## A Test of Two Procedures for Increasing Responses to Mail Surveys

#### Mike Brennan

This paper examines the effectiveness of two procedures used in combination in an attempt to increase responses to a mail survey in a cost effect manner: a first reminder letter without a replacement questionnaire, coupled with a time-bounded prize draw for \$100 worth of petrol vouchers. The prize draw elicited a faster response to the first two mail-outs, but produced only a slightly higher response rate by the end of the survey (43% vs. 41%). The use of a letter without a replacement questionnaire for the first reminder resulted in a lower response to that mail-out, but a slightly higher response rate by the end of the survey, and was the most cost-effective procedure. A combination of prize draw plus letter-only first reminder gave the highest response rate overall, but the differences between combinations were not statistically significant. A much higher level of agreement to be re-interviewed was obtained when the prize draw was used.

Keywords: Response Rates, Mail Survey, Prize Draw

## Introduction

It is generally accepted that response rates to all types of survey are in decline, and have been for some years (de Leeuw & de Heer 2002; Bednall & Shaw 2003; CMOR 2003). The question is, what to do about this? This paper examines the effectiveness of two procedures used in combination in an attempt to increase responses to a mail survey: a first reminder letter (without questionnaire) coupled with a time-bounded prize draw for \$100 worth of petrol vouchers (first two of three mail-outs).

Survey researchers not only want a high response rate, to minimise the effects of possible non-response bias, they also want a speedy response. It is well known that one of the most effective ways to achieve a high response rate is to send out reminders (Dillman 1978). However, whereas 15 years ago, simply sending two reminders could achieve response rates in mail surveys of around 60%-70% (Brennan 1992) within five years this level of response was unlikely unless an incentive was used (Brennan, Hoek & Astridge 1991; Brennan 1992). More recently, it has become apparent that even three reminders are not sufficient to obtain response rates greater than 50%, even when other techniques, such as different types of appeal, are used (Finn, Gendall & Hoek 2004).

The typical approach with reminders is to send a replacement questionnaire along with a cover letter. However, this procedure adds to the cost of the survey, and might be unnecessary. We have noticed that many questionnaires returned after a reminder are from the first mail-out. This suggests that it may be just as effective to send nonrespondents a reminder letter rather a replacement questionnaire. The assumption here, of course, is that the respondent has not already thrown the questionnaire out. This procedure reduces the cost of postage, as a normal "banker" envelope rather an A4 envelope can be used, and the cost of printing questionnaires is reduced. An earlier study found a small decrease in response rate due to this procedure, but the sample was small (Brennan 1992a).

Apart from cost, here is another good reason for testing this procedure. Dillman (2000) suggests, in his Tailored Design Method, that the most effective way to increase response rates is to vary the type of mail-out with each reminder. While he suggests using a postcard rather than a letter, the empirical evidence for this is limited, so further investigation of a reminder letter with or without a questionnaire would seem warranted.

The costs of a survey will be further reduced if a high initial response rate can be achieved. One way to do this may be to offer an incentive. The most effective incentive in a mail survey used to be a coin (20c, 50c or \$1) attached to the cover letter "as a token of appreciation" (Brennan, Hoek & Astridge 1991; Brennan 1992b). Because of the increased response rates stimulated by this method, using a coin often turned out to be more cost effective than not using one, because fewer reminder letters needed to be sent out, so the saving in postage and printing more than compensated for the cost of the incentives. Unfortunately, the use of such monetary incentives is now forbidden, at least in New Zealand and the US.

An alternative to a pre-paid incentive is to offer a prize draw to respondents returning a completed questionnaire. Again a number of studies have examined the effectiveness of using such cash incentives, with varying degrees of success (Brennan, Hoek & Astridge 1991; Tan 1982 – see Brennan 1992 p31; Warriner, Goyder, Gjertsen, Hohner & McSpurren 1996).

Most of these studies are dated, and the social environment in all countries has changed dramatically over the past decade. Thus there is a need to determine whether a prize draw is effective today, and what the effects are of the two procedures in combination (reminder letter without questionnaire, and prize draw).

## Method

A questionnaire was mailed to 1000 members of the New Zealand public, randomly selected from the 2003 Electoral Roll. The survey was conducted between November 9 and December 17, 2004. Two reminders were sent out, after 12 days and 21 days, respectively.

The topic of the survey was New Product Adoption. The questionnaire contained descriptions of four "innovative" electronic products or services (camera cell phone, broadband internet connection, MP3 player and MP3 file download service), and required respondents to answer questions regarding ownership and probability of purchase, and to complete two sets of 20-item 5-point agree/disagree scales relating to their purchase style. The usual demographic/personal information was also gathered, and respondents were asked for permission to conduct a short follow-up survey.

