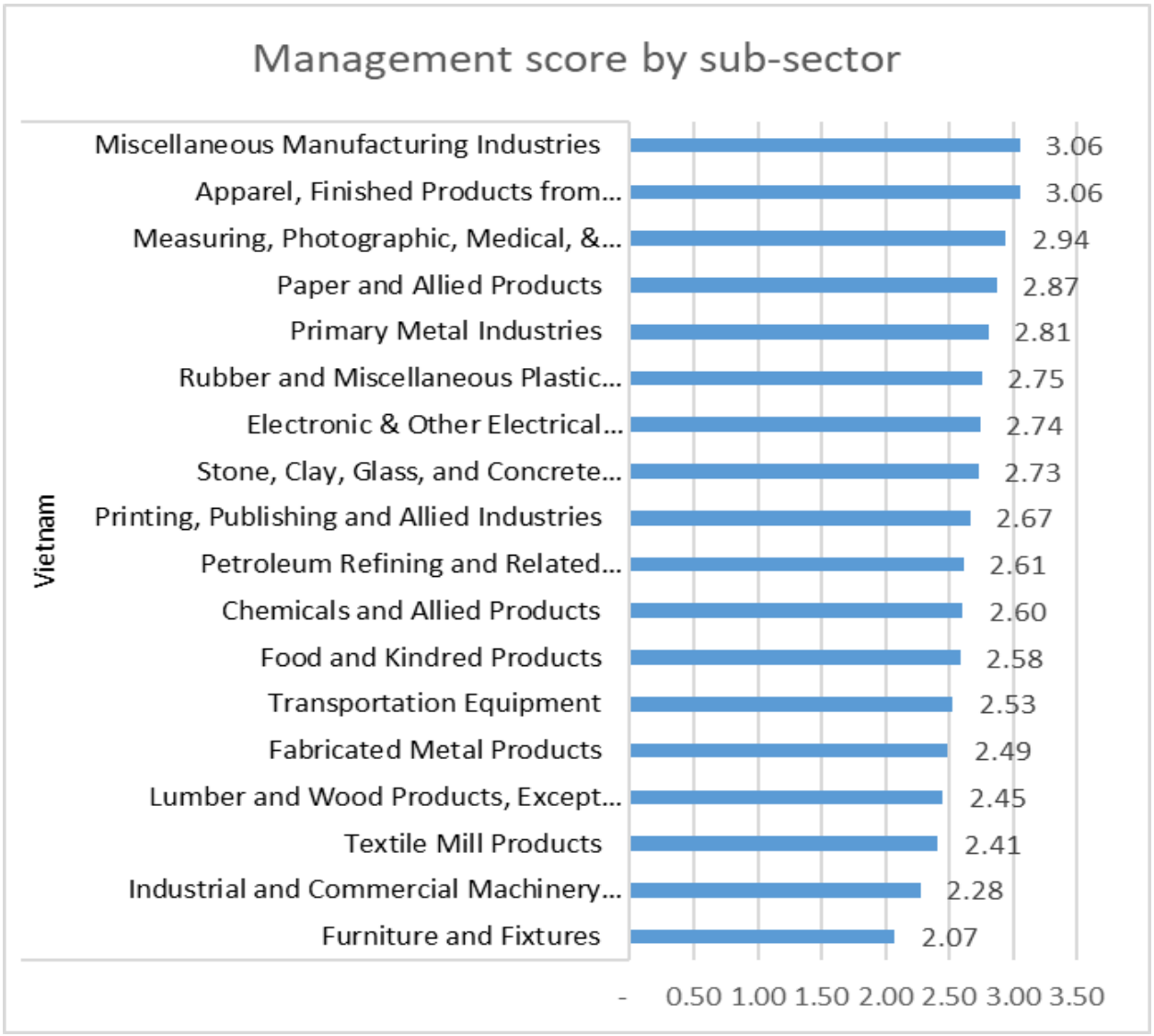

Figure 6. Management Scores in Vietnam by Manufacturing Sector

In Vietnam, overall management scores vary across enterprises of different sizes and sectors. In terms of firm size, overall management scores are higher in large-sized firms (Figure 5). Companies with between 50 and 100 workers have the lowest management scores.

By sector, low-tech sectors such as furniture and textiles tend to have lower management scores (Figure 6). This finding is in line with the study results by Bloom et al. (2019), who postulate that this issue is because management practices are not only for production but also for research and development. Making furniture or textiles does not require research and development.

