

TOR KORNELIUSSEN

The Effect Of Telephone Prenotification On The Response Rate in an Industrial Mail Survey*

ABSTRACT

Mail surveys are a necessary and widely used tool for collecting research data. A central tenet regarding the quality of a mail survey is its response rate. Although there has been much research on how to increase response rates in consumer populations or in the general public, there has been very little research on how to increase response rate in a business population. This study analyses the impact of telephone prenotification on the response rate in a business population. The findings indicate that the response rate is improved in a statistically significant way when a telephone prenotification is administered.

1 INTRODUCTION

Mail surveys are often used as a research tool. They are typically used to estimate the distribution of characteristics in a population. Their advantage, particularly regarding costs, makes them widely popular as a research device. Therefore, it is of great importance to secure the best possible result from the mail surveys undertaken.

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There is much interest in the quality of mail surveys as evidenced by the large number of articles (e.g. Yammarino et al., 1991; Schlegelmilch & Diamantopoulos, 1991; Hox & De Leeuw, 1994) and conferences (e.g. Madow & Olkin, 1983) on this and related topics, such as missing data (e.g. Beale and Little, 1975; Rubin, 1976; Little & Rubin, 1987; Little, 1992) and imputation (e.g. Efron, 1979; Rubin, 1987; Meng, 1994; Fay, 1996; Rubin, 1996).

The reliability of a mail survey is a function of its total error, which consists of sampling errors and nonsampling errors (Delener, 1995). A sampling error is due to the fact that a sample is only one of several possible representations of a population. There are several types of nonsampling errors: noncoverage errors, measurement errors, nonresponse errors and processing errors (see e.g. Thompson & Seger, 1996). A nonsampling error is a much more troublesome error than a sampling error and it is more difficult to estimate and rectify (Churchill, 1995). According to Kress (1988), refusals or nonrespondents are the largest problems in mail surveys.

Nonresponse errors represent a failure to obtain information from some element of the population that were selected and designated as the sample. Nonresponse may be caused by several factors. The main components are refusals and respondents who could not be contacted. Conceptually respondents who refuse to answer and respondents who could not be contacted are different, although these two types of respondents give raise to errors that have similar effects. Respondents who could not be contacted and respondents who refuse to answer make it difficult to know whether the distributions of characteristics among those that respond are really representative of the population.

The literature regarding mail survey research in marketing primarily researches populations of consumers or populations of the general public. Business executives and other commercial respondents have been much less researched (Houston & Ford, 1976; Jobber, 1986). There are, however, many important phenomena that only an industrial population can provide information about. Low response rates may give reason to doubt the findings of studies of such phenomena.

There is evidence that there are differences between non-business and business populations and that those differences may lead to lower response rates in business populations (Jobber, 1986; Duhan & Wilson, 1990; Sudman & Blair, 1999). It has, in fact, been shown that studies of industrial populations have lower response rates than studies of the general public (Childers & Skinner, 1979; Jobber & Sanderson, 1983; Jobber, et al., 1988). Hansen, et al. (1983) suggest that efforts to improve low response rates in industrial surveys needs to be increased if mail surveys are to develop their role as a major data collection tool.

There are several strategies a researcher may use to increase response rates, including prenotification and various incentives and reminders. One strategy that has only been studied to a very small degree is telephone prenotification. The use of telephone prenotification to increase response rates may be an efficient and relatively non-expensive way to increase response rates in

mail surveys of business populations. This study, therefore, investigates the research question: What is the relationship between a telephone prenotification and response rate in an industrial mail survey?

The remaining part of the paper is organized as follows: First comes a perspective linking prenotification and response rate. Then the research methodology underlying the empirical study is reported, followed by a discussion of the findings. Finally, there is a conclusion with suggestions for further research.

2 PRENOTIFICATION AND RESPONSE RATE

A telephone prenotification may be expected to increase the response rate in a mail survey. There are several reasons for this. A telephone prenotification introduces the researcher and the research problem (Schlegelmilch & Diamanoupoulos, 1991). If a manager sees that the research may be interesting or useful for the business or a trade organisation, this will increase the response rate of a mail survey (Duncan, 1979). Furthermore, a telephonic prenotification helps create a personal relationship between the researcher and the respondent. A request for co-operation (Lindsay, 1975) or commitment (Albaum, 1987) may then increase the likelihood of increased response rate.

When a request to participate in a mail survey comes more than one time (for example by both telephone and mail) it will probably increase the degree of co-operation. Repetition is an important element in persuasion. When a telephone prenotification informs the respondent that a questionnaire will arrive, it most likely decreases the probability that the letter is simply thrown away with the junk mail.

