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Characterization of Swedish Forestry Contractors' Practices Regarding Occupational Safety and Health Management

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Abstract: Forestry has many dangers, and much effort has been put into supporting accident prevention by developing legislation and certification systems. In Sweden, forestry contractors have an important role in developing and maintaining a good working environment for the employed forestry workers. The objectives of this study were to describe forestry contractors' current practices regarding occupational safety and health (OSH) management and identify variations in relation to the contractors' characteristics and finances, as well as to highlight areas that need improvement. In 2023, data were collected through a survey distributed to 1200 limited liability companies registered to perform logging or silvicultural services, with a response rate of 22%. Multi- and univariate analyses were performed to compare contractor groups, and the results show that larger companies had more well-developed and formalized routines and guidelines for their operations. Geographical differences were also identified; for example, employees in the north were more likely to have access to staff facilities when working in the forest. However, no clear connection between OSH management practices and the contractors' finances could be demonstrated. The study concludes that there is a need for improvements in OSH work within the industry because many companies do not meet all of the formal requirements that exist today.

Keywords: working environment; safety; injury prevention; logging contractor; silvicultural contractor

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1. Introduction

Forestry contractors have been an important element in Swedish forestry ever since the late 19th century, when horse-owning farmers offered their services to forestry companies during the winter season [1]. During the last few decades, the forestry contractors' total work effort has increased steadily, and today, they account for more than half of the total working time spent annually on forestry [2]. This is because, since the 1990s and continuing today, the forestry companies have outsourced much of the operational forestry work and the proportion of forest work carried out by the private forest owners themselves has decreased. Consequently, the number of active forestry contractors has increased, and contractors oriented towards silvicultural work account for the greatest proportion of that increase [3]. In Sweden, there are about 24 million hectares of productive forestland to be managed, of which 48% is owned by non-industrial private forest owners, 25% by private companies, 12% by state-owned companies, 8% by the state and the rest by other public and private owners [4].

Historically, forestry work has been physically demanding, but over time, the increased degree of mechanization, and a greater focus on safety in general, has meant that forestry contractors' working conditions have become significantly better since the days of horse drivers [1,5,6]. However, from an international perspective, judging by the number of occupational accidents that occur, forestry is still a dangerous industry compared to other business sectors [7–10]. According to the Swedish Forest Agency's [11] compilation of data, an average of two to three people die each year as a result of forestry work accidents. In

the Swedish context, taking into account the size of the industry, this figure is quite high because it represents more than 5% of all fatal work accidents, in all industries, for an industry that employs about 0.6% of workers in Sweden [12]. In addition, around 100 work accidents serious enough to cause sick leave are reported each year, and 34 of these occur in logging operations, affecting 40 per 1000 gainfully employed [13]. The major causes of sick leave in logging over the last five years were (a) falling accidents (36% of accidents) and (b) vehicle accidents, collisions, bring struck by vehicles, and injuries resulting from objects, machines, tools or animals (33% of accidents) [13]. It is noteworthy that the actual number of accidents is likely to be much greater because the statistics only include the notifications of work accidents that employers have made to the Social Insurance Agency. According to Pinzke and Lundqvist [14], only 7% of all accidents were included in the official occupational injury statistics for Swedish agricultural companies, and they estimated that the true number of accidents on forestry farms was closer to 800 in a single year. The same consideration applies to occupational illnesses, which are occupational injuries that did not occur through sudden accidents, but because of, for example, long-term exposure to psychosocial or physical ergonomic risk factors in the worksite, e.g., repetitive motions, stationary position, vibration, noise, and work stress. Over the last five years, on average, only 14 cases per year of occupational illnesses were reported in forestry, four of which were reported from logging. The causes of the illnesses are reported only for forestry in general, but the pattern aligns with reports from previous studies and the international literature on logging: 40% were due to ergonomic stress injuries, and 32% had physical causes like vibration, noise or weather exposure [13]. The Swedish Work Environment Authority also reported shortcomings in systematic work environment management (SWEM) among forestry contractors [15]. It is thus clear that much work remains to be done in the area of occupational safety and health (OSH), first to reduce the number of accidents, but perhaps above all to create a better working environment with good conditions for the employees. Systematically maintaining and improving a good working environment is also a clear legal requirement for all employers [16].

The Swedish Work Environment Act (SWEA) transposes the EU's Framework Directive (89/391/EEC); however, requirements regarding, for example, worker participation and internal controls and audits are higher in the SWEA than in the EU's Directive. SWEM is one of the key processes in the SWEA. Roughly, SWEM is implemented in three stages, according to Frick [17]: (1) routines and action plans (2) employee engagement and competence and (3) management control and policy. Typically, Swedish companies perform best in the first stage but are lacking in the implementation of preventive actions and the integration of employees. Frick also found that small firms implemented SWEM to a lesser extent than larger firms did [17].

A sign that the Swedish forest industry sees health and safety as important is that several new requirements for a good working environment have been added to the FSC and PEFC certification standards for forestry in Sweden [18–20]. Among other provisions, it has been specified that the employees should have access to staff facilities adjacent to the worksite even during fieldwork. In addition, new requirements for systematic gender-equality work and countering discrimination have been introduced, and it has been made clear that employees must have opportunities for skills development regardless of the form and length of employment [19].