5.5 Poor Management Aspects in Vietnam's Manufacturing Firms

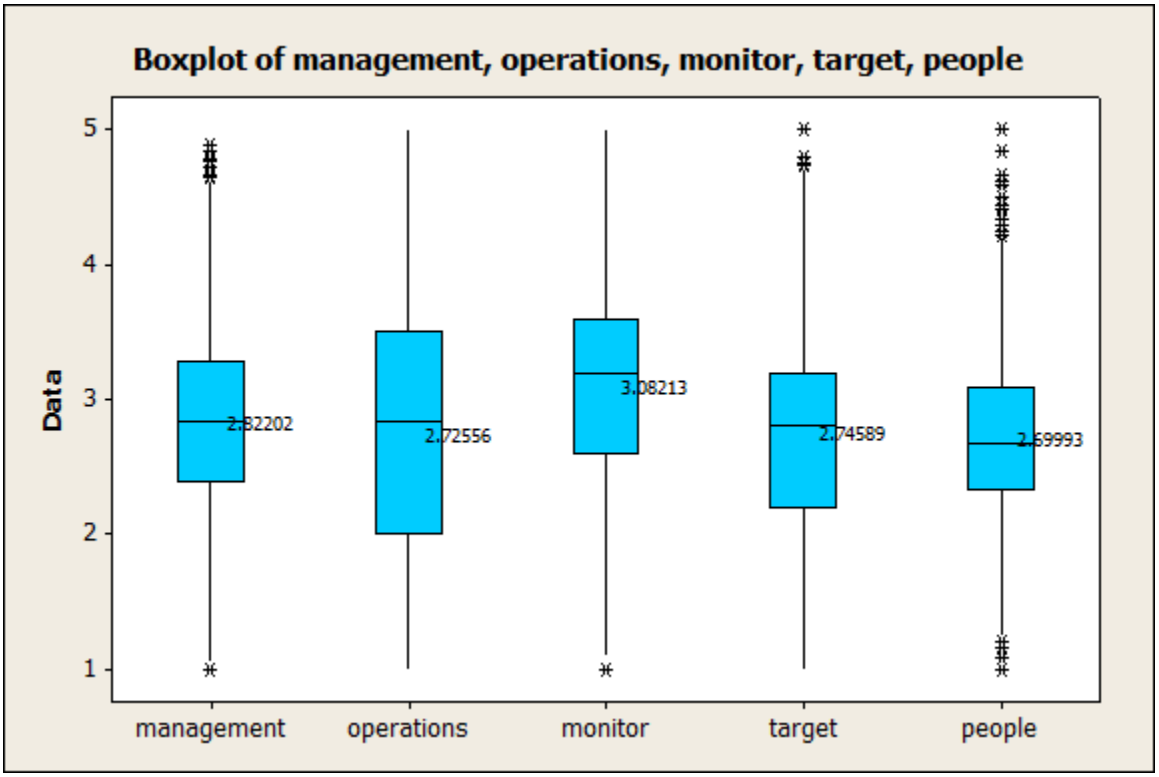

Figure 7. Boxplot of Management Dimensions in Vietnam

Across the four management dimensions, Vietnam performs best in performance monitoring (3.08) and poorly in people management (2.70) and operations management (2.73) (Figure 7). The operations management score (2.73), measured by applying lean production practices, is smaller than the overall management score (2.82). Poor operations management implies that some Vietnam's firms have not implemented modern manufacturing processes such as lean manufacturing systems.

People management measures how companies manage talented people and whether there is a systematic way to treat good and bad performers. Vietnam's people management score of 2.7 implies that some domestic firms have not followed standardized human resources management policies to motivate workers for better performance.

6. Conclusion

The findings imply that Vietnam's manufacturing firms are underinvesting in management practices. It is important to train managers with managerial skills. In terms of operations management, some of Vietnam's firms have not implemented modern manufacturing processes such as lean manufacturing systems, contributing to efficiency. Vietnam's firms also underperform other peers in recruiting and retaining talented people.

The study challenges policy-makers to develop business environments that promote good management practices across all firms and drive the competitiveness of their entire economies. To achieve this objective, policies should enable domestic firms to recognize and adopt good management practices.

Solutions for Vietnam's firms include acquiring good management practices from foreign direct investments (FDI) by high-income countries. This suggestion is in line with the World Bank's idea that FDI will help domestic firms with better management practices (World Bank 2020). Importantly, Vietnam's manufacturing firms need to receive information regarding what are considered good management practices, which help very low-performing firms achieve at least a minimum level of management quality. Using World Management Survey instruments, which includes operations, performance monitoring, target management, and talent management, is a good start but not their list is short and not detailed. Firms need a more detailed management list, which can be obtained through consultants. Some consultant groups, such as Deloite, a leading management consultant company, can provide technical consultancy services on management practices. For example, the World Bank partnered with Deloite in its Business Management Advisory Support Project to support SMEs in obtaining free access to advisory business consultancy for growth (Deloitte 2018). Vietnam's manufacturing needs to enlist the World Bank's support for similar projects to enhance managerial capital

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Biography

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