The cover letter was written as a request from a graduate student for assistance with her Masters research. Her name (but not signature) was printed at the bottom of the letter.

The cover letter mentioned the topic (New Product Adoption), but did not elaborate. The letter also stressed that the information gathered would be treated in confidence, that respondents' names and personal information would not be released to third parties, and that the survey was not an attempt to sell them anything. Contact details for both the student and her supervisor were listed. A reply-paid addressed envelope was provided. All mail-out envelopes were white and had the University logo and address printed in colour on them.

The 1000 names in the sample were randomly assigned to one of four groups. Two groups were sent a cover letter informing them that, if they returned the fully completed the questionnaire by a certain date, they would go into a draw for \$100 worth of petrol vouchers "as a token of appreciation". The incentive was offered in both the initial mail-out, and the first reminder.

A web address for the result of the draw was provided and an assurance given that only the ID number of the winner would be reported, not their name and address. The other two groups received an identical cover letter, without the notification of a prize draw.

For the first reminder, all sample members with odd numbered IDs were sent a reminder letter in a normal envelope, while all those with even numbered IDs were sent an identical letter, plus a replacement questionnaire, in an A4 envelope. Thus a 2 (prize draw vs. no prize draw) x 2 (reminder 1 letter vs. letter + questionnaire) factorial design was employed.

## **Results and Discussion**

#### **Effectiveness of Prize Draw**

The response rates elicited by the treatments are shown, for each wave, in Table 1. The response rates were calculated using the following formula:

Response Rate = (Valid returns/(Sample size – (GNA + ineligible )))\*100.

Two sets of results are shown for Wave 2. Those labelled Wave 2c are the responses up to the cut-off date for the prize draw. Those labelled Wave 2t are for the total duration of the wave up to two days after the next mail-out (13 days after the cut-off date for the prize). In both Wave 1 and Wave 2 the prize draw elicited significantly higher response rates, reaching 34% by the cut-off for the prize draw from the group to whom the prize draw was offered, compared with 27% from the control group.

However, as the survey progressed after the prize draw cut-off point, the differences in response rates progressively diminished, even during Wave 2 after the prize draw cut-off date (see results for Wave 2t). In Wave 3, the response rate was much higher for the control group than for the group offered the prize draw, and by the end of the survey, the difference between the groups was quite small (and not statistically significant), with the prize draw producing just a slightly higher response rate overall. What is most notable is that the extra few days in Wave 2 after the cut-off for the prize draw contributed a further 2%-3% to the response rate, while an extra wave added a further 7% for the group offered the prize draw, and 11% for the control group. These results suggest that a prize draw can be effective in speeding up responses, and generate a marginally better response rate overall, but the key to obtaining a respectable response rate is to allow people time to respond, and to use at least three reminders.

	-	2 <b>c</b>	Wave 2c	2t	1+ Wave 2t	3	Wave 2 + Wave 3 *
Prize draw	17.6	18.6	33.5	21.9	36.2	10.6	43.3
No prize draw	13.7	14.9	26.9	18.5	30.0	15.9	41.4

Table 1.	Effectiveness	of a	prize	draw:	Resp	oonse	rates	for	each	wave
----------	---------------	------	-------	-------	------	-------	-------	-----	------	------

Note. When offered, the prize draw was offered in both wave 1 and wave 2. 2c = response rate up to cut-off for prize draw in wave 22t = response rate for the full duration of wave 2

 $*?^2 = .32. df = 1, n.s. at a = .05$ 

#### **Type of Reminder**

The effects of using a letter-only in Wave 2 are reported in Table 2. As one would expect, the response rates were almost identical in Wave 1, where all respondents were sent a questionnaire. But sending a second questionnaire in Wave 2 prompted a significantly higher response rate than sending just a reminder letter. However, as with the prize draw, responses continued arriving for both groups at about the same rate in Wave 2 even after the prize draw cut-off date, increasing the response rate by 150% between then and the end of Wave 2.

Then in Wave 3, we again see the big shift in response rates, with the letter producing a significantly higher response rate than the questionnaire. As a consequence, by the end of the survey the group sent the letter in Wave 2 had a slightly higher response rate than the group sent a questionnaire: 44% compared with 41%, although the difference is not statistically significant (see Table 2).

Again, this suggests that, while sending a questionnaire will speed up responses, the main contributor to a respectable response rate is to allow more time for respondents to respond, and use at least two reminders. This observation is consistent with findings reported over the past 40 years (Scott 1961; Linsky, 1975; Dillman, 1991). Using a letter rather than a questionnaire in the second wave is also clearly the more cost effective solution.

