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Strategies for handling low response rates in management accounting survey research

Ingemund Hägg

Uppsala University

Department of Business Studies

P.O.Box 513, SE-75120 Uppsala, Sweden

Phone +46 18 471 13 90

E-mail ingemund.hagg@fek.uu.se

Abstract

In management accounting survey research it is common with response rates in the range 20 - 50 %. How is low response handled in published research reports? What kind of knowledge is created in the perspective of different strategies for handling non-response problems?

Such problems have been dealt with earlier. Armstrong and Overton (1977) in marketing research and Young (1996) in management accounting are frequently cited examples. Shields (1997) presents suggestions for general improvements in survey research.

In the paper a selection of articles published in the journals Management Accounting Research (MAR) and Journal of Management Accounting Research (JMAR) is analysed. Different strategies for handling low response rates are identified in these articles, some of these strategies questionable.

Some suggestions are made for more fruitful strategies for handling low response rates. In conclusion it is stated that survey research with the aim of generalising to a defined population should not be undertaken when low response cannot be handled in a satisfactory way. Studies with many objects of study can be done when research aims are knowledge development in the management accounting area. Thus low response should not be made to become a problem.

Key words: survey, response rate, non-response bias, management accounting research

Background and problem

Surveys are common in research in many social science fields. Management accounting research is no exception. Often a specific population is defined. A random sample (sometimes with stratification) is selected. Respondents are approached and replies are received from part of the sample. Efforts are made to show that the respondents represent the defined population and that generalisation to this population is possible.

There are many problems involved in this process. Of course this process should be interpreted in a context of purpose of the study which can range from theory development to theory testing. A survey need not be either a necessary means or the only means to make progress. If a survey is chosen there are many potential weak links. One has to do with low response rates and non-response bias. Even if low response rate is maybe not the weakest link in a study it should not be ignored..

The purpose of this paper is to discuss strategies utilised by researchers when exposed to non-response. Examples are taken from surveys in management accounting research presented in the journals Management Accounting Research (MAR) and Journal of Management Accounting Research (JMAR). The 11 examples (arbitrarily selected and not a random sample) are from articles published 1996-2001. The reason for the choice of MAR and JMAR is that they are respected and well established journals in the field. I could have chosen articles from other respected journals also and the limitation to MAR and JMAR is no indication of any kind of suspicion that MAR and JMAR are more apt than other journals to accept survey articles with problematic treatment of non-response problems.

Searching for the text “non-response bias” on internet resulted in more than 2000 documents (February 2003). But more relevant is the recognition of the problem area are articles in scientific journals. Armstrong & Overton (1977) discuss methods for estimating non-response bias in mail surveys in a marketing research context. Young (1996) suggests different kinds of methods of improvement in accounting survey research. Jobber & Saunders (1989) develop methods for predicting industrial mail-survey response rates. This somewhat arbitrary choice of studies suffice to show that there is an interest among researchers to discuss non-response problems

Data

In this section 11 examples are presented. I have tried to isolate the non-response aspects which is not always easy as the short descriptions and quotations appear out of context.

1. 23 %

Armstrong et. al.(1996), pages 1-23

”The paper presents data obtained from a representative sample survey on the budgetary controls used in large U.K. companies.” (page 1)
Large companies ”were defined as those employing 1000 people or more in the U.K. and as having at least two sites.” (page 2). This gave 812 companies. A sample of 200 was aimed at. But it turned out that some companies were not possible to contact and many (447) refused to participate. The authors ended up with 176 companies, that is, a response rate of 23 %. ”This figure is comparable with that

achieved in previous surveys of management accounting practice.” In a note the authors write “Cress and Pettijohn’s (1985) questionnaire survey of 2109 U.S.A. manufacturing companies achieved a response rate of 27,4 %. The recent survey of management accounting practice in U.K. manufacturing companies conducted for the Association of Certified Accountants by Drury et. al. (1993) achieved a 24 % response rate by postal questionnaire.” (page 5)

”Extensive checks of non-respondent bias were made, using the information on size, sector, ownership and key dimensions of headquarters control of business unit policy.” The authors found close matching between sample and population. But multinationals and larger companies were under-represented. In order to be able to generalise to the population a weighting scheme was devised.

