

Surveys of the Logging Contractor Population – 8 Southern States and Maine

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SURVEYS OF THE LOGGING CONTRACTOR POPULATION

Once the Logging Capacity Study was well underway, a couple of underlying concerns arose. One concern was that the pool of logging contractors cooperating with the study was over-represented by “preferred supplier” contractors. The assumption here is that preferred suppliers operate in a business environment that allows better planning and greater efficiency (the very reasons for this status). The other concern was that, by the very nature of their willingness to participate in the research project, these logging contractors were more efficient, productive or larger than the population of logging contractors as a whole.

In other words, are these loggers representative of the logging business community? If not, how can the results of the study be adjusted so that they are applicable to the entire industry in the region?

Adjusting (or validating) results of a study requires a reliable source of documented knowledge about the population as a whole. One way to do this is to survey a large segment of the population. The logging industry is fortunate in that the population of logging contractors is small enough to make it economically feasible to contact each extant logging contractor by mail.

Thus, surveys of loggers in Maine and in eight southern states were conducted to gain additional information about the logging community and to provide a basis for validating the results of the Logging Capacity Study.

The Maine Logger Survey

A survey of loggers who work in the state of Maine was conducted in 2001. A comprehensive list of loggers was developed from three sources: (1) a list of all loggers who were mentioned on logging operation notification forms in 2000; (2) a list of loggers who were Maine residents supplied by the Certified Logging Professionals (CLP) Program; and (3) a list of loggers from neighboring Canadian provinces who worked in Maine, supplied by the CLP Program. Computerized CLP logger lists were provided to the research team in 2001. Both English and French versions of the survey were developed. All loggers on these lists were mailed the seven-page survey. Multiple mailings (two survey mailings and one reminder postcard) were executed to increase the response rate and mitigate bias due to nonresponse. Follow-up phone calls and several on-site interviews were used to both clarify and add depth to some mail survey responses, as well as to increase response rates. The following results focus on responses to questions relate to unused logging capacity from those loggers who are residents of Maine.

Survey questions related to unused logging capacity. Survey questions were developed through four focused discussions with groups of loggers in Maine, New Hampshire, and Vermont. A draft survey was later tested with members of the group discussions, and survey modifications were made based on their input. Among the 51 questions posed by

the survey, the following questions are directly related to the issue of unused logging capacity in Maine:

For an "average" year, what do you consider to be the **main causes** of your unused logging capacity, if any (i.e., what are the causes for the difference between what you feel that **you could** produce and what **you do** produce during an "average" year)? Please indicate below the approximate percent, if any, for each possible cause of unused capacity that you experience.

_____ I **DO NOT** experience unused logging capacity

_____ I **DO** experience unused logging capacity, caused by: (please fill in the table below)

Percent	Cause	Percent	Cause
_____	Weather	_____	Regulations (e.g., BMPs, mandated training)
_____	Road conditions	_____	Lack of labor (e.g., unplanned shortage of labor due to illness, injury, etc., or an inability to find labor)
_____	Quota imposed by mills	_____	Unproductive labor (e.g., an inexperienced employee being trained on the job; poor work habits)
_____	Equipment breakdown – unscheduled	_____	Mill closure
_____	Inability to line up trucking	_____	Poor planning or management on your part (e.g., you moved your operation to an inappropriate site)
_____	Moving equipment to another location	_____	Inability to find stumpage to keep your operation going
_____	Inefficient unloading or handling (e.g., excessive truck turn-around delays)	_____	Inability to compete for stumpage to keep your operation going
_____	Poor planning or management on someone else's part (e.g., you were moved to an inappropriate logging site by a forester)	_____	
_____	other causes of unused logging capacity not mentioned above (please describe):		

On average, what would you estimate is the total cost to your business of your unused logging capacity, if any, per year? \$ _____

Additional survey questions addressed socio-economic variables and logging business-related issues (e.g., profit/loss in 2000, expectations for 2001).

Survey results: Background information

Approximately 700 loggers who work in Maine responded to the survey. Of these, 572 were residents of Maine, and 114 were residents of the Province of Quebec. The response rate for loggers who were residents of Maine was 27 percent. The average age of these loggers was 44.8 years (standard deviation = 10.8 years), and the average education was 12.3 years (standard deviation = 2.0 years). On average, respondents had logged for 22.6 years (standard deviation = 10.8 years).

In the year 2000, Maine loggers worked an average of 48.2 hours (standard deviation = 15.6 hours), and 38.5 weeks per year (standard deviation = 10.7 weeks). Their average annual gross income was \$217,049, and their annual personal profit from logging was \$20,053, although reports of annual personal profits were highly variable (coefficient of variation = 171 percent).

When asked whether they expected to be in the logging business in five years, just over half (50.9 percent) responded "yes," 24 percent responded "no," and 25 percent were not sure. When asked to describe their expectations for profitability in 2001, 15 percent expected better profits, 38 percent anticipated lower profits, and 47 percent expected profits to be about the same as they were in 2000.