Furthermore, a prenotification may increase the recipient's perceived importance of the research (Jobber et al., 1985). When the recipient sees that the researcher is willing to go through the extra trouble and expense of calling, he/she is more likely to see the project as having a certain degree of importance and will thus be more likely to assist.

In literature reviews that have not differentiated between business and non-business populations, it has generally been concluded that prenotification has a somewhat positive influence on response rates. However, according to Schlegelmilch and Diamantopoulos (1991) four studies have found that a mail prenotification significantly reduces response rates. Three out of these four studies used industrial populations. In addition, both Childers & Skinner (1979) and Jobber & Sanderson (1983) report lower response rates resulting from the use of prenotification with a business population. Thus, there is a certain ambiguity regarding the effect of prenotification on response rate in business populations.

There are only two studies that have examined the effect of telephone prenotification (Jobber

et al., 1985; Mitchell & Nugent, 1991) in a business population. Both studies found that prenotification significantly increases response rates. This small number of studies increases the likelihood of the “file drawer problem” (Rosenthal, 1979). Rosenthal suggests that the five per cent of studies that show type I errors tend to be published, while the other 95 per cent of studies that show nonsignificant (e.g. $p > .05$) results are kept in the file drawer. It therefore seems prudent to do one more test of the relationship between prenotification and response rate. Hence;

H: Telephone prenotification increases the response rate in an industrial mail survey.

3 METHODOLOGY

This study imposes specific design requirements. We need a sample of firms that can be divided into two, preferably equivalent, groups. One group should receive a telephonic prenotification, whereas the other group should receive no prenotification. Both groups should then take part in the same industrial mail survey. This should allow an investigation of whether a telephonic prenotification has the hypothesised relationship to response rate.

3.1 Sample

A research project by a Norwegian applied research institute satisfied the above requirements. The research project focused on market orientation among Norwegian fish farmers producing fresh salmon for a new Asian market (Singapore). One part of the research project was to carry out a mail survey in this industrial population.

Fish farms are very small firms, consisting of from two to five employees. The managers are typically production oriented with relatively low administrative and managerial skills. They have a low propensity for taking part in mail surveys. A telephone prenotification may, therefore, be an appropriate strategy to try to increase the response rate of a survey in this population. This setting allowed the possibility to test the hypothesis that a telephonic prenotification would be positively related to response rate in an industrial mail survey.

Through contacts with the freight departments of several airlines and exporters it was possible to determine that there were six exporters shipping salmon from Norway to Singapore. We called these six export firms and asked to speak to the person responsible for the export of fresh salmon to Singapore. After identifying ourselves we explained the details regarding our research on the export of salmon to Singapore and that we would like to interview the managers of the fish farms who supply the exporter with salmon. We also asked if the exporters would kindly provide the appropriate names and addresses. One person declined to take part in the study. The five remaining exporters provided about 80 percent of the salmon that was exported from Norway to Singapore. These five exporters gave us address lists of their suppliers. After having gone

through these lists and deleted double listings, it turned out that the exporters were supplied by 234 fish farms.

Since it was considered important to get a high response rate, it was decided that as many fish farms as possible should be prenotified, subject to the available resources. The sample size to be prenotified was, therefore, not set in advance.

An alphabetic sample frame was created. The procedure for prenotification was that the individual fish farms were contacted by phone. After introducing himself, a research associate asked to speak with the manager of the firm. The manager was requested to assist in an ongoing research project. A simplified explanation of the research, its importance and its possible implications were given. It was explained that the manager would receive a questionnaire within one week and that the manager's contribution would be to fill in the questionnaire.

The research associate spent two days calling the managers of the fish farms, in order to increase the response rate. The research associate started by calling the first firm on the list, and then continued by calling each consecutive firm on the list. A total of 84 fish farms were contacted. In 67 fish farms the research associate was able to prenotify the managers about the coming mail survey. In 17 of these fish farms there was no answer. We believe this is due to the managers being occupied with the various tasks of operating the business. Since the fish farms are very small firms, the managers often have to be out of office for large parts of the day, participating in practical operations of the firm, such as feeding the fish or cleaning the nets.

Since our sampling frame was based on lists of fish farms taking part in regular business transactions we do not believe that any of our contact information should be outdated, or that any of the fish farms on the lists should be out of business. Furthermore, there were no cases where we were informed by the telephone service that the telephone number had been disconnected.