2. 31 %

Joseph et. al. (1996) pages 73-93

”The questionnaire was addressed to qualified members of the Chartered Institute of Management Accountants (CIMA) who were employed by U.K industrial and commercial firms. The questionnaire was mailed to 1000 individuals, and a follow up reminder was sent after 4 weeks. Overall, 308 (31%) of the questionnaires were satisfactorily completed, a response rate which compares favourably with other survey studies of management accounting practice. Tests involving comparisons between the earlier and later responses to the survey revealed no evidence of any non-response bias in the sample of questionnaires received.”.

3. 42 of 73

Van Cauwenbergh, (1996), pages 169-184

”Our sample consisted of top or middle managers in 50 companies or banks.”
”After a random selection (every third company) from this list of companies, 73 were selected as our target group. Of these companies, 42 were willing to cooperate in our research.” “...Not only did we examine 42 industrial companies, we also made an appeal to banks.”(page 170).

Probably, then, 8 banks were studied . It is not clear how they were selected. The authors do not bring up anything about non-response from 31 companies and a possible non-response from a number of banks. In their analysis they refer to “a majority” answering this or that, and similar.

4. 57 %

Bjornenak (1997), pages 3-17

”Questionnaires were sent to 132 companies, all with more than NOK 200 million in sales. This includes all companies within the chosen sub-groups of manufacturing companies. Seventy-five acceptable questionnaires were received, a response rate of 57 % . There was no evidence of response bias with respect to size or industry.” (page 8). “The high response rate indicates that the results are representative. However, it may not be appropriate to generalize the results to other countries or businesses.” (page. 8)

5. 31 %

Krumwiede (1998), pages 239 ff

The study population consisted of 778 US manufacturing business units. “To help motivate response, respondents were offered a “benchmark” report comparing their responses to their industry and to the overall results. Ninety percent of the respondents requested the benchmark report and provided a mailing address. In addition, a second mailing of the instrument was sent to nonrespondents. After the mailings 238 responses were received from approximately 778 manufacturing members for a response rate of approximately 31 % (compared to a normal response rate from this group of approximately 20 % .).” (Page 247). “Although there is no test to ensure that nonresponse bias does not exist three separate procedures were conducted to help assess this possibility (Gosselin 1997), Innes and Michell 1995, Oppenheim 1966. No evidence of nonresponse bias was found. First, the survey included a “nonresponse” sheet for respondents who did not respond to the survey. The majority of these sheets indicated that the SBU did not use cost allocation methods. The rest came from consultants, professors and firms with policies prohibiting response to surveys. Second, a comparison was made of the survey respondents with known characteristics of the CMG membership (industry, geographic area and job title). No significant differences were found. Third, the 164 responses in the first mailing were compared with the 74 responses to the second mailing for the same characteristics as well as the contextual and organizational factors and ABC adoption and routinization rates. No significant differences at the $p < 0.05$ level were found between the two groups.” (page 247).

“And although tests were performed to look for evidence of nonresponse bias, there is no way to directly test whether the nonrespondents are systematically different than the respondents. ...thus, generalizing the results of this study to the entire US manufacturing population should be done with caution.” (page 268).