The establishment of new requirements regarding the work environment, however, can often mean costs for the companies, e.g., for new staff facilities, new equipment or higher training costs. As many forestry contractors have had rather low profitability in the past [21], the emergence of new costs may be perceived as challenging for those who already feel that they are working under restricted financial conditions. However, investing money in the working environment and staff wellness does not have to have negative consequences for profitability. On the contrary, some studies suggest that it is money well invested. This is because accidents and a high incidence of work-related injuries, for instance, can lead to costly work stoppages, higher insurance premiums,

higher staff turnover with accompanying learning and recruitment costs, and higher wage demands to compensate for the risky work [22–26]. Given the fact that forest contractors have previously reported difficulties in recruiting skilled employees [21], a good working environment can also be an important competitive advantage in the search for competent employees. This factor is especially pertinent because dissatisfaction at work and a lack of work management have been shown to be common reasons for leaving the profession [27] and because potential workers' perception of the conditions of the profession will affect their interest in it [28].

One way to strengthen forestry-service contractors' motivation to invest in their work environment would be to demonstrate that such an investment does not have negative effects on the company's profitability. Due to the high costs of injuries, there are reasons to believe that a good working environment can be a prerequisite for good profitability [23,25,26]. However, as far as we know, the connections between the Swedish forestry contractors' OSH management and profitability are currently unexplored. Moreover, both from a policy perspective and as a precondition for effective communication, it is important to identify the areas in which OSH requirements are currently well met and those in which requirements are neglected. Such knowledge can be used to direct effective measures that can lead to increased awareness of risks and, in the long run, reduce the risks connected to forestry work. Therefore, this study aimed to characterize the current practices of Swedish forest contractors in terms of systematic OSH management, identify disparities in the contractors' characteristics and finances and highlight areas in need of improvement.

2. Materials and Methods

2.1. Sample

The Retriever Business database was used to collect information about companies performing logging or silvicultural services. To identify relevant companies, the Swedish Standard Industrial Classification (SNI) codes 02.200 (logging) and 02.102 (silviculture) were used. The additional criteria were that the selected companies had at least one employee and a turnover between EUR 50,000 and 5 million (a conversion rate of 0.1 euro per Swedish krona has been used throughout this paper). The latter criterion was set to exclude inactive companies and large industrial forest companies that were not relevant to the study. For comparison, an average Swedish logging contractor has a turnover of approximately EUR 600,000 and a silvicultural contractor of approximately EUR 400,000 [21]. Based on these criteria, contact details and financial statements were collected for approximately 2500 companies.

The population was divided into three strata of equal size based on operating margins: low, medium and high profitability. These three groups thus reflect each company's performance relative to others in the same industry and not their absolute profitability in the form of a certain profit margin. Operating margin is a good indicator to use for comparisons between companies because it is not affected by the company's capital structure, i.e., by financial costs and income. Thereafter, the data were sampled by a stratified random selection of 1200 companies (400 per stratum). The purpose of using a stratified sample was to examine the variability in contractors' profitability while ensuring that contractors could remain anonymous in the survey. Anonymity was of central importance because the survey identifies violations of laws, regulations and guidelines, which could be used against the owner if it came to public knowledge. Moreover, respondents might have been reluctant to share such sensitive information if they were not guaranteed anonymity. Thus, according to national regulations and university policy, no formal ethical review was required before the study was carried out.

2.2. Data Collection

A questionnaire consisting of 27 questions was constructed for data collection (see Supplementary Materials). The first section mapped contractors' characteristics with seven questions regarding the contractors' number of employees, business orientation,

annual turnover, geographical location, perception of the company's financial situation, and view on how OSH management affects the company's finances. The second section investigated seven OSH areas using categories largely inspired by requirements within the FSC certifications and the Swedish Work Environment Authority's provisions for SWEM: solitary work, competence development, equipment, guidelines for hazardous work, worksite facilities in the forest, accidents and occupational health, risk assessment, action plans and follow-up [16,18]. Most of the questions had categorical response options or used a seven-point Likert scale.

The questionnaire was sent out by post at the beginning of February 2023 and a reminder was sent out two weeks after the first mailing. The questionnaire was addressed to the company, so it is unknown what position in the company the respondent held, but it is likely that either the owner or someone else in the company's management answered most of the surveys. The respondents were informed about the purpose of the study and were told that their participation was voluntary and that their responses would be anonymous. The respondents could either submit their answers online via Netigate or send the completed questionnaire by post using the enclosed prepaid return envelope. To keep track of which sampling stratum the answers belonged to, three different links were used for the online survey and return envelopes were marked with the letter A, B or C. A total of 267 companies returned the questionnaire, corresponding to a response rate of 22%. Eighteen companies could not be reached due to invalid addresses in the company register, and some companies replied by email or telephone that they did not wish to participate in the survey.

2.3. Data and Analysis

The analyzed data contained information from 242 companies. Twenty-three companies that reported they did not work with forest-related services were excluded before the analysis, as were two that had answered only a few background questions. Of the analyzed companies, 29% belonged to stratum A (low profitability), 39% to stratum B (medium profitability) and 32% to stratum C (high profitability). Companies for which logging services accounted for the majority of their annual turnover were classified as logging contractors (LC); companies for which silvicultural services accounted for the majority of the annual turnover were classified as silvicultural contractors (SC); and the remaining companies were considered mixed-service contractors (MSC). With these criteria, there were 135 LCs, 41 SCs, and 66 MSCs. In terms of company size, the respondents were fairly evenly distributed across turnover categories. Approximately 17% of the companies had a turnover of less than EUR 150,000; 29% had a turnover of EUR 150,000–400,000; 27% had a turnover of EUR 410,000–800,000; and 27% had a turnover of more than EUR 800,000. Moreover, the geographical distribution was relatively even between northern (30%), southern (40%) and central Sweden (30%). Most respondents (93%) employed at least one full-time worker. LCs and MSCs employed mainly full-time workers, while SCs employed seasonal workers to a greater extent than both LCs and MSCs (Table 1).