Unused Logging Capacity Survey Results. Over three-quarters (77 percent) of logging business owners (78 percent of those who call themselves "logging contractors," and 77

percent of those calling themselves "independent loggers") indicated that they experienced unused capacity. Less than one-quarter (23 percent) of logging business owners indicated that they did not experience unused capacity in their logging businesses. Eighty-four percent of loggers from southern Maine counties (Androscoggin, Cumberland, Kennebec, Knox, Lincoln, Sagadahoc, Waldo, and York) and 73 percent from northern Maine counties (Aroostook, Franklin, Hancock, Oxford, Penobscot, Piscataquis, Somerset, and Washington) reported idle logging capacity.

Further analyses indicated a significant association between loggers who reported unused capacity and (a) profitability in 2000 (G^2 p-value = 0.05) – 43 percent of those reporting unused capacity also indicated very poor to poor profitability in 2000, while 46 percent of these reported average and 11 percent reported above average profitability; and (b) the behavior of profit margins since they began logging (G^2 p-value = 0.02) – 69 percent of those reporting unused capacity also indicated decreased profit margins, while 12 percent reported an increase and 18 percent said profits remained about the same.

Causes of unused capacity. The most often-cited cause of unused logging capacity by Maine logging business owners was weather (n = 168 respondents), followed by road conditions (n = 113), equipment breakdowns (n = 112), and mill imposed quotas (n = 111). Other commonly reported causes included regulations (n = 56), moving equipment to other locations (n = 51), inability to find stumpage (n = 47), and mill closure(s) (n = 46).

When causes of unused logging capacity were evaluated based on both the number of respondents citing each cause and the reported percent of unused logging capacity attributed to each cause, the following ranking (from highest to lowest) for the top six causes was: weather, mill imposed quotas, road conditions, equipment breakdown, inability to find stumpage, and inability to compete for stumpage. Causes that did not rate highly included (in order of decreasing ranking): regulations, mill closure(s), lack of labor, moving equipment, unproductive labor, poor planning on someone else's part, poor planning on the respondent's part, inefficient unloading or handling of delivered wood (e.g., excessive truck turnaround delays), and lack of trucking.

Costs of unused capacity. For those Maine logging business owners who experienced unused logging capacity, the average cost of this phenomenon was \$40,257 per year (logging contractors = \$81,727; independent loggers = \$23,669), although this figure was highly variable from one respondent to another.

Of the business-related variables investigated, the amount of capital that loggers had invested in their businesses and the proportion of wood harvested that was cut on stumpage they had bought (arcsine transformed) were positively associated with the costs of unused capacity ($r^2 = 0.55$). Variables not retained in the model were proportion of trucking that was contracted (arcsine transformed), hours worked per week, and weeks worked by year. Loggers who reported unused capacity had an average capital investment in their businesses of \$382,288; those that did not report unused capacity had an average capital investment of \$181,170. In addition, loggers who reported unused

capacity harvested 33 percent of their wood on stumpage they had purchased, versus 19 percent for loggers who did not report idle logging capacity.

When asked to rate a battery of items that they considered as barriers to maintaining or expanding their logging businesses, 65 percent of logging contractors and 73 percent of independent loggers rated as "unimportant" the statement "I already have too much logging capacity;" 32 percent of contractors and 18 percent of independent loggers rated this as "important;" and 2 percent of contractors and 9 percent of independent loggers rated it as "very important." However, when asked to rate the statement "there's too much capacity in my area" as a barrier to maintaining or expanding their logging business, 35 percent of the contractors and 45 percent of the independent loggers indicated that this was "unimportant;" 38 percent of contractors and 23 percent of independent loggers indicated it was "important;" and 27 percent of contractors and 31 percent of independent loggers rated it as "very important."

The Southern Logger Survey

Persons questioned. Mailing lists of loggers were obtained through the Sustainable Forestry Initiative (SFI) logger training coordinators of each state. These individuals were generally associated with a state logging association or with the Cooperative Extension Service. The states involved are Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana and Texas. SFI training has become almost universal, since most of the major mills in the South require it as a condition of accepting wood, so it was felt that these lists would present the most complete listing of logging companies. A questionnaire through a major magazine readership was considered, but the risk of duplicate responses per company was too high.

The mailing lists totaled 7404 individuals. Persons obviously not in the logging business were purged from the lists. Multiple individuals working for the same company were purged down to one individual per company – the owner or boss, if it could be discerned. The mailing lists of some states included job titles, making it easy to determine the appropriate individual to address. With other states, determining the boss was guesswork. To compensate for this, the cover letter with the questionnaire asked the recipient to hand the questionnaire to his boss if he was not the boss. Questionnaires were sent to 7,115 individuals.

