Wood Products Consumption for Industrial Markets in the United States, Testing a New Research Method

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INTRODUCTION

In early 2012, APA-The Engineered Wood Association conducted studies of three industries: institutional furniture, motor homes, and travel trailers and campers. The survey procedure was the same as that used by APA for many years. Lists of individual manufacturers were purchased, a telephone interviewing company was hired to administer a questionnaire, and APA processed the data to estimate total wood product volumes used by each industry and provide additional insights for each. A few problems were encountered with this research procedure including poor quality lists, difficulty in reaching firms primarily because the calls went to voicemail, and difficulty in reaching a knowledgeable person.

In mid-2012, APA created an industrial research "pilot test" to see if a new technique could be found to make telephone interviewing more productive and if the quality of responses could be improved. This report summarizes results from that test.

THE PILOT TEST

Three industrial segments were chosen from priorities set by APA's Marketing Advisory Committee for the pilot test. They were nonupholstered wood household furniture manufacturers (NAICS 337122), wood office furniture manufacturers (NAICS 337211), and window and door manufacturers (NAICS 321911).

First, list vendors were researched. One was selected based on its good reputation and past performance. The search also included looking for online panels or focus groups that could be used to enable some or all of the research to be conducted by email. Several firms were contacted, but none could supply contacts within our narrow industry specifications.

Next, the "pilot test" involved sending letters to firms requesting their participation in a telephone survey. The letters went to company managers for their approval to participate and to request the name of a person to telephone. The letter also contained a few questions to pre-qualify the potential respondents. Some of the letters contained the incentive of a $5.00 donation to a choice of three charities. Five hundred letters and questionnaires were sent to each of the three selected industry segments. The test also included up to 25 complete telephone interviews to each segment along with data processing.

When the testing was complete, APA planned to evaluate the cost of sending letters prior to calling compared to the potential benefits. The quality of information would also be evaluated to determine if the new method

resulted in more productive and complete interviews. The percentage of returned questionnaires with firms willing to be interviewed would be a major determining factor for success. If 5% or more of letters resulted in completed surveys, the new method would exceed past completion rates and could be potentially used for future research. Past studies had less than a 5 percent survey completion rate.

PILOT TEST RESULTS

The "pilot test" was completed in mid-November 2012. Unfortunately, only 36 questionnaires out of 1,500 (2.4%) were returned. Of these, only seven firms (0.5%) agreed to be contacted for a telephone survey. Four of the seven that agreed to participate received the incentive version of the letter and three did not. Eleven firms asked to not be contacted and 18 were in the wrong industry. In summary, the "pilot test" failed to produce the desired results. The mailing did not produce enough respondents willing to complete the survey at a reasonable cost.

Of the four firms that received the incentive offer and agreed to the telephone survey, one declined the survey when called. A letter was sent to the three that completed the survey thanking them and telling them that a $5.00 donation had been made to the charity of their choice.

A detailed report from The Field Company (Bainbridge Island, WA), the contractor hired to carry out the survey, can be found in Appendix A. The Field Company prepared the mailing materials and administered the telephone survey to 25 firms in each of the target groups. There were several suggestions about how to streamline future research using telephone interviewing techniques. The report also contains tables of product incidence. The data demonstrate that even a small number of industrial firms in a specific industry segment, depending on the segment, may use a wide variety of wood products.

No attempt was made to draw conclusions or calculate total industry volumes from the 25 telephone interviews in each industry because the sample was too small. Additional interviews would be needed if a full analysis were to be undertaken.

With this project completed, the next step is to revise plans for researching more industrial market segments in 2013. The revised plan will most likely use several of the suggestions from The Field Company to streamline the questionnaire and provide more guidance for telephone interviewers.

If funding is available to continue this research, the remaining companies not contacted in the "pilot test" phase will be interviewed, as only 25 in each of the three pilot segments had already been interviewed. Another 75 telephone interviews will be needed in each segment.

In addition to the three industrial segments APA researched in early 2012 and the three "pilot test" segments where research began in late 2012, APA has identified 12 more industrial segments to research. When these are completed, we will have researched virtually all of the industrial market segments in the United States. This includes the pallet and container industry, which is currently being surveyed by Virginia Tech. They have agreed to share their report with APA.