Table 1. Mean number of employees according to contractor category and type of employment. Standard deviation in parentheses.

Type of Employment	Logging Contractors	Silvicultural Contractors	Mixed-Service Contractors
Full-time	4.6 (4.5)	3.6 (6.2)	2.3 (2.8)
Part-time	0.3 (0.6)	0.4 (0.9)	0.3 (0.9)
Seasonal	0.1 (1.0)	7.0 (14.4)	0.2 (0.7)
Occasional	0.3 (0.7)	0.7 (1.8)	0.6 (1.2)
Total	5.2 (5.0)	11.6 (17.4)	3.3 (3.1)

The respondents were asked about their opinion on the company's financial situation; 15% stated that it was quite poor or very poor, while 56% considered it quite good or very good, and 30% responded that it was neither good nor poor.

Differences between groups regarding their OSH management practices were analyzed using multivariate modelling, chi-square tests, analysis of variance (ANOVA) and

t-tests. The significance level was set to 0.05. When applicable, correlations between variables were also investigated. Principal component analysis (PCA) was used to assess the general variability in the data and for outlier detection. For differentiation between groups, orthogonal projections to latent structures discriminant analysis (OPLS-DA) was employed. All multivariate modelling was conducted using SIMCA 17 (Umetrics, Umeå, Sweden), and uni- and bivariate analysis were conducted using IBM (Armonk, NY, USA) SPSS Statistics software (version 29). Differences in relation to contractors' operating margin (i.e., sampling stratum), company size (in terms of turnover), contractor service orientation, geographical location, contractors' own perception of their finances, and contractors' perception of how efforts related to work environment affect the company's finances were investigated. To avoid the problem of having too few responses per group, no comparisons were made between more than three groups for any characteristic. Regarding company size, the result was that companies with a turnover up to EUR 400,000 were classified as small companies, those with EUR 410,000–800,000 medium-sized companies and those with a higher turnover were classified as large companies. For the same reason, response alternatives such as "yes, for all…" and "yes, for most…" were combined when it was applicable.

3. Results

The general trend among forestry contractors' OSH management practices is that large companies (with regard to turnover) implement more of the mandatory OSH management practices than do small companies. However, the overlap between turnover groups was extensive (Figure 1a). The main factors distinguishing high-turnover companies from low-turnover companies, as evidenced by studying the loadings (Figure 1b) were staff access to a safety representative, access to various staff facilities and provision of instructions.

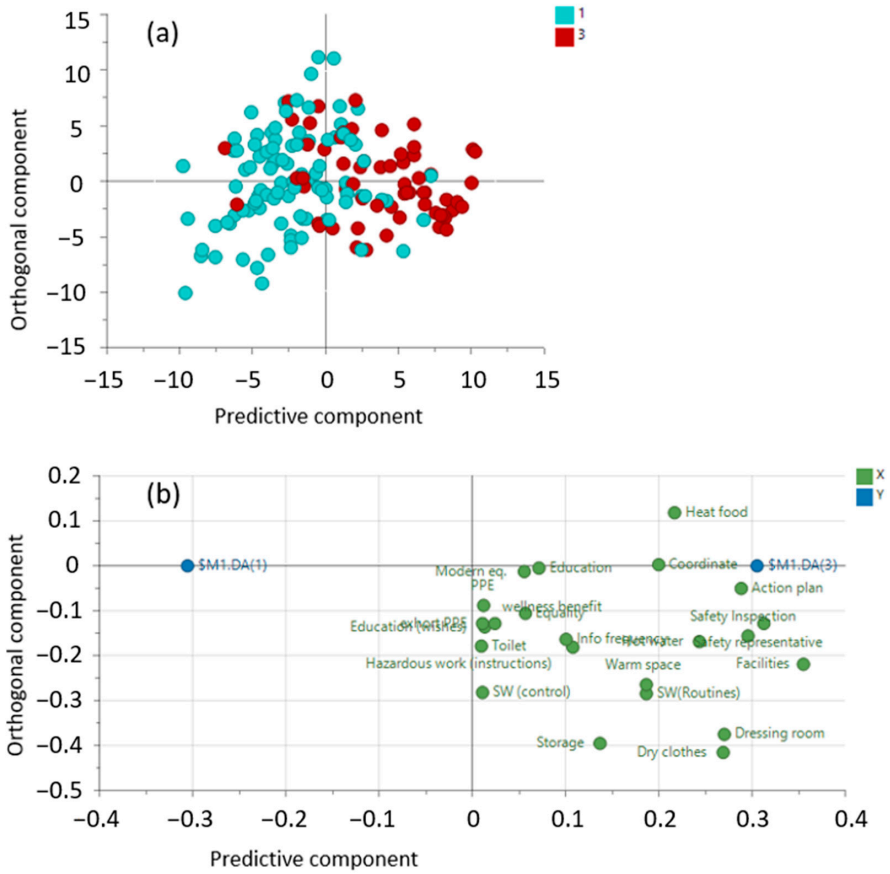

Figure 1. Results from the OPLS-DA (components 1 + 1) with (**a**) showing the scoreplot of small (blue, Y) and large (red, X) companies based on turnover, (**b**) the predictive loadings displaying factor influence. R2X(1) = 0.20, R2X0(1) = 0.14 Q2 = 0.238.