Questions. The questions were designed to parallel closely information already gathered about loggers participating in the Logging Capacity Study. Part of the purpose for this information is understand enough about the participating loggers to determine whether the group is representative of the logging industry. Status relating to the business relationships between contracting parties are believed to be influential in productivity and profitability. Thus, there were questions on the status of preferred suppliers, wood dealer relationships, contract trucking, and sources of timber. Species hauled was asked because pine loggers are stereotyped as being volume-driven, whereas hardwood loggers are stereotyped as being log-quality-driven. There were a couple of questions relating to size of operation. Logging companies with more than one crew were asked to provide

information about their most productive crew. The last question was an opinion question, asking loggers to check off the top three reasons that prevent their crews from working at full production capacity. The last question was asked as a curiosity to compare to the results of the Logging Capacity Study.

The questionnaire was purposely designed to be limited to one page, front and back, to facilitate people's willingness to respond. The questions were also designed with the same purpose in mind. Nearly all questions were designed so that they could be answered with simple check marks, with opportunities for additional comments, if desired.

Verification of Questionnaire. After review of the questionnaire by several people with either logging industry knowledge or survey techniques knowledge, a test mailing was sent to 35 logging companies. Fourteen responded, with only minor comments. The biggest issue was whether to request some answers in the form of percentages (such as species). It was decided that this would gain only marginal information while possibly discouraging some individuals from participating. Getting participation from individuals with marginal literacy was a concern in this issue.

Methodology. Post cards were mailed on December 14, 2001, to create awareness of the survey and its importance. A week later, the questionnaires were mailed. On January 2, 2002, a reminder post card was mailed. On February 8, 2002, questionnaires were resent to those companies that did not respond to the first mailing. There is a body of literature that suggests that people who do not respond to surveys have characteristics similar to those who respond to a second mailing. Therefore, responses to the two mailings were kept segregated. Responses were entered into a database to facilitate querying.

Of the 7,115 questionnaires mailed, 2,041 responded to the first mailing (28% response rate), and 514 responded to the second mailing (7%), for a total response of 2555 (36% overall response rate). Of the 2555 respondents, 2217 (87%) were actually in the logging business.

As an interesting side item, 48 respondents (2%) wrote that they were no longer in the logging business. Since this question was not specifically asked, the actual number is likely higher.

Thirty-two (32) of the respondents were also participating in the Logging Capacity Study and had submitted enough data to be useful in the Study. Their responses were summarized separately as a subset of the population (reported under the column labeled "Coop" in the Appendix C). In addition, the 56 logging companies (excluding Maine) that provided useful data to the Study had also been asked to provide profile data at the beginning of the study. For more details specific to this group, see the chapter "Who Participated in the Study" and Appendix C. These two databases of information provide a reasonable basis to compare the logging companies in the Logging Capacity Study to the population of logging companies.

Results of the Southern Logger Survey. The answers reported by the respondents to the first mailing were so similar to the responses from the second mailing, that the two bodies of responses are reported here as one. Tables of results are also presented in Appendix C.

At the beginning of the Logging Capacity Study, the preferred supplier concept was relatively new in terms of common popularity. Since 55% of the crews participating in the Study have preferred supplier relationships with at least one mill, there was a natural concern that preferred supplier loggers were over-represented in the Study. However, 53% of the survey respondents indicated that they are a preferred supplier to a mill (Question 4). Interestingly, only 20% of the millyard inventories came from preferred suppliers (refer to figure 5.22), suggesting that a very large portion of preferred suppliers' production is delivered to mills with which they have no preferred supplier status.