APPENDIX A

The Field Company
"Marketing for Success"

APA: NAICS Industry Survey Pilot Test | Summary Report

In spring 2012, The Field Company conducted telephone interviews on wood usage among manufacturers in three industry groups: travel trailer and camper manufacturers, institutional furniture manufacturers, and motor home manufacturers. Completing the quota of interviews in each industry proved to be difficult and time consuming, and therefore more costly than anticipated. The primary difficulties that interviewers encountered included the following:

- Poor sample (disconnected, out of business, wrong type of business)
- Difficulty reaching respondents mainly because of voicemail
- Difficulty reaching the correct person to interview (primarily with motor home manufacturers)

The methodology used in the spring of 2012 was similar to that used in previous years.

Pilot Test Methodology

We decided that before conducting the study again on a large scale, we should conduct a pilot test to determine if changes to the methodology would improve cooperation. The pilot test included the following elements:

- **Simplification:** The questionnaire was streamlined somewhat to make it quicker to administer.
- **Sample:** The sample was purchased from a company that specializes in telephone research samples instead of mailing lists. The sample was comprised of the top personnel at each company (owner, partner, president, etc.)
- **Letter:** Every potential respondent was mailed a letter from APA-The Engineered Wood Association on APA letterhead explaining what APA is, the reason for the study, and why their cooperation was requested. The letter also described the telephone interview and types of questions that would be asked in the telephone interview.
- **Questionnaire:** Included with each letter was a one-page questionnaire that allowed respondents to tell us if they were or were not in the correct industry group. It asked them to check the types of wood products they use. It provided them with a place to write the name and phone number of the person we should contact to complete the interview by phone. It also provided them a check box where they could opt-out of the telephone interview.

- **Incentive:** Half of the letters said that if they completed the telephone interview, they would receive a summary of the study results and that APA would make a $5 donation to a charity they selected.

The letter and questionnaire included a business reply mail envelope so respondents would not need to provide postage.

A total of 1,500 letter and questionnaire packets were mailed; 500 to each of three industry groups:

- Nonupholstered wood household furniture manufacturers (NAICS code 337122)
- Wood office furniture manufacturers (NAICS code 337211)
- Window and door manufacturers (NAICS code 321911)

Within each of these industry groups, 250 letters mentioned the incentive and 250 did not. Questionnaires included with the "incentive letters" also mentioned the incentive. In this way, when questionnaires were returned, we could easily determine if that individual had been offered the incentive or not.

Pilot Test Objectives

We felt that several components of the pilot test might improve the cooperation rate or reduce interview time, or both:

- Would the change in sample vendor result in fewer bad numbers and unqualified businesses, thus reducing wasted effort?
- Would those in the wrong industry group return the questionnaire to inform us of that fact, thus reducing wasted calls?
- Would the letter induce "buy-in" by top executives, thus inducing second-tier executives, like purchasing agents, to cooperate with the study?
- Would interviewer time spent tracking down the correct person to interview be reduced?
- Would the use of an incentive gift improve the completion rate?

For the pilot study, the quota for each industry group was 25 completed interviews. We hoped that between 5% and 10% of the letter recipients would return a questionnaire, essentially prescreening themselves for the follow-up telephone call.

Pilot Test Conclusions

The outcome of the mail portion of the pilot test was very discouraging. We received only 36 mail questionnaires out of the 1,500 mailed, a response rate of 2.4%. Half of those (18 respondents) told us they were in a different industry (e.g., making kitchen cabinets rather than furniture). Only 1.2% of those that responded were qualified to complete the mail questionnaire, and of those, 61% (11 respondents) said they did not wish to participate in the follow-up telephone interview.

In the end, only seven respondents out of the 1,500 that received a letter completed the mail questionnaire and agreed to participate in the follow-up survey. Four of the seven received the "incentive" version and three of the seven did not.

TABLE 1. OUTCOME OF MAIL QUESTIONNAIRES RECEIVED

	Recipient in correct industry group		Wrong industry	Total received
	Permission to contact	Do not contact		
Incentive version	4*	4	11	19
Non-incentive version	3	7	7	17
Total	7	11	18	36

*Once contacted, one of the four refused to complete the survey.

Because of the poor response to the mail survey, it is impossible to answer most of the questions posed at the start of project. There were not as many bad phone numbers (disconnected out of business) as last spring, so switching to another list supplier may have helped.