In specific, large companies more often had access to heated staff facilities, warm water, and changes of clothes. They also more often had written guidelines for unaccompanied work and how to perform hazardous work tasks. Moreover, larger contractors more often conducted safety inspections at the worksite and were also more likely to have an up-to-date action plan for how to deal with identified problems. In addition, large companies more often provided the GPS coordinates of the worksite so that workers could be easily located in the event of an accident.

3.1. Unaccompanied Work

The majority of contractors (77%) had written guidelines for how and when employees can work alone. However, almost half of contractors stated that they only had such guidelines to some extent. One respondent did not know whether they had written guidelines for working alone, and 23% stated that they had no written guidelines. No difference in this regard was found between companies of different sizes, with 18.2% and 19.5% of the LCs and SCs, respectively, lacking guidelines.

Approximately one-fifth of the respondent companies never or rarely check that employees who have worked alone have returned home after the working day, but the majority stated that they check up on their employees to a high or very high extent (Figure 2). SCs reported checking up on their employees when they had been working alone more frequently (avg. 6.2 out of 7, where 7 = always and 1 = never) compared to LCs (avg. 4.9) (Figure 3b).

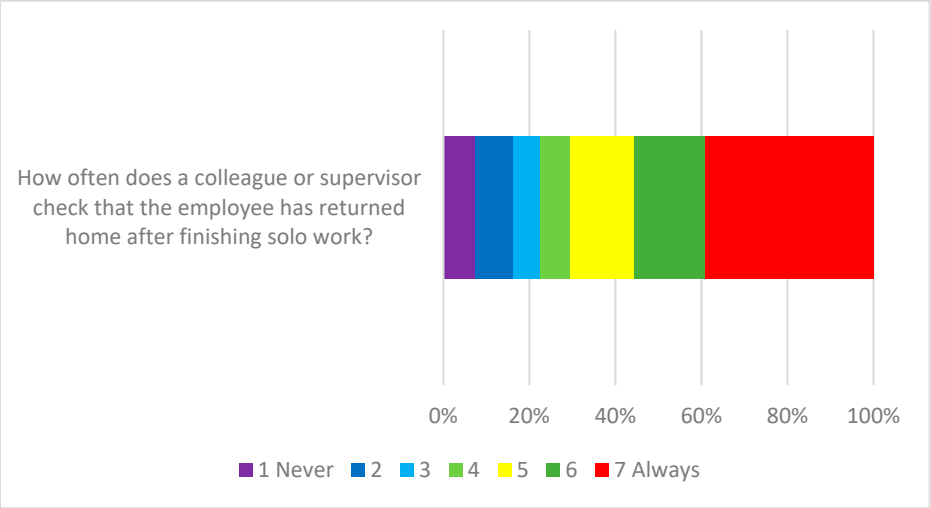

Figure 2. Distribution of respondents according to how often they check up on their employees after they have worked alone.

3.2. Instructions for Hazardous Work Tasks

Written instructions for hazardous work tasks were not available in 27% of the companies, while 30% had instructions for some tasks, 37% had for most or all tasks and 7% said that they did not perform any hazardous work.

Respondents who provided written instructions were further asked how frequently employees are informed about the instructions, and on a seven-point scale (from never to very often), the average frequency was 4.1. There were about as many companies that informed their staff very often as there were companies that informed them very rarely.

The majority of companies (66%) said that they always provide their employees with the coordinates of the worksite, which can be used in case of emergency.