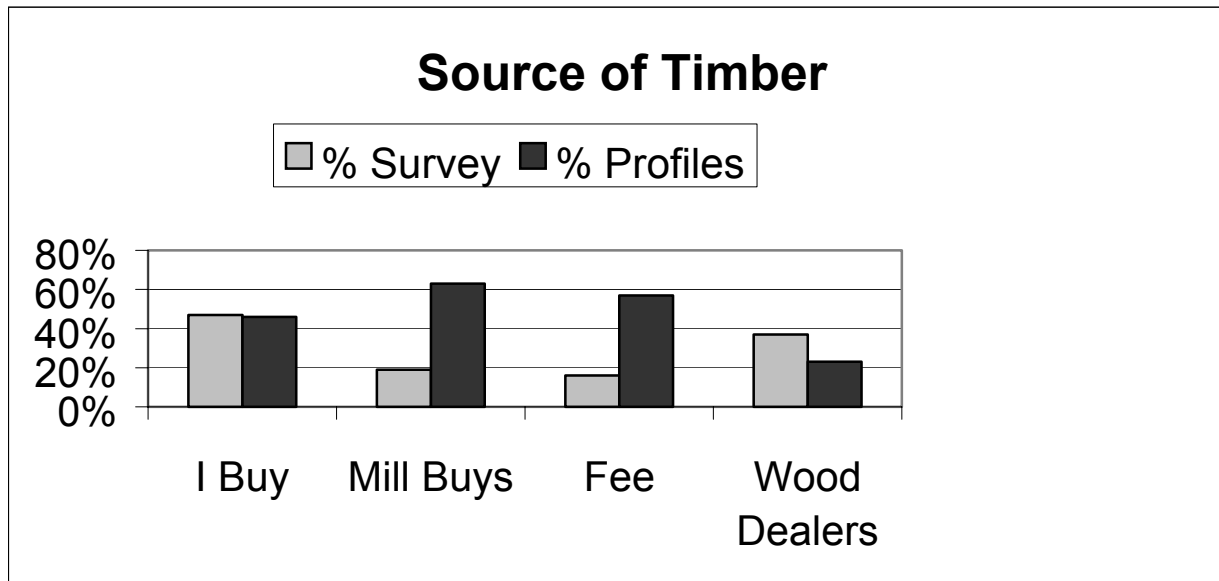
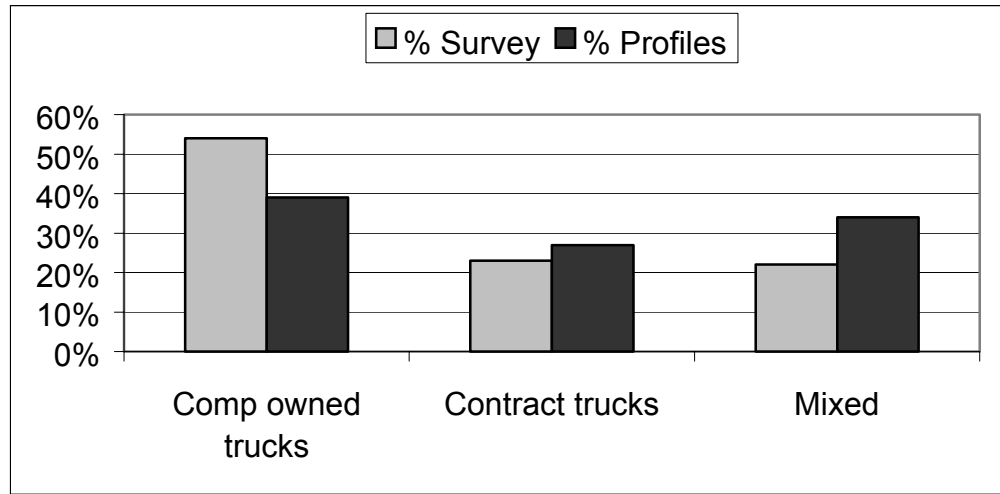


Figure 10.1. Source of timber for logging companies.

In contrast to the newness of the preferred supplier relationship, the dealership relationship is very traditional. Fifty-one percent (51%) of the respondents reported that they delivered mostly through a wood dealer/supplier (Question 5). Thirty-four percent (34%) of the crews participating in the Study reported a dealer relationship for either buying or selling wood. Question 6 also addresses the wood dealer relationship. Thirty-one percent (31%) of the survey respondents and 23% of the Study crews reported that they have a wood dealer supply some of their timber (Figure 10.1).

As to further stumpage sources (Question 6), 47% of respondents and 46% of participating crews purchase a substantial amount of their own timber (Figure 10.1). By contrast, 25% of the respondents and 63% of the Study crews reported having timber supplied by a mill (either purchased stumpage or fee-simple timber).

In both the survey population and the Study crews, roughly one-half of the loggers run only company-owned trucks, with the other half running either contract trucks or a mixture of company and contract trucks (Question 10) (Figure 10.2).



The distributions of the number of log sorts per operation are similar between the respondents and the Study crews (Question 13), with the majority reporting five or fewer sorts (Figure 10.3).

Figure 10.2. Type of trucking used. “Profiles” refers to those logging crews that participated in the Logging Capacity Study, who reported company profiles at the beginning of the study.

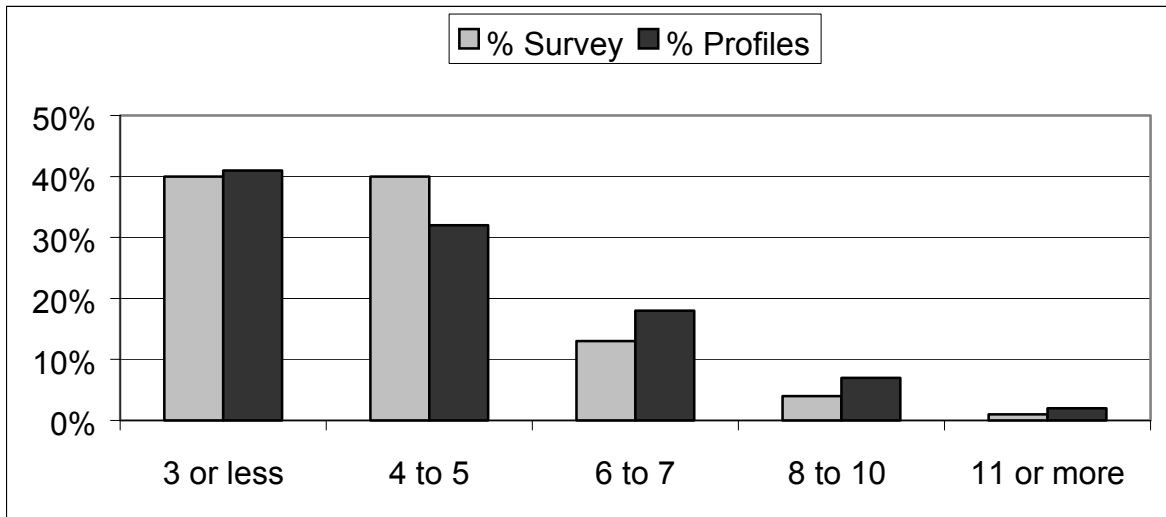


Figure 10.3. Number of log sorts.