	Wave 1	Wave 2c	Wave 1+ Wave 2c	Wave 2t	Wave 1+ Wave 2t	Wave 3	Wave1+ Wave 2 + Wave 3 *
Letter in Wave 2	15.8	14.7	28.4	18.8	31.7	17.1	43.6
Questionnaire in Wave 2	15.5	18.7	31.9	21.8	34.6	8.6	40.6

Table 2.	Effectiveness of a letter	vs. a questionnaire in	Wave 2: Response rates for
	each wave		

Note. When offered, the prize draw was offered in both wave 1 and wave 2. 2c = response rate up to cut-off for prize draw in wave 2 2t = response rate for the full duration of wave 2

 $*?^2 = .81. df = 1, n.s. at a = .05$ 

#### Interaction of reminder and prize draw

While the effects of the prize draw and reminder letter have been examined separately in Tables 1 and 2, it is useful to consider possible interactions of these two treatments, which are disguised in the separate analyses, as the treatments were balanced. Approximately half of non-responders to wave 1 in each treatment were sent a reminder letter (even numbered IDs) while the other half (odd ID numbers) were sent a questionnaire. The interactions are shown in Table 3.

	Wave 1	Wave 2c	Wave 1+ Wave 2c	Wave 2t	Wave 1+ Wave 2t	Wave 3	Wave1+ Wave 2 + Wave 3 *
Prize draw + Questionnaire	17.7	17.7	33.2	21.3	36.1	8.7	42.2
Prize draw + Letter	17.5	19.4	33.8	22.5	36.4	12.5	44.3a
Questionnaire only	13.4	19.6	30.6	22.3	33.0	8.6	39.4b
Letter only	14.0	10.4	23.2	14.7	27.1	21.3	43.3

# Table 3. Interaction of prize draw offer and type of reminder: Response rates to each wave

Note. When offered, the prize draw was offered in both wave 1 and wave 2.

2c = response rate up to cut-off for prize draw in wave 2

**2t** = response rate for the full duration of wave **2** 

\* a,b  $?^2 = 1.06 \text{ df} = 1$ , n.s. at a = .05

It would appear that either sending a questionnaire or offering a prize draw prompts a similar speedy response, but the effect is not enhanced by offering these in combination. Sending a reminder letter without a questionnaire or a prize draw prompted the slowest response to wave 2. However, by the end of the survey (after two reminders), the two treatments using a reminder letter without a questionnaire in wave 2 (i.e., with or without a prize draw), produced the best response rates, although none of the differences in final response rates were statistically significant

#### Effect of prize draw and type of reminder on respondent cooperation

While obtaining a speedy response and a high response rate is highly desirable, it is important that this is not at the expense of respondent cooperation in a follow-up surveys, if this is required. In this survey, respondents were asked for permission to re-contact them in six months time. The level of agreement may provide a measure of respondent satisfaction. The agreement rates for the various treatments are reported in Table 4.

	Wave 1	Wave 2c	Wave 1+ Wave 2c	Wave 2t	Wave 1+ Wave 2t	Wave 3	Wave1+ Wave 2 + Wave 3 *
Prize draw + Questionnaire	73.2	64.5	69.4	54.1	64.1	63.6	64.0a
Prize draw + Letter	75.0	62.9	69.3	55.0	65.0	47.1	61.9
Questionnaire only	61.3	54.1	57.4	47.6	53.4	61.5	54.7
Letter only	69.7	40.0	58.5	28.6	50.8	39.4	46.8b

Table 4.	Interaction of prize draw offer and type of reminder: Proportion of responses
	in each wave agreeing to a re-interview

Note. When offered, the prize draw was offered in both wave 1 and wave 2. 2c = response rate up to cut-off for prize draw in wave 2 2t = response rate for the full duration of wave 2 $t = 1 + 2^2$ 

\* a,b  $?^2 = 2.7$  df = 1, n.s. at a = .05

One thing is very clear from the results in Table 4. If you want respondents to consent to a follow-up study, it is better to offer them an incentive if they complete the questionnaire, and it is better to include a questionnaire with the first reminder letter. There was an almost 40% higher level of agreement for a re-contact from the group

offered a prize draw and sent a replacement questionnaire, than those not offered a prize draw and not sent a replacement questionnaire (64% cf. 46% respectively).

#### **Cost-effectiveness**

The value of a fast return rate is that it reduces the number of reminders required, thereby reducing the cost of sending out reminders. However, the cost-effectiveness of the procedures used to achieve this fast response needs to be considered. The direct costs of mail-outs associated with the various treatments are shown in Table 5. In this survey, omitting a replacement questionnaire in the first reminder coupled with not offering an incentive not only produced one of the better response rates, but was also the most cost-effective approach, by far.