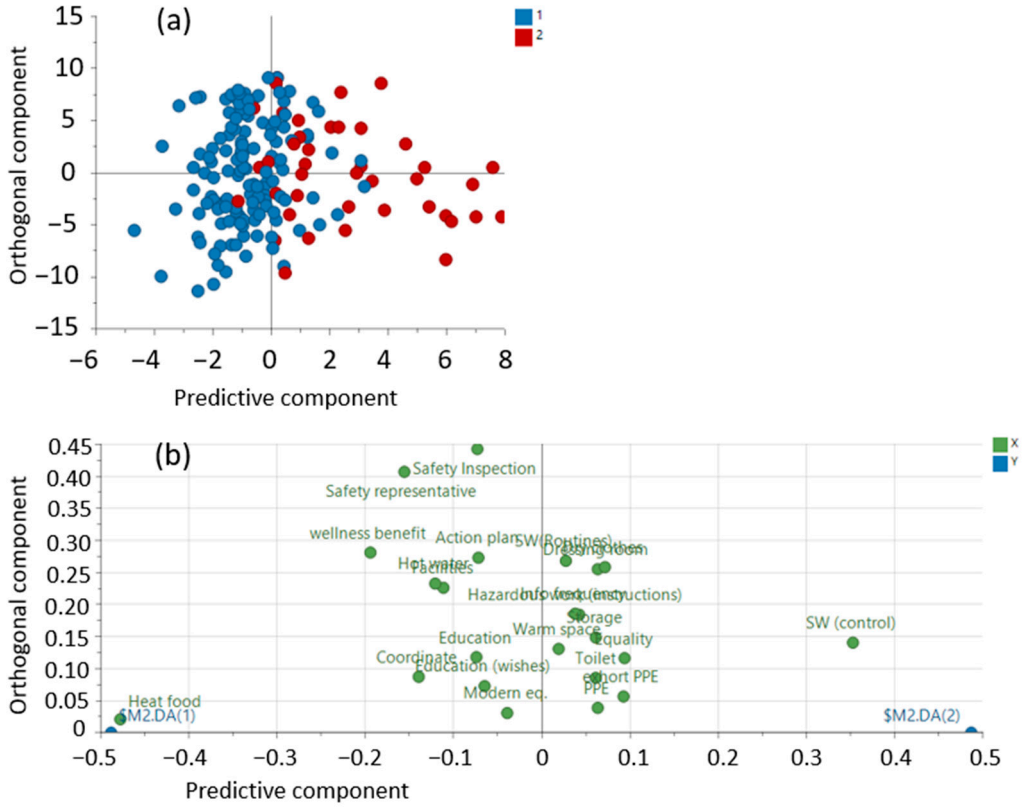

Figure 3. Results from the OPLS-DA (components 1 + 2) with (**a**) showing the scoreplot of logging contractors (LC, blue, Y) and silviculture contractors (SC, red, X), (**b**) the predictive loadings displaying factor influence. R2X(1)= 0.05, R2X0(1) = 0.418 Q2 = 0,36.

3.3. Safety Inspections and Action Plans

About half of the companies (48%) had not carried out a safety inspection at each worksite to identify risks at work within the last year, and a similar proportion (47%) had done so at least once within the last year. The rest (5%) did not know whether this had been done. There were geographical differences regarding the occurrence of safety inspections ($p < 0.001$). In the south, 32% of the companies had done a safety inspection within the last year, while in central Sweden 49% had done one, and in the north, 63% had done one.

Respondents were also asked whether the company had a written action plan for their work environment that had been created or updated during the past year, which was the case for 42% of the companies. In addition, 38% had an action plan that was older than a year. Thus, 21% lacked a written action plan. Furthermore, a significantly greater proportion of LCs had an action plan compared to SCs. Of LCs, 87% had an action plan (either updated or older), while 72% of SCs had one. However, more SCs had updated their action plan, as 54% of them had an updated plan, compared to 47% of LCs.

In 71% of the companies, employees had no elected (by the trade union or the employees at the worksite) safety representative. One respondent did not know whether they had one, and a regional safety representative assisted 4% of the companies. Thus, 25% had an elected safety representative (in one case, two) at the worksite. For companies with at least five employees (which by law must have an appointed safety representative), the proportion was 46%. Compared to SCs, LCs were significantly more likely to have a safety representative, as 37% of them had one, while 24% of SCs had one (Figure 3b).

3.4. Competence Development and Wellness

In total, 45% of the companies offered employees the opportunity to participate in competence development activities each year, while 25% offered it every second year, 28% offered it more rarely, and 3% said that they never offered this to their employees.

Companies in southern Sweden tended to offer these kinds of activities to their employees more often compared to companies in the north ($p = 0.067$). In southern Sweden, 45% of the companies offered them each year, while in the north and in central Sweden, the rates were 26 and 29%, respectively. Furthermore, in both northern and central Sweden, 39% of the companies offered competence-development activities less frequently than every second year, while in southern Sweden, 21% offered them that rarely.

The majority of the companies reported that they largely satisfied the desires of their staff to participate in courses or similar forms of competence development (Figure 4). On a seven-point scale, the average reported fulfilment was 5.5.

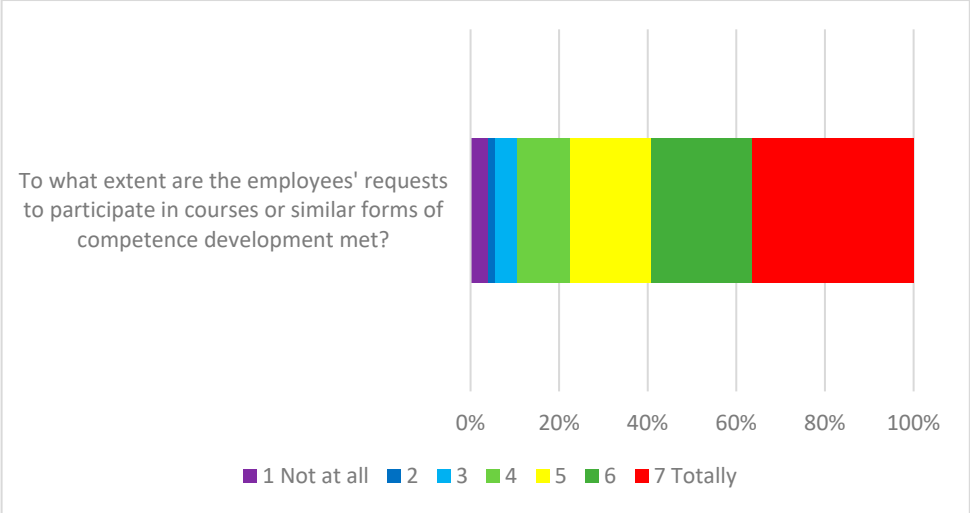

Figure 4. Distribution of respondents according to how they perceive that employees' desire to participate in courses or similar forms of competence development are fulfilled.

In 67% of the companies, none of the employees had completed educational training in equality. In addition, 17% of respondents did not know whether anyone had attended such educational training. In 7% of the companies, more than 50% of the employees were trained in equality issues, and in 8% of the companies, a smaller share of them were. A geographical difference was found, where companies in the south stood out by having a significantly lower proportion of employees with equality training ($p = 0.015$). In 9% of the southern companies, at least some of the employees had equality training, while in companies in central Sweden, 24% had such training, and in the north, 18% had such training.