Three (3%) percent of the respondent companies have at least one chipping crew. Thirteen percent (13%) of the Study crews are chipping crews (Question 7).

As to type of harvest (clearcut, plantation thinning, and thinning), the Study group was a little over-represented in clearcuts, but generally followed the same distribution patterns as the survey respondents. Diameter-limit, select cuts and house lot cuts were included with thinnings. The questions were asked in different ways, with the Study group estimating in actual percentages.

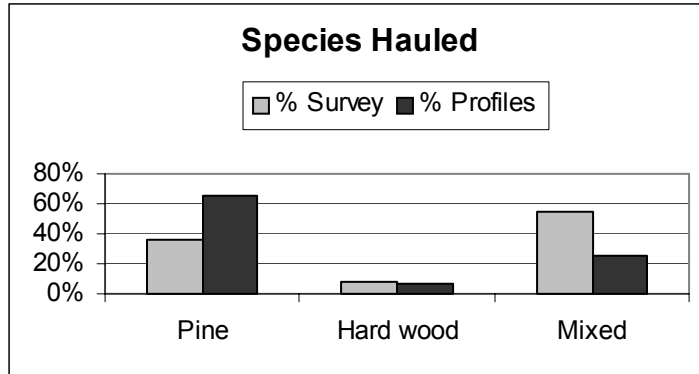


Figure 10.4. Species of timber hauled.

The percentage of hardwood hauled by both groups is very close (7% – 8%), but the Study group estimated a higher proportion of pine and a lower proportion of mixed species (Figure 10.4). This question was also asked differently, but, in both cases, a proportion of more than 70% pine was considered to be pure pine for the purpose of this question (Question 9). A similar definition was used for hardwood.

The logging companies averaged 1.5 crews each. Only 42 companies (2%) reported running six or more crews. In both groups, the majority reported working more than 226 days per year (Question 11). Forty respondents (2%) wrote in the comments section that they log part-time. All except one produce 20 or fewer loads per week. Part-time loggers are not represented in the Logging Capacity Study.

In the design of the survey questionnaire, we failed to anticipate the large number of logging companies that produce low volumes (Question 12). Whereas the Study group targets producing 52 loads per week (median), the median company in the survey produces 29 loads per week, with 35% producing 20 or fewer loads per week (Figure 10.5).