The number of companies that are not qualified to take the survey remains high (27%);, however, in most cases the wrong industry was a closely related one; i.e., they were a distributor or retailer rather than a manufacturer. This also occurred with the list used last spring, but then we also found many that were in a completely unrelated industry (e.g., getting "bars and restaurants" when calling institutional furniture manufacturers, or getting "beauty supply outlets'' when calling trailer and camper manufacturers). Again, this suggests better list quality; however, it may simply be a function of the industries surveyed this time. Note in the table below that the "Not Qualified" percentage is much higher for window and door manufacturers. In this particular industry segment, we encountered shutter manufacturers and manufacturers that don't use wood.

TABLE 2. SAMPLE DISPOSITION – TELEPHONE CALLS

Number of companies contacted =	337122 Nonupholstered wood household furniture manufacturers 300		337211 Wood office furniture manufacturers 271		321911 Window and door manufacturers 312		All manufacturers 883	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Bad phone number (Wrong number, fax)	5	2	20	7	8	3	33	4
Disconnected / Out of business	35	12	31	11	23	7	89	10
Not qualified (Wrong NAICS / No wood / Not primary activity)	64	12	47	17	131	42	242	27
Refused	25	8	21	8	30	10	76	9
Couldn't reach (Voicemail, not available)	143	48	127	47	93	30	363	41
Completed interviews	28	9	25	9	27	9	80	9

The "All Manufacturers" column in Table 2 is the best estimate of what sample disposition will be in future surveys:

- Approximately 41% of the sample will be unusable or unqualified for one reason or another (27% not qualified, 10% disconnected, and 4% bad phone number).
- Approximately 9% will refuse to take the survey.
- Approximately 9% will complete the survey.
- Approximately 41% will be unreachable or difficult to reach.

This last percentage is the most variable by industry. And, if sample candidates are in short supply, interviewers can make multiple attempts (beyond the usual three attempts) to reach respondents, converting some of this percentage from "unable to reach" to "completed survey". Making many multiple attempts can increase interviewing cost.

Interviewer Time and Budgets

For the pilot project, average interviewer time was 90 minutes per survey. Interviewers reported that only about 10 minutes of that was actual interviewing. The remaining 80 minutes per interview was spent in trying to reach respondents, completing paperwork (of which there is very little), and calling back respondents to clarify answers.

While The Field Company doesn't anticipate increasing the hourly interviewing rate on future projects, it will be necessary for us to increase the time per interview for which that rate is applied.

The pilot study included a number of expenses that will not be included in future projects (assuming the mail strategy is abandoned). These include printing questionnaires and envelopes, mail-house services and postage, business reply postage costs, and some management costs associated with conducting the mail survey.

Even though the mail approach didn't work as hoped, we have enough information from the telephone portion of the pilot project to be able to calculate a fairly accurate price for future studies.

Incidence of Wood Use

Respondents were read a list of 17 different wood products and asked if they use each one in product manufacturing, for packaging or crating, or for patterns or jigs. Since APA's primary objective is to collect information about the use of specific wood products, the incidence of use of these products shown in Table 3 (particularly the average for all three industries) may be beneficial in estimating how many calls we will need to make in future studies in order for APA to gather sufficient data. Of course, the use of any product will vary by industry (Table 3).

TABLE 3. INCIDENCE

	337122 Nonupholstered wood household furniture manufacturers (N = 28)		337211 Wood office furniture manufacturers (N = 25)		321911 Window and door manufacturers (N = 27)		All manufacturers (N = 80)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Softwood plywood (U.S. or Canada)	11	39	17	68	9	33	37	46
Imported softwood plywood	6	21	3	12	4	15	13	16
Hardwood plywood (U.S. or Canada)	17	61	19	76	12	44	48	60
Imported hardwood plywood	9	32	3	12	4	15	16	20
OSB	6	21	11	44	8	30	25	31
Softwood lumber (U.S. or Canada)	17	61	14	56	17	63	48	60
Imported softwood lumber	1	4	0	0	8	30	9	11
Hardwood lumber (U.S. or Canada)	24	86	23	92	21	78	68	85
Imported hardwood lumber	8	29	5	20	11	41	24	30
Particleboard	8	29	19	76	5	19	32	40
MDF	13	46	19	76	14	52	46	58
Hardboard	7	25	10	40	4	15	21	26
Glulam	5	18	7	28	0	0	12	15
LVL	3	11	7	28	5	19	15	19
Timberstrand/SolidStart	0	0	2	8	1	4	3	4
Parallam	1	4	2	8	0	0	3	4
Bamboo	1	4	12	48	3	11	16	20
Other	2	7	2	8	0	0	4	5

Bamboo was introduced to the list for the first time in the pilot study. Use of bamboo was significant among makers of wood office furniture; however, none of them said it was a first, second, or third highest purchase.