A majority of the respondents (65%) offered their employees wellness benefits (according to Swedish tax rules, employers can give their employees up to EUR 500 per year tax-free for certain wellness activities, e.g., gym workout, massage, etc.). No significant differences were found between groups regarding wellness benefits, although in the OPLS-DA, the wellness benefits showed a strong factor response (Figure 3b).

3.5. Personal Protective Equipment

Respondents were asked to what extent they encourage their employees to use personal protective equipment (PPE) when performing hazardous work, and most said that they did this to a very high extent. On a seven-point scale, the average response was 6.6. Likewise, most of the companies stated that they provide PPE individually to each employee, as the average response was 6.6 on this question as well.

Furthermore, most companies perceived that they in general use modern equipment. Here, the average response was 6.2 (out of 7). LCs did not perceive themselves as having more modern equipment than SCs (Figure 3b).

3.6. Staff Facilities

About a third of the companies always or very often offer their employees access to staff facilities when the staff are working in the forest (e.g., a cabin or trailer with amenities), while approximately half of them never or very rarely do so. There were clear geographical differences, with companies in the north being most likely to offer staff facilities, with a decreasing frequency the farther south the company operates (Table 2). Finally, LCs and SCs were equally likely to provide staff facilities (Figure 3b).

Table 2. The average extent to which companies provide staff facilities when the staff are working in the forest, on a scale from 1 (never) to 7 (always). Pairwise letters show significant differences between groups ($p < 0.05$).

Group		Average
Profitability (sampling stratum)	Low (A)	3.5
	Medium (B)	4.0 [a]
	High (C)	3.0 [a]
Company size	Small	2.3 [b,c]
	Medium	4.1 [b]
	Large	5.0 [c]
Geographical location	North	4.9 [d,e]
	Central	3.4 [d,f]
	South	2.5 [e,f]

As shown in Figure 5, the amenities that are most frequently available at the worksite are facilities to heat food and a heated space for rest (i.e., lunch and coffee breaks). Access to toilets and the ability to wash in hot water were the two least frequently offered amenities. LCs provided the opportunity to heat the food at the worksite more often than SCs did (Figure 3b).

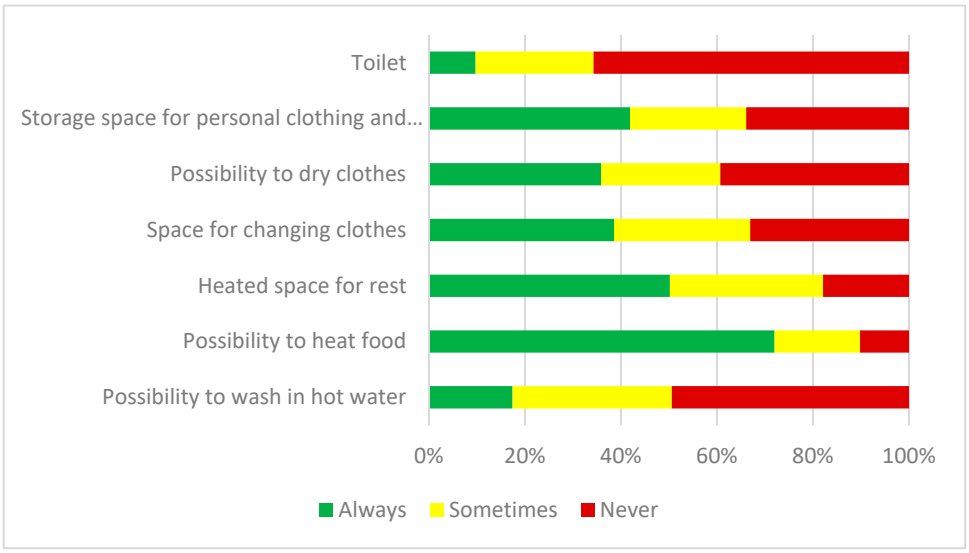

Figure 5. Distribution of respondents according to how often the employees have access to various amenities when working in the forest.

3.7. Economy and OSH Management

The respondents thought that work-environment efforts had neutral or only minor positive or negative effects on the company's finances (Figure 6).

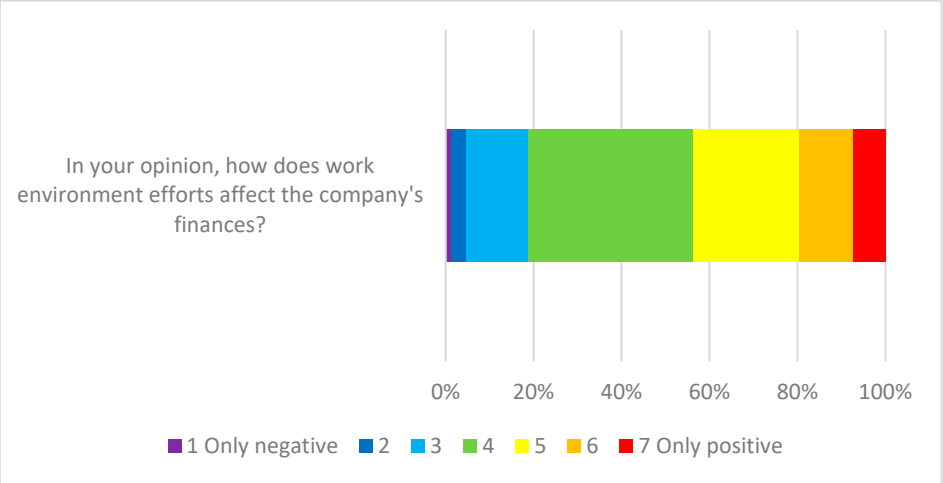

Figure 6. Distribution of respondents according to the extent to which they perceive that work-environment efforts affect the company's finances positively or negatively.

