Evaluation of an Online National Survey of Timber Harvesting Contractors

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Abstract

Demographic statistics of the timber harvesting industry are typically available only in states where researchers have devoted the time and effort to direct mail survey instruments. The prominence and ubiquity of internet access offers the possibility of web-based survey dissemination; however, there has been no evidence that a majority of the timber harvesting community is willing to participate in a purely electronic survey. We partnered with Hatton-Brown Publishers to conduct an online survey publicized in Timber Harvesting magazine in the first quarter of 2014. The survey gathered data on basic, business-level details, such as the number and size of logging crews, number of employees, average production, harvest types, harvesting systems, etc. Responses from contractors in Georgia and South Carolina were compared against data from a direct-mailed survey conducted in those states in 2012 to determine the extent to which the web-based survey accurately represented the timber harvesting community. Regional data on nationwide respondents will be presented in addition to results of the validation of the web-based methodology.

Keywords: logging, business demographics, internet survey

Introduction

The U.S. logging industry has passed through a massive period of downsizing following the economic recession of 2008-2009 (Woodall et al. 2011). The impact has varied regionally within the US, based purely on employment statistics, but the condition and composition of the industry following these changes is largely unknown (Hodges et al. 2011; Keegan et al. 2011). While many efforts to quantify the logging industry on the state and regional level have succeeded in the past (e.g., Rickenbach and Steele 2005; Baker and Greene 2008; Bolding et al. 2010; Egan 2011; Pelkki 2012; Greene et al. 2004; Allen et al. 2008; Leon and Benjamin 2013), relatively few efforts have been made to assess the entire logging industry of the US (Forest Resources Association 2001; Knight 2006, 2011).

Most surveys of the logging population are still performed using paper forms sent through the US Postal Service; however, some initial efforts to include electronic survey submission have been attempted (Knight 2011). These have included the option to print off and submit a paper version for respondents who may not have email or prefer not to submit materials through the

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The lower response rate from internet surveys compared to mail surveys is a well-documented phenomenon (Hoonakker and Carayon 2009).

As the internet gains prevalence, more logging contractors are likely to be accessible through the internet. Unpublished results from a logging survey conducted in Georgia and South Carolina in 2012 revealed that 65% of contractors reported use of email by their company. These respondents represented 78% of the total production represented in the survey. A targeted internet survey of logging contractors risks sampling only the most technologically advanced; however, it is clear that a majority of contractors are now available via internet contact.

Our objective in this study was to determine if a purely internet-based survey of the logging industry in the US would yield results similar to a mailed paper survey.

**Methods**

We developed an online survey using SurveyMonkey® to gather basic business demographic information from logging contractors. In total, the survey consisted of 24 questions detailing the employment, production, and financial composition of the business. Detail on the harvest method, harvest system and predominant species were gathered about each crew for a given business (up to the three largest crews by production).

In January 2014, we worked with Hatton-Brown Publishing to develop a brief article describing the purpose of our research and requesting readers to go online and complete a web-based survey. A web address for the survey was provided in the article. Hatton-Brown published the article in *Timber Harvesting and Wood Fiber Operations* and *Southern Loggin’ Times* magazines in January and February respectively (Figure 1). In addition, they placed a link to the survey on the *Timber Harvesting and Wood Fiber Operations* website. In April 2014, an email was sent to nine logging associations in the US South and the American Loggers Council requesting they forward an email to their members detailing the survey and a request for their participation.

**Figure 1.** Promotional materials for the web-based survey

In 2013 a mailed survey of logging contractors in Georgia and South Carolina was completed (Marchman et al. 2013). The results from 268 contractors served as a recent set of baseline data against which to compare the respondents from the web-based survey. The average web-based
survey respondent characteristics from Georgia and South Carolina were compared to the characteristics derived from the mailed survey results to determine the representativeness of the survey responses. Mean responses were compared with t-tests while categorical responses were compared with chi-square tests. If results of the web-based survey do not differ significantly from the mailed survey results, the web-based approach is a valid method of sampling the logging industry.

Results

The initial magazine advertisement yielded 23 total visits to the web survey. Only 13 visitors completed the survey to the final page. Emails sent by logging associations in April 2014 produced an additional 19 visits, of which 10 completed the survey. As of mid-April, the survey had 42 total visits with 23 complete responses (Figure 2). Of the 42 visitors, four declined the initial participant consent form, two answered no questions beyond the initial consent form, and seven reported that they were not logging contractors. Six additional respondents answered some questions but did not fully complete the survey.

![Bar chart showing visits and completions by date]

The responses collected to date are insufficient to develop a reasonable assessment of the logging population. In addition the responses in Georgia and South Carolina have been too few to allow any comparison with previous results (Table 1). Of the 29 respondents who shared their business location, five were in the Northeast, three in the Lake States, one in the West, and the remaining 20 in the South.

Despite the very low response rate, data are available on roughly 50 logging crews. Production of crews from the Southern region (1010 tons per week) and the Northeast (920 tons per week) were similar. In addition, the majority of logging crews in the South and Northeast used a feller-buncher and skidder harvesting system (89% and 75% respectively). The average crew size was comprised of four woods workers in the South and five in the Northeast. Response to these questions from Lake States and Western respondents was insufficient to provide a comparison.
Table 1. Survey response by state.

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Across all respondents, contract trucking was used to haul on average 38% of the loads produced. The median tract size being harvested by contractors at the time of the survey was 96 acres, though the range of responses was between 20 and 5,000 acres. Among respondents operating an additional business (43%), the most common type of business was related to either trucking or road construction.

Discussion

While the survey is still ongoing, the initial results suggest that the methods used are not a viable alternative to mail-based surveys of the logging industry at this time. Print media is poorly suited to engage readers in online content through a web link unless the link address is very simplistic. Positioning and promotion of the survey in the magazines was of lesser prominence than earlier efforts by Hatton-Brown to survey their readers. Indeed a web-based survey emailed directly to a subset of their readers at roughly the same time as this effort yielded far greater results. It is also possible that the duplication of surveys sent simultaneously to the same population could have either confused or dissuaded readers from visiting the website referenced in the print magazine.

Dissemination of the survey through logging association emails sent by the directors of the logging associations produced an increase in participants; however, the number of respondents was still far below the number needed to obtain a suitably representative sample. Confirmation of forwarding the message on to members was only received from three states and the American Loggers Council (with national coverage). Based on the responses received following these efforts, an increase in responses was only noted based on one state’s logging association and the American Loggers Council.

While some preliminary results are presented here, the response from contractors in Georgia and South Carolina (three and zero, respectively) was far too small to allow for any comparisons with the results from the mailed survey. The average production per crew for all southern respondents was lower than the Georgia/South Carolina survey results, but higher than a 2009 survey of Virginia’s logging businesses (Bolding et al. 2010; Marchman et al. 2013). The small sampling
of results from the Northeast does not represent the preponderance of small owner-operator contractors found in recent surveys of that region (Leon and Benjamin 2013).

In the past, response rates to logging industry surveys have often been quite low (Milauskas and Wang 2006). The use of a technique which often results in low response rate had the possibility of resulting in very poor response. The method still holds promise, and targeted email distribution may prove to be a viable option in the near future. Regrettably, no single source of email addresses for logging contractors (even within a given state) is currently available. Lacking an infrastructure to facilitate the dissemination of web-based survey materials to a larger segment of the logging industry, mailed surveys appear to remain a more viable option.

References