One week after the prenotification, a mail questionnaire and a letter addressed to the managers of the fish farms were sent out to all 234 fish farms. The letter granted the managers anonymity and gave a brief description of the project. The managers that had been prenotified and those managers that had not been prenotified each received an identical letter and an identical questionnaire. An envelope was included, with the message that the receiver would pay the postage. This was followed up by a postal reminder 10 days later. No undelivered questionnaires were returned. This gives further evidence of the high accuracy of the contact information (names and addresses of fish farms) received from the exporters. There is no reason to believe that not all of the fish farms received the survey, as the Norwegian postal service is very reliable. The number of respondents that could not be contacted should be zero or very small due to the quality of the lists and respondent selection. It is very likely that there is close to zero difference between those fish farms that were prenotified and the other fish farms. One reason is that the fish farms are all very similar to each other. This is due to the Norwegian Aquaculture Acts of

1981, 1985 and 1991 introducing strict regulations within the aquaculture sector, with regard to property, delimitations of size, licence regulations and regulations regarding the localisation of fish farms (See e.g. Aaker, 2000). Furthermore, it does not seem likely that any possible difference between fish farms should be related to the alphabetic sampling frame. There should therefore be no difference between the firms that were prenotified and those that were not. It is also very unlikely that there is any difference between the 67 fish farms that were prenotified and the 17 fish-farms where the research associate received no answer. In any case, a possible difference between the prenotified firms and the other firms should not be of any importance since this is theory testing research. When the goal of research is theory falsification, then any sample within the theory's domain, not just a representative one, can be used to undertake such a test (Calder et al., 1981; Blair & Zinkhan, 2006).

To analyse the effect of the telephone prenotification a contingency table was analysed.

4 ANALYSIS AND DISCUSSION

Hypothesis 1 indicates that the response rate should be higher for the prenotification group than for the other group. To test the hypothesis, a χ^2 test for independence was used.

TABLE 1. Observed response distribution between those who were prenotified and those who were not prenotified.

Response	Nonresponse	Row total	
Prenotification	30 (44.8 %)	37 (55.2 %)	67
Non prenotification	18 (10.8 %)	149 (89.2 %)	167
Column total	48	186	234
			$\chi^2 = 33.896,$ $df = 1,$ $p < .000$

Table 1 shows that of the 67 managers that were prenotified 30 (44.8 per cent) responded to the questionnaire. Of the 167 managers that were not prenotified 18 (10.8 per cent) responded to the questionnaire. The total response per cent was 20.5. As hypothesized, there was a statistically significant relationship ($\chi^2 = 33.896$, $df = 1$, $p < .0001$) between prenotification and response rate.

This study found a strong effect of telephone prenotification. The response rate within the prenotified firms was 34 per cent unit higher than within the non-prenotified firms. This is a difference in response rate of 315 per cent between the prenotified firms and the non-prenotified firms. The increase is much higher than what is found in previous studies (An increase of 16.2 per

cent unit in the study of Jobber, et al. (1985) and an increase of 14 per cent unit in the study of Mitchell & Nugent (1991)).

Why did a telephone prenotification increase the response rate? The main reason is probably that the telephone prenotification introduced the researcher and the research problem. The managers saw the research could be interesting and useful for the business, since this research focused on the market orientation of fish farmers. This was a topic of great concern to the fish farmers, because of serious threats of export barriers being imposed on them.

The telephonic prenotification probably helped create a personal relationship between the researcher and the respondents and made clear that the researcher was willing to go through the extra trouble and expense of calling. This may have increased the perceived importance of the research, and hence made the respondents more likely to participate. Furthermore, since the request for co-operation came three times (once by telephone and twice by letter), it probably increased the degree of co-operation, as repetition is an important element in persuasion.

5 CONCLUSION

This study suggests that telephone prenotification is a viable strategy to increase response rates in mail surveys of industrial populations. This strategy may be very useful for research of populations where it is particularly important to get high response rates.

5.1 Further Research

It is important to know how much a telephone prenotification will increase the response rate in a mail survey. This is very interesting when one is going to calculate whether the expected increase is worth the costs of undertaking a telephone prenotification. Myers & Haug (1969) for instance concluded that a postal prenotification is probably not worth its costs.

In this case the survey sponsor was an applied research institute. It has previously been shown that university sponsored mail surveys give higher response rates than surveys that are commercially based (Jobber & O'Reilly, 1998). There has been no research done regarding the effect of using an applied research institute as a sponsor. One may, however, speculate that this may give higher response rates than commercially based surveys. Furthermore, it may give higher response rates than university sponsored mail surveys, because business people may see an applied research institute as being more practical and therefore its research more useful than university sponsored research.

Inducement techniques that increase response rates do not necessarily improve the precision of survey results (Jones & Lang, 1980). Methods that increase response rates can actually hurt if they lead to response bias (Houston & Ford, 1976) or to sample composition bias (Jones & Lang,

1980). A telephone prenotification may not in itself have such consequences, but this may happen, for instance, due to the wording of the telephone prenotification. Additional research should be carried out to determine whether and under which conditions a telephone prenotification might give a response bias and a sample comparison bias. ■

6 REFERENCES

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