There was a significant positive correlation between the frequency with which companies informed their employees about the instructions and their perception of how work environment efforts affect the company's finances (r = 0.21, p = 0.007). A positive correlation was also found between the companies' fulfilment of employees' requests for education and their perception of how work-environment efforts affect the company's finances (r = 0.18, p = 0.009), meaning that those who see positive economic effects were also more inclined to invest in competence development for their employees.

Moreover, there was a significant positive correlation between modernity of equipment and respondents' perception of how work-environment efforts affect the company's finances (r = 0.16, p = 0.018). Nevertheless, as shown in Table 2, the companies with the highest operating margin (i.e., stratum C) were significantly less likely to offer staff facilities compared to those with medium-high operating margins (stratum B).

Finally, those companies with a perceived poor or very poor financial situation checked up on their employees more seldom than did those who perceived their finances to be good or very good (p = 0.030). The average scores for these two groups were 4.3 and 5.4, respectively. No other work-environment occupational safety and health management practices were correlated with the company's operating margin.

4. Discussion

Through a questionnaire, this study characterized current OSH management practices of Swedish forestry contractors and identified some differences between contractors in relation to their firm characteristics and finances.

4.1. Guidelines and Routines

The results show that the company size in terms of turnover and the business orientation of contractors were the most common factors that differentiated contractors concerning how formalized and systematic their OSH management practices were. These two characteristics are often correlated, as LCs usually are larger than SCs [21]. Larger companies engaged in more OSH management practices, and to some extent, this may be a result of the fact that both legal requirements and certification standards can be different depending on the number of workers employed and the contractor size [16,18,29]. That larger contractors have better management practices is in line with the findings of previous studies, but Frick [17] found generally higher compliance with the regulations, as most larger Swedish companies of more than 50 employees tended to have guidelines and routines such as action plans in place. According to Jylhä et al. [30], better business management practices are a reason why large contractors tend to be more profitable than small contractors in

the forestry business. The fact that good work organization has been shown to strengthen the work ability of machine operators could also be a partial explanation for this finding [31]. In this study, the connection between contractors' profitability and their OSH management practices was not that noticeable, as few differences were identified between the sample groups. However, some differences were linked to the contractors' attitude regarding whether the measures affect the company's finances positively or not. In any case, the results show that there is great potential for improvement in OSH management practices within the industry, as the majority of companies lacked routines or guidelines. This is problematic because they are all obliged by law to carry out such work [16]. The legislation exists to ensure that no one becomes sick or injured because of his or her work and that everyone has a good working environment. Moreover, this study measured only the implementation of OSH procedures, i.e., the first level of implementation of systematic work-environment management, where implementation is generally found to be the best [17].

An understanding of why owners/managers and other stakeholders involved do not carry out various OSH management practices will be key to increasing compliance with SWEM and improve forestry workers' health and safety. Known barriers to interventions in other SMEs are related to regulation (perceived to be incorrect or bureaucratic), lack of resources (time or money) or lack of information (guidelines, knowledge and awareness) [32]. Hence, further research is requested.

4.2. Competence Development and Staff Wellness

In this study, 65% of the contractors offered wellness benefits to their employees, which is a relatively low proportion considering that other surveys suggest that about 85% of Swedish workers have access to wellness benefits from their employer [33]. As there were no differences between contractors in relation to their business orientation, the low percentage cannot be explained by, e.g., a greater proportion of seasonal workers, whose employers could possibly consider it less important to invest in preventive health work because the employment is short-term. It may therefore be that there are more structural reasons behind this difference. In other industries, such as construction, it has been seen, among other things, that factors such as fierce competition and a temporary workforce make work to promote health and well-being more challenging [34]. However, there is thus great potential for improvement in this area among forest contractors, and there are several incentives for them to adopt these types of measures. First, as noted by Kymäläinen et al. [35], good operational performance is dependent on having motivated and healthy operators. For the employer, it can therefore be advantageous to support the employee in maintaining a sufficient physical fitness level for their work tasks. Indeed, evaluations of workplace wellness programs have shown mixed results, but some studies have found that for every dollar invested, three can be returned in the form of lower costs of health-related problems and reduced absenteeism among staff [25,26]. Second, because contractors experience difficulties in recruiting skilled employees [21], all means that can increase the company's attractiveness in relation to other employers should be considered. The current tax rules also make wellness benefits more financially beneficial to both the employer and the employee compared to paying the equivalent amount as wages.

Regarding competence development, some interesting geographical differences were found. The results showed that contractors in the south more frequently offer their employees opportunities to take part in competence development activities, but at the same, a lower proportion of their employees have received training in equality compared to those working for contractors farther north. This result could indicate that equality has been prioritized by contractors in the north. Unfortunately, this survey did not include questions about which type of clients the contractors have, but from earlier studies, it is known that contractors in different regions have different customers [36]. Because the principal customers of forestry services have a great influence on contractors' businesses [37] and because competence development often is organized in collaboration with the forest compa-

nies [38,39], it could be that forest companies in the north and central parts of Sweden have had a stronger focus on these issues. For example, during the period 2020–2023, several forest companies operating in the county of Västernorrland were involved in a project on equality in the forestry sector that was run by the county administration board [40]. Consequently, it is likely that these forest companies, several of which also operate in other counties in northern and central Sweden, have in turn involved their contractors in this work. However, more studies are needed to be able to determine the effect this type of project has on the contractors' activities.