In this survey, interviewers obtained more detailed information from each respondent for up to three wood products; those that represented the first, second, or third largest purchases. There was no attempt to ask for detailed information about specific types of wood products, but only for those products that respondents indicated were among their three largest purchases. So, while 37 respondents used softwood plywood from the United States or Canada, only 13 were asked the follow-up questions. This protocol could be changed in future surveys so that we always ask follow-up questions about specific types of wood. See Table 4 for a comparison of the number of times a wood product was used (incidence) versus the number of times it was cited as a major product purchase.

TABLE 4. INCIDENCE VERSUS MAJOR PURCHASE (FIRST, SECOND, OR THIRD LARGEST PURCHASE?

	337122 Nonupholstered wood household furniture manufacturers (N = 28)		337211 Wood office furniture manufacturers (N = 25)		321911 Window and door manufacturers (N = 27)		All manufacturers (N = 80)	
	Total use	Major purchase	Total use	Major purchase	Total use	Major purchase	Total use	Major purchase[2]
Softwood plywood (U.S. or Canada)	11	2	17	6	9	5	37	13 (35%)
Imported softwood plywood	6	1	3	0	4	1	13	2 (15%)
Hardwood plywood (U.S. or Canada)	17	12	19	11	12	5	48	28 (58%)
Imported hardwood plywood	9	5	3	0	4	0	16	5 (31%)
OSB	6	2	11	1	8	2	25	5 (20%)
Softwood lumber (U.S. or Canada)	17	10	14	4	17	15	48	28 (58%)
Imported softwood lumber	1	0	0	0	8	4	9	4 (44%)
Hardwood lumber (U.S. or Canada)	24	20	23	19	21	18	68	57 (84%)
Imported hardwood lumber	8	3	5	0	11	4	24	7 (29%)
Particleboard	8	4	19	11	5	0	32	15 (47%)
MDF	13	6	19	7	14	5	46	18 (39%)
Hardboard	7	0	10	0	4	0	21	0 (0%)
Glulam	5	0	7	0	0	0	12	0 (0%)
LVL	3	0	7	0	5	1	15	1 (7%)
Timberstrand/SolidStart	0	0	2	0	1	0	3	0 (0%)
Parallam	1	0	2	0	0	0	3	0 (0%)
Bamboo	1	0	12	0	3	2	16	2 (13%)

[1] The red font is used to highlight the top-three types of material for each industry segment and for all three segments combined.

[2] The percentage in parentheses in the final column equals the number of times a wood was cited as a major purchase divided by incidence.

Questionnaire Challenges

The questionnaire used for this project presents a number of challenges for interviewers. During the pilot, we carefully monitored interviewers and, in addition to the initial training, conducted two additional briefings to review their completed questionnaires, identify problems, and explain why follow-up calls to respondents were necessary.

While interviewers improved over the course of the project, there are some difficulties that cannot be resolved within the scope of a project like this. Chiefly, interviewers are not familiar enough with wood species, wood products, and wood uses to identify problems on the spot. Instead, interviewers do the best they can but inevitably call-backs are required, which adds to the overall interview time and cost.

We are continually working to find ways to refine the questionnaire to reduce this added cost.

Species Versus Species Group

Nowhere in the questionnaire do we ask about wood species, yet some respondents "think" in terms of species. So, when we ask about the wood they use most, its grade, and how much they purchase, respondents may give specific wood species rather than the species group (e.g., "red oak" rather than "hardwood lumber"). This wouldn't matter if respondents only used one species, or if all species reported were in the same species group, but frequently they use multiple wood species within a species group (red oak, maple, spruce, etc.) An approach is needed to allow both interviewers and respondents to differentiate between individual species, and species groups.