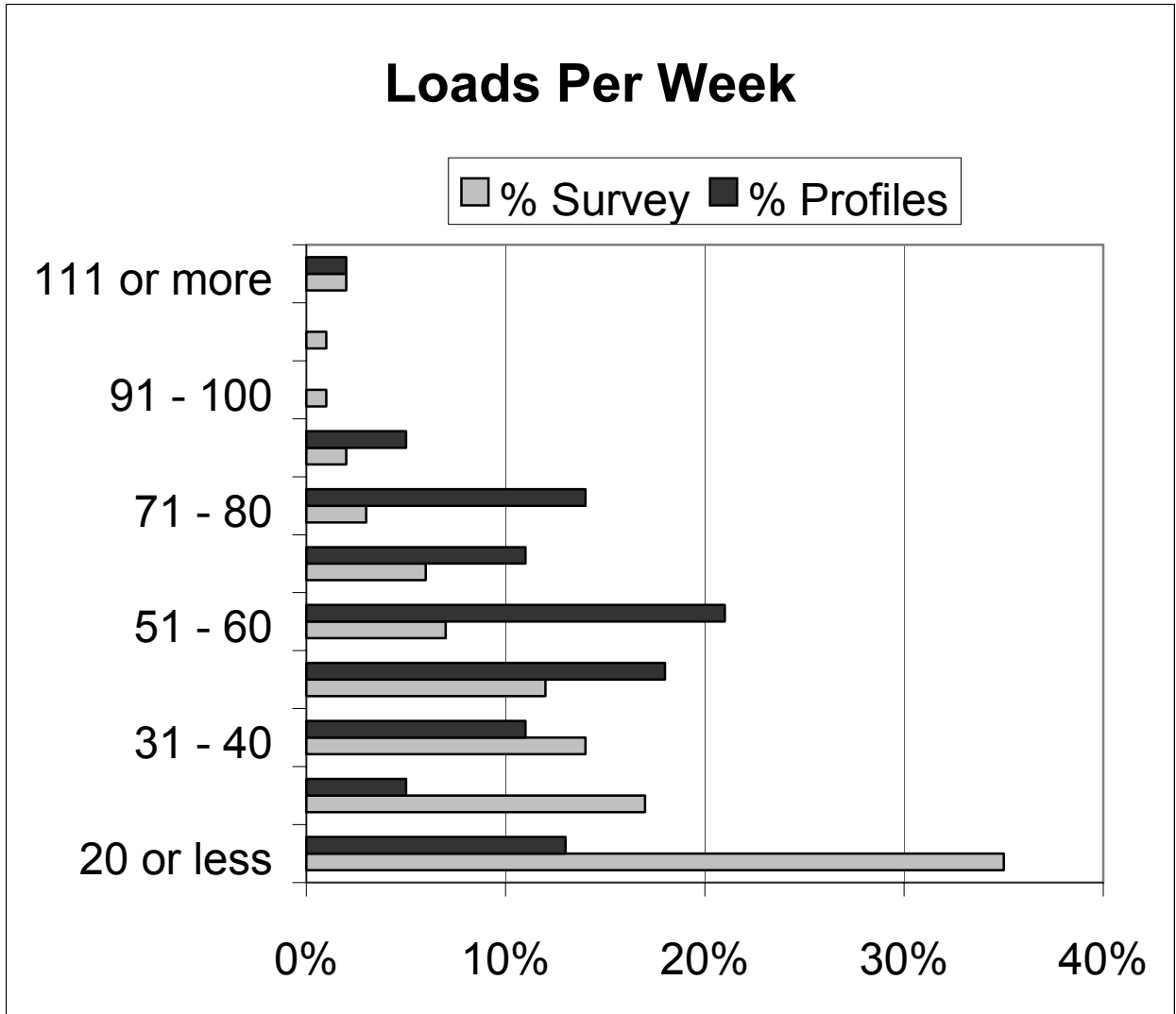


Figure 10.5. Size of logging companies by production.

As an item of interest, we asked the loggers in the survey to check off the top three reasons that prevent them from working at full capacity (Question 14, Figure 10.6). Weather and Quotas were most often cited, followed by Other market factors, mechanical problems, and Stand & tract issues. While the category “Other market factors” is highly cited in the survey, it drops to a relatively minor category in the Logging Capacity Study when analyzed on a per-day basis.