4.3. Equipment and Staff Facilities

The results show that small contractors have less modern equipment than large ones. This finding is in line with the findings of Kronholm et al. [21], which showed that forest machines used by small LCs were on average approximately twice as old compared to those used by large LCs. New forest machines are expensive, and thus smaller contractors might not have the financial resources to buy them, but instead might purchase their machines in the second-hand market. However, from a safety and working environment perspective, it is important to keep the equipment up-to-date, as older equipment may lack the latest safety and operator-support features [6,41,42]. With older machines, the risk of breakdowns also increases, which can mean more dangerous situations for the worker, as machine maintenance is one of the most dangerous tasks in logging operations [5,43].

The Swedish Work Environment Authority states that when working in the forest, employees should have access to staff facilities where they can change and dry clothes, prepare their meals, warm up if it is cold, take care of personal hygiene and have access to toilets; according to FSC, these standards apply only if the employees are working in urban areas [16]. Moreover, exceptions can be made, for example, if the work does not take more than one day [18,44]. The finding that about half of the contractors rarely offer their staff access to staff facilities when they are working in the forest was therefore somewhat surprising, but in line with the experiences of the Swedish Work Environment Authority [15]. Moreover, the results show that the geographical location of the contractors' operations seems to be an important factor in whether or not the workers have access to staff facilities. The farther north in the country they are located, the more commonly they have such facilities. One obvious factor that could explain this finding is that the winters are colder and longer in the north. Another factor is that the distances between the worksites and the workers' residences are often longer. Moreover, the harvesting sites are usually larger in the north than in the south, meaning that workers will be at the same location for a longer time. In addition, in the south, it is more common for non-industrial private forest owners to own the forest, while forest companies own a larger proportion of the forest in the north. As a result, the propensity of the client to check the contractor's compliance with the rules may differ between parts of the country. Finally, it should be noted that the standards of the staff facilities might vary. For example, in this study, it was quite common for the workers to be able heat their food, while toilet facilities and hot water for washing were less frequently available. Which amenities are considered necessary may largely depend on the type of work to be performed, but this relationship was not something that was further explored in this study.

4.4. Limitations of the Study

The major concerns with self-reported questionnaire data are those of construct validity. Both theory and empirical research suggest that self-reported responses are influenced by a complex interplay of psychological, sociological, linguistic and contextual variables, which may have minimal relevance to the intended construct of interest [45,46]. The finding that SCs provided more of some staff facilities than LCs did provides reason to doubt that the construct "staff facility" was interpreted to mean "the facilities provided to workers during the workday". Based on the authors' experience, many SCs utilize foreign and seasonal workers, and thus provide lodging for their workers during the season. These lodgings are

not to be considered equal to the staff facilities that many LCs (and some SCs) provide to their workers during work hours. Moreover, it is likely that social desirability bias resulted in respondents exaggerating the degree of their implementation of OSH-measures.

For ethical reasons, the survey was designed to maintain the respondents' anonymity. This choice was judged to increase the likelihood that the respondents would dare to be honest in their answers, even if they did not always meet all existing requirements and implement all recommendations regarding OSH routines. Furthermore, the respondents' anonymity took away the risk that sensitive information about individual contractors would be collected. However, the anonymity also limited the study. One consequence was that the survey data could not be linked retrospectively to the collected register data in the form of contractors' financial statements; instead, the data were linked only to the general financial stratum to which they belonged. Dividing the companies into different profitability groups based on the operating margin during the sampling process was thus a way of connecting the investigated OSH management practices to profitability while maintaining anonymity. However, because we limited ourselves to this single key financial indicator, we cannot say how other factors, such as the companies' financial stability. interact with factor and, in turn, with their work-environment efforts. Other limitations resulting from anonymity were our inability to follow up on responses by contacting respondents or to perform a proper non-response analysis. There is therefore uncertainty about how representative the answers are for forestry contractors in general.

5. Conclusions

The aim of this study was to characterize Swedish forestry contractors' systematic OSH management practices and identify variations in relation to their characteristics and finances. The study concludes that the degree of systematic OSH work is strongly linked to the size of the company. Furthermore, the study highlights that local working conditions, e.g., differences in climate, can have a significant impact on which OSH measures the contractors take to create a good working environment for the employees. For most of the investigated areas, the study could not demonstrate clear differences in OSH management practices with respect to the companies' profitability. However, somewhat more prominent was the contractor's attitude in regard to the impact of the measures on the company's finances. Therefore, to gain a deeper understanding of the connection between contractors' finances and OSH management practices, there is a need for more studies that consider both different types of profitability measures and factors connected to the work environment beyond the formal routines and guidelines. It is also clear that there is still a need to develop and improve OSH management practices among forest contractors, as a majority currently do not meet all the formal requirements that apply today. In order to effectively implement these changes, further research is needed into the reasons why the contractors are not meeting the requirements.

Finally, this study has contributed to an increased understanding of how forestry contractors apply systematic OSH management today, which can be useful both for understanding why the sector is accident-prone and for providing insights into which areas should be prioritized for future information and training efforts within the sector.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/f15030545/s1. The supplementary material contains the questionnaire that was used for the study, both the original version in Swedish and an English translation of it.

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