	Wave 1 out		Wave 2 out		Wa o	Wave 3 out		Total out		Valid resp	\$/
	n	\$	n	\$	n	\$	\$	n	\$	Ν	resp.
Prize draw + Questionnaire	250	338	190	257	132	178	100	572	873	89	9.80
Prize draw + Letter	250	338	186	84	137	185	100	573	707	97	7.29
Questionnaire only	250	338	199	269	142	192	0	591	799	86	9.29
Letter only	250	338	200	90	158	213	0	608	641	94	6.80

#### Table 5. Cost-effectiveness of each treatment

Note: Questionnaire postage = \$.90 Letter postage = \$.45 Cost of Questionnaires = \$.45

## Conclusions

The use of a prize draw produced a faster response to the first two waves (this is when the incentive was offered), but the overall response rate after two reminders was only slightly better than with no prize draw. Sending a first reminder letter without a questionnaire produced a slower response than when a replacement questionnaire was included, but by the end of the survey, this procedure had produced a slightly higher response rate.

If the objective is to generate the highest response rate in the most cost effective manner, and two reminders are planned, it would be best to send just a letter without a replacement questionnaire in the first reminder, and not use a prize draw, as the cost of the incentive is not compensated for by the speedier responses it provokes. However, if an objective is to also recruit participants for a follow-up survey, it would be better to offer an incentive, regardless of whether or not a replacement questionnaire is used in the first reminder.

Finally, it should be noted that the most important technique for improving response rates is to use at least two reminders.

### References

- Bednall DHB & Shaw M (2003). Changing response rates in Australian market research. Australian Journal of Market Research, 11 (1), April, 31-41.
- Brennan M (1990). The effect of researcher status on mail survey response rates. *Marketing Bulletin*, *1*, 50-52..
- Brennan M (1991). Survey participation and attitudes towards surveys in New Zealand. New Zealand Journal of Business, 13, 72-100.
- Brennan M (1992a). Threats to survey research: Excessive interviewing and 'sugging'. *Marketing Bulletin, 3*, 56-61.
- Brennan M (1992b). The effect of a monetary incentive on mail survey response rates: New data. *Journal of the Market Research Society*, April, *34*(2), 173-177.
- Brennan M (1992c). Techniques for improving mail survey response rates. *Marketing Bulletin, 3*, 24-37.
- Brennan M, Benson S & Kearns, Z (2005). The effect of introductions on telephone survey participation rates. *International Journal of Market Research*, 47, Quarter 1, in press.
- Brennan M, Hoek J & Astridge C (1991). The effects of monetary incentives on the response rate and cost-effectiveness of a mail survey. *Journal of the Market Research Society*, *33*, 229-241.
- Chiu I & Brennan M (1990). The effectiveness of some techniques for improving mail survey response rates: A meta-analysis. *Marketing Bulletin, 1*, 13-18.
- CMOR. The Council for Marketing and Opinion Research (2003). Respondent Cooperation and Industry Image Survey. Port Jefferson, New York. <u>http://www.cmor.org/resp\_coop\_studies.cfm</u>
- Day GS (1975). The threats to marketing research. *Journal of Marketing*, 12 (November), 462-467.
- de Leeuw E & de Heer W (2002). Trends in household survey nonresponse: A longitudinal and international comparison. In R Groves, DA Dillman, JL Eltinge & RJA Little (eds.), *Survey Nonresponse*. New York: Wiley.
- Dillman DA (1978). *Mail and Telephone Surveys: The Total Design Method*. New York: John Wiley & Sons.

- Dillman, DA (1991). The design and administration of mail surveys. *Annual Review* of Sociology, 17, 225-249.
- Dillman DA (2000). *Mail and Internet Surveys: The Tailored Design Method*. New York: John Wiley & Sons.
- Linsky AS (1975). Stimulating responses to mailed questionnaires: A Review. *Public Opinion Quarterly, 39,* 82-101.
- Scott J (1961). Research on mail surveys. *Journal of the Royal Statistical Society*, *124*, 143-205.
- Tan HS (1982). Effect of an incentive on response rates in a mail survey. *Unpublished student research report*, Department of Marketing, Massey University.
- Warriner K, Goyder J, Gertsen H, Hohner P &McSpurren K (1996). Charities, no; Lotteries, no; Cash, yes: Main effects and interactions in a Canadian incentives experiment. *Public opinion Quarterly*, 60, 542-562.

Mike Brennan is a Senior Lecturer in the Department of Marketing, Massey University