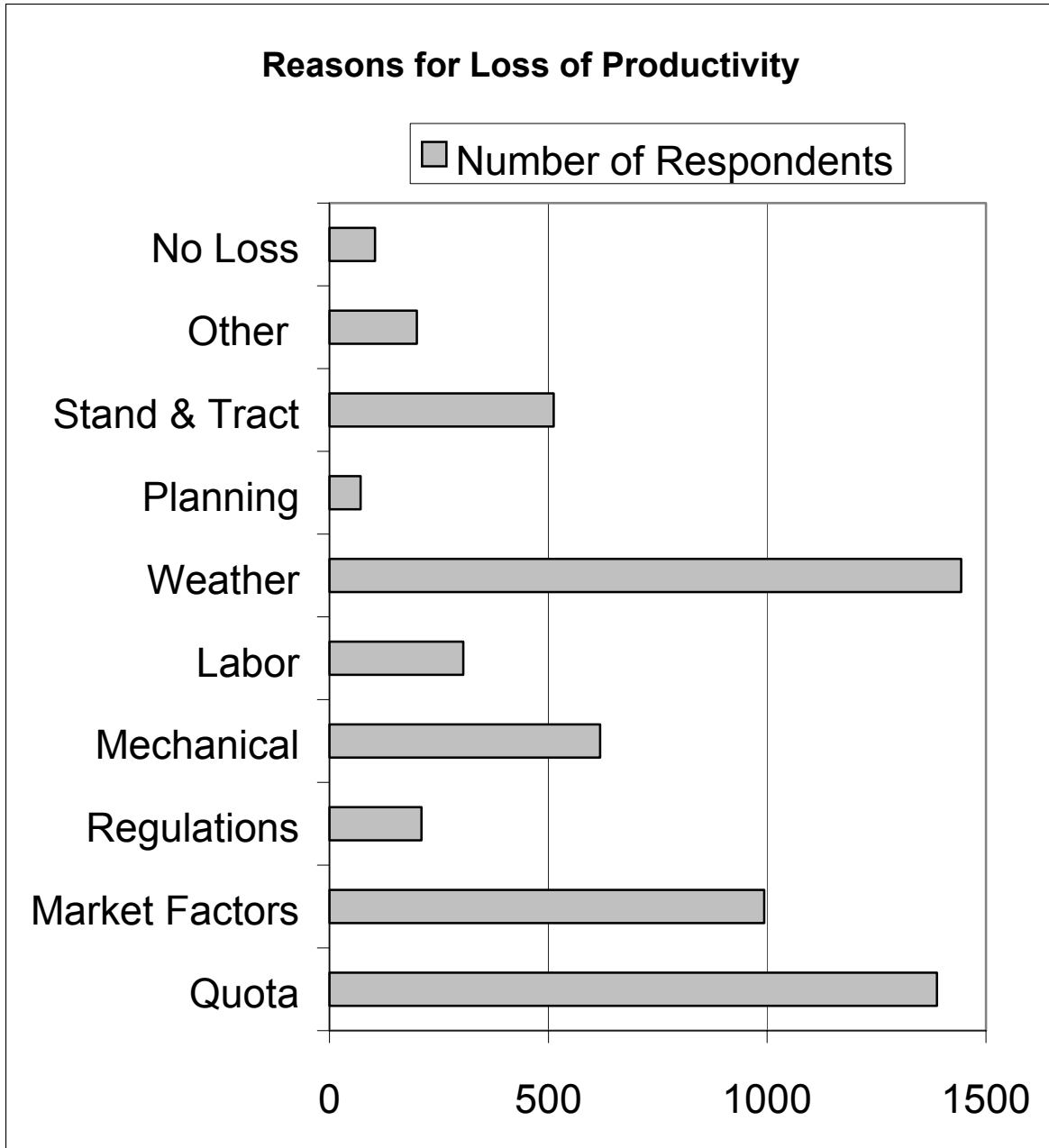


Figure 10.6. Survey respondents were asked to list the top three reasons that prevent their crews from working at full capacity. The category No Loss represents those who reported that their crew always works at full capacity.

The preferred supplier concept, although relatively new to the industry, has gained large popularity, as evidenced by over half of the logging companies reporting a preferred supplier relationship with at least one mill. We expect this trend to continue in the foreseeable future.

Roughly half of the logging companies use company-owned trucks exclusively, and a quarter of the companies use contract trucks exclusively.

Almost half of the companies purchase their own timber. One-half of the companies report delivering wood through a dealer, but less than a third reported getting their timber through a dealer.

One of the most surprising findings of the survey is the preponderance of small logging companies in the industry – even smaller than we expected. Thirty-five percent of the companies' most productive crews produce 20 loads or fewer per week. This is by far the largest category. It is not known how many of them work part time, but that number would be somewhere between 2% and 20% of the logging companies.

If a company has a high number of log sorts to do, this is generally known to slow production somewhat, but it is also an indication of a logger's flexibility to sell to different markets, thereby positively influencing production. Most loggers reported making five or fewer sorts, with many of them reporting three or fewer sorts.

Implications of the survey to the Logging Capacity Study. For the most part, comparisons between the overall survey results and the data derived from the Study participant profiles are the most logical. For comparison, a subset of the survey results consisting of logging companies that cooperated in both the survey and the Study (labeled "Coop" in the tables) is presented, but the statistical significance of this subset is lower.

The Logging Capacity Study concludes that the factors that most influence lost production are preferred supplier, contract v. company trucking, and dealer status. Therefore, a comparison of these factors merits close scrutiny.

The proportions of preferred suppliers in both the population and the Study are almost identical. This is the most important factor from both a lost production standpoint and a production cost standpoint. The distributions of company/contract trucking and dealer relationships appear reasonable. Therefore, it appears that the results of the Logging Capacity Study (as they pertain to lost production) are applicable to the population of logging companies without further adjustment.

The remaining concern is whether the Logging Capacity Study is representative of the logging population from the standpoint of company size as measured by production. First, it should be pointed out that the Study was not designed to represent the population in this manner. Following the philosophy that "20% of the loggers move 80% of the wood," the study was designed to concentrate on the part of the industry that would have the greatest influence on logging production, logging capacity, mill inventory levels, and overall profitability of the industry. However, representing the population of logging companies can be important from a social standpoint.

Second, it should be pointed out that size of company (as determined by weekly productivity) is a statistically significant factor in both unused capacity and cost, but the influence of this factor is mixed and very small.

In looking at size of companies (as measured by weekly production in truckloads), the study somewhat under-represents large companies and strongly under-represents small companies (refer back to Figure 10.5). However, it should be noted that the survey is based on the most productive crew in each company (for those companies with multiple crews), whereas the study is based on individual crews. There will be more study on this.