6. 56 %

Chenhall & Langfield-Smith, 1998, pages 1-19

“A survey administered to 140 manufacturing firms selected from the Business Review Weekly list of Australia’s largest companies.” “The two mailings resulted in 78 usable responses, or a response rate of 56 %. To examine for non-response bias, the responses from the first 20 % of returns and those from the last 20 %...were compared.....No differences were identified, providing some support for the absence of a non-response bias.” (page 2) . In the conclusions the authors write “..as the sample was selected was not random, the findings of this study should be interpreted as relating to the largest manufacturing companies, not to the general population of manufacturing companies.” (page 15)

7 6.2 %

Sim & Killough (1998).pages 325-

“Letters requesting participation in this study were sent to the directors of manufacturing of 1500 randomly selected plants located within the United States. ... A total of 126 plants agreed to participate. “ One reminder was sent out. 83 questionnaires “were returned, which provided an overall response rate of 6.2 % (83 of 1335)”. (page 332)

“The results of this study should be assessed in light of two limitations. The first limitation relates to the small sample size”. (page 341)

8. 190 of 480

Coda, A. F (1999), pages 109-135

”A sample of 600 names and business addresses was selected randomly from the list of Fellow and Associate members of CIMA in the United Kingdom.....This left a modified sample of 480 members.....A total of 2+2 responses were received of which 190 (39,6 %) were usable. The use of a modified random sample, combined with a good response rate compared with other studies of management accounting practice (e.g. Dugdale 1994, Joseph et. al. 1996, Evans and Aschworth 1996) ... suggests that the results may be fairly representative of U.K. management accountants. An analysis of respondents’ age profiles, their length of time in current position, the size of their organisation, and the proportion of men to women, supports this view..” (pages 119-120)

“Several factors limit this study.....A second factor in the relatively small, possibly restricted sample size for a survey-based study. A 14 percent (83of 600) usable response rate.... May not be convincing to some readers..... Sampling bias, however, should not be a major concern for this study.” (page 67).

9. 14 %

Widener & Selto (1999), pages 45 –

“We surveyed a random sample of 600 publicly traded firms with more than 500 employees (stratified by industry) from the Compustat industrial files.. To enable analysis of nonrespondents and inclusion of archival-proxy variables, the study also requires sample firms to have sales, assets, and either R&D or advertising expense in the most recent year available prior to the start of the study – 1995.” (page 51)
The questionnaire was mailed to the CFO’s of the 600 sampled firms.. “Three survey mailings and one postcard reminder after the first mailing resulted in 198 respondents (33 percent overall response rate)”

10. 44,9 % - or 22.9 %

Innes et al, (2000), pages 349-362

The survey covered the Times 1000 top non-financial and financial companies (excluding investment management firms) in the UK. It involved two mailings. ”The second included a non-response sheet requesting a reason when the questionnaire was not returned. A total response of 44.9 % was achieved. In a note the authors write “The non-response sheet returns indicated that 72 respondents (9.3 %) did not consider ABC applicable to their organizations. A further 30 respondents (3.9 %) had a standard policy of non-response to questionnaires, while 21 respondents (2.7 %) cited lack of time as the reason for non-response. The remaining 16 respondents (2,0 %) had not responded due to significant corporate changes, e.g. the company in liquidation.” (page 350) .The usable response rate was in the end 22.9 %. “The usual limitations of survey-based research are acknowledged by the authors.” (p 350). In a note they refer to a discussion in Innes & Mitchell (1997).

11. 65 % and 51 %

Abernathy & Lillis (2001) pages 107-

“Questionnaires were initially distributed to CEOs and MDs in 149 hospitals... The response rates were high with 65 % of useable questionnaires returned by the CEOs and 51 % by MDs.. this resulted in 56 matched sets of data for use in the analysis. High response rates minimize problems associated with nonresponse bias.” However, two tests were made, based on size of hospitals and early versus late respondents. “None of these tests produced significant differences, suggesting the absence of any obvious nonresponse bias. (page 117).

Analysis and conclusions

The strategies used by the researchers to deal with non-response are the following in the 11 examples presented in the previous section.

1) Efforts are made to limit non-response by reminding non-respondents one, two or three times (examples 2, 5, 6, 7, 9,10). An incentive to respond can be offered (example 5).

2) Stating that the response rate is high (examples 4, 11)

3) Admitting that generalization possibilities are limited due to low response problems (examples 6, 7, 10)

4) No comments on any non-response problems (example 3)

5) Stating that the response rate compares favourably to the rates of other studies (examples 1, 8). Cf. guilt by association.