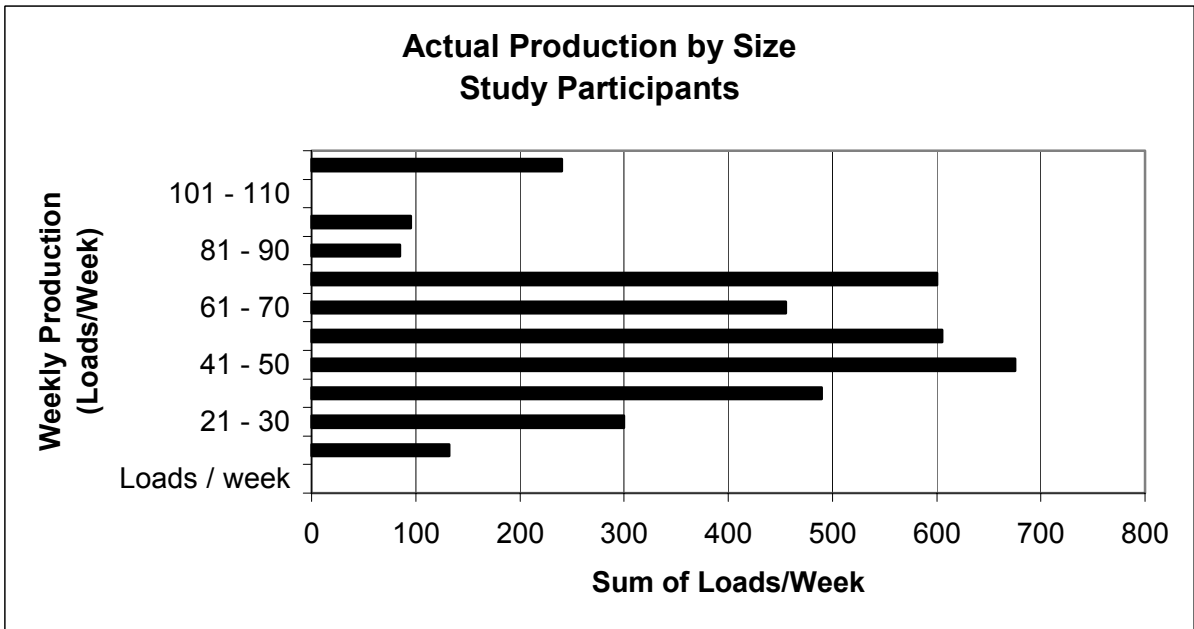
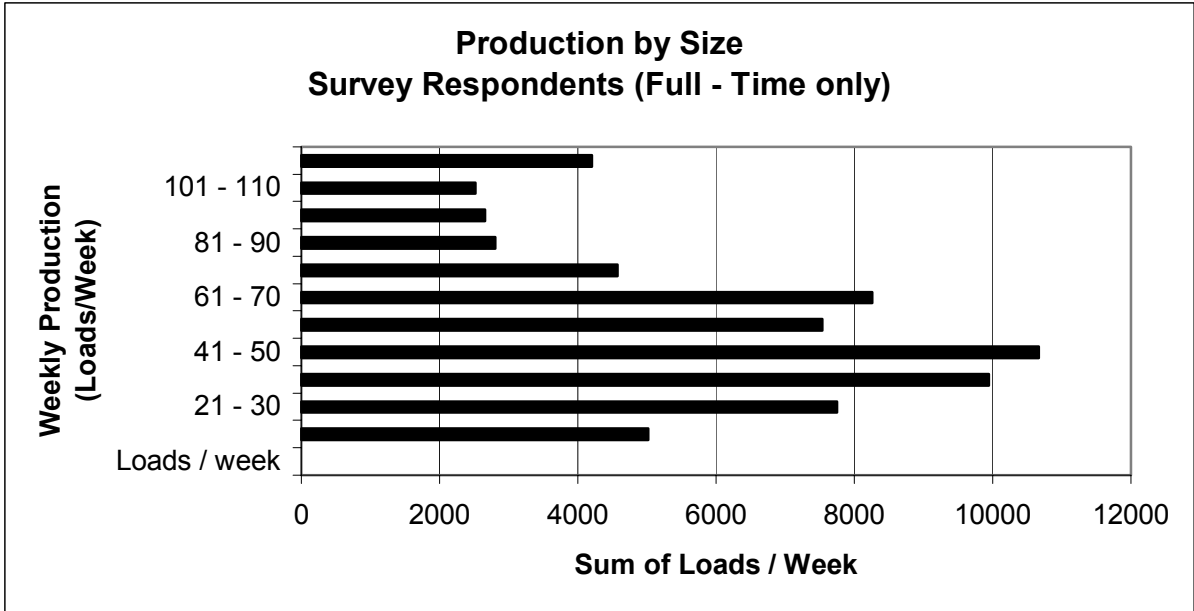


Figure 7 and 8. A comparison of the survey respondents and the Logging Capacity Study participants by size.

One way to look at the representativeness is to see if the Study represents small full-time loggers. All of the logging companies in the Study reported working at least 176 days per year. If we compare only those logging companies that work more than 200 days per year, the extremes are moderated considerably, but they still exist. However, if the same groups are compared on the basis of production (Figures 10.7 and 10.8), they border on being statistically identical (Chi-square distribution of 0.03; generally, a chi-square of 0.05 or higher is desired). Based on the survey respondents, 80% of the logging companies work more than 200 days per year, and they produce 89% of the weekly loads. This number is likely to be conservative because the existence of multiple crews per company was not taken into consideration.

Overall, the Logging Capacity Study is reasonably representative of the logging population except that it does not appear to be representative of those loggers who work fewer than 200 days per year. Therefore, this study appears to be representative of 89% of the wood production in the South.

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For a copy of the entire report, contact:

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