6) Non-response is discussed and the following measures are used

- Answers from early and late respondents are compared If no differences are found the conclusion is drawn that non-respondents are similar to respondents. (If there would have been differences it could have been assumed that non-respondents are equal to late respondents.)

- Non-response bias is discussed and checked for by comparing characteristics of respondents and population (focussing on such aspects as size, age, branch of industry etc, that is, structural variables)

That some of the 6 strategies are more frequent than others should not be taken as any indication of possibilities to generalize. My aim is just to identify strategies used. With another arbitrary selection of examples other strategies might have been identified.

A crucial question is if “unsatisfactory “ treatment of low response is really a problem in management accounting research. Maybe there are other more critical problems in such research (cf Luft & Shields,2003).. My answer is that if a researcher makes an effort to get a representative sample from a defined population he or she has actually chosen to make low response a problem. Implicitly the researcher has then chosen a generalization (to a population) aim. And then the problem of response should not be ignored. And none of the 11 examples starts out by saying that representativeness is not important for him or her. I will return to the

question if survey research always needs or should need such an aim – in view of what contribution to knowledge is aimed at.

An obvious strategy to deal with non-response is to see to it that it does not appear. I will not go into activities for this purpose, like designing questionnaires that are easy to fill in, using telephone or internet instead of mail, not choosing a large sample for a postal study than can, with time and resources available, be followed up by telephone reminders and similar. In this paper I focus on situations when non-response has occurred.

It is interesting to note the drive in most of the examples to state that the response rate is satisfactory and that problems of non-response bias can be neglected. Researchers do not seem to worry about non-response very much. But I regard such statements as very bold assumptions when response rates are from 6 % to 65 % as is the case in the examples. The fact is that there is then no direct data on as much as 35% to 94 % of the populations. In particular I regard reference to other studies that have reached similar response rates as unsatisfactory. The quality of one survey study is not substantiated by reference to another study with low response rate. (Note. It is surprising that distinguished scientific journals publish articles with such content.)

I would like to draw attention to a few additional possible strategies for dealing with non-response.

7. (connected to strategy 6 above. Take a random sample from the non-respondents and put in more resources to get replies by, for example, using telephone or personal interviews in an originally postal survey.

Other strategies connected to strategy 6 above are discussed by Armstrong & Overton (1977), for example subjective estimates of non-respondents' replies (based sometimes on the so called interest hypothesis) and extrapolation methods using successive waves of questionnaires.

8. Redefine a study where low response has occurred. Instead of trying to generalise to a defined population resort is taken to analytical or theoretical generalisation. That is, it is acknowledged that the study has not resulted in a representative sample of the population originally defined.

9. Conduct a number of simple sensitivity calculations on important result variables. For example, in a study with a response rate of 60 %, 70 % of the respondents have stated that they use ABC. Assume that non-respondents are using ABC less, say 50 % of them. Then the "correct" use rate would be 62 %
If the study had resulted in a 30 % response rate the "correct" use rate would be 56 %. By presenting a number of such calculations the researcher can give indications of the robustness of the results and supply the reader with a reasonable sense for the uncertainty in the results.

10. Redefine the population so as to make it better correspond to the sample achieved. This is, however, a problematic strategy in a statistical sense.

No study is better than its weakest link. The unscientific treatment of non-response problems is an abuse of statistical theory and should be avoided. If survey studies with ambitions to generalise to a defined population cannot be undertaken with due respect to what is required they should not be carried out at all. As I have shown there are strategies that are possible to use to improve the situation, especially if the aim to generalise to a defined population need not be the overall aim. As long as a researcher sticks to strict survey research he or she makes low response a problem. Avoiding survey research in a strict sense researchers should more often aim at using multi-object studies, and then not make non-response a problem. And then also sometimes include in their research approaches field-based studies (Young 1999) or case studies (Hedlund & Hagg, 1979).

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