

# CLASSIFYING UNDECIDED RESPONDENTS: A COMPARISON OF DIFFERENT METHODS

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For some time, survey researchers have struggled with the problem of how best to treat respondents who claim not to have an opinion, or who cannot predict their behaviour in a given context. Although this is not a new problem, it has persisted and intensified over the last decade. Internationally, the proportion of undecided respondents has risen to constitute between 15% to 30% of pre-election polls; in addition, the pressure on pollsters to make accurate predictions has also increased. Many pollsters now find themselves in a Catch-22 situation: the problems of forecasting accurate predictions are now more profound, yet the implications of not providing reliable estimates are also more serious (see Jowell *et al*, 1993 for a full discussion of this predicament).

Researchers have addressed these difficulties in at least two ways. First, they have attempted to reduce the scale of the problem by implementing measures designed to decrease the proportion of undecided respondents. Recognising that questionnaires are much more than a random selection of questions in some arbitrary sequence, many researchers now include specific contextual questions which allow interviewers to develop a rapport with their respondents. Such questions also provide respondents with an opportunity to form and consolidate their views before predicting their behaviour (see Kalton *et al*, 1978; Labaw, 1980; Schuman & Presser, 1981; Sudman & Bradburn, 1982; Converse & Presser, 1986). Several researchers have noted that response distributions include a much higher proportion of undecided respondents when the key questions appear at the beginning of a questionnaire (see Sigelman, 1981; Strack, 1992). More recently, research we presented at last year's AAPOR Conference concluded that inclusion of contextual questions could result in reductions of up to 50% in the undecided group (Hoek, Gendall, Esslemont & Lewis, 1994).

While contextual questions may reduce the proportion of undecided responses, researchers need also to recognise that respondents find some questions threatening, and consequently may be reluctant to reveal their views. Although some respondents will directly refuse to answer such questions, others may

take refuge in indecision, a less overtly negative response which may preserve their standing as a compliant respondent. Numerous studies have documented the problem that potentially threatening questions, such as those eliciting self-reported voting behaviour, pose (see Parry & Crossley, 1950; Sudman & Bradburn, 1974; Bradburn & Sudman, 1979; Sudman & Bradburn, 1982; Kalton & Schuman, 1982). Although research has not yet established how best to counter this phenomenon, researchers have examined a number of possible solutions. While some have explored whether randomised response models offer a solution, others have noted the disadvantages associated with these (see Sudman & Bradburn, 1982; Presser, 1990). Secret ballots present another alternative and can be used to simulate actual voting behaviour. When administered in conjunction with contextual questions, secret ballots can reduce both social desirability bias (Sudman & Bradburn, 1982) and the proportion of undecideds (Hoek, Gendall, Esslemont & Lewis, 1994).

Survey techniques which elicit respondents' relative preferences rather than their absolute intentions have shown it is possible to completely eliminate undecideds. Our work with the Juster Scale, a behavioural probability scale which captures respondents' equivocation, thus offers another potential solution which we are currently testing further (see Hoek *et al*, 1994).

However, the administration of the Juster Scale and secret ballot or randomised response models typically requires face-to-face interviews, and the majority of political polling is now conducted by phone. Although early work exploring the Juster Scale's potential when administered by phone has produced some promising results, these are not yet generalisable (see Brennan, 1993). Thus, at least until the predictive ability of phone administered Juster questions is well established, pollsters need some way of classifying the undecided groups their surveys produce.

The second of the two approaches to dealing with undecideds aims not to prevent, but to ameliorate the problem they present. Instead of reducing the overall size of the undecided group, researchers allocate undecideds among the parties or candidates specified in

the question. In its simplest form, allocation involves excluding these respondents from any subsequent analysis and calculating levels of party or candidate choice from a new base which includes only those who did specify a preference. In effect, this procedure allocates undecideds proportionately. Whether acknowledged explicitly or not, this practice assumes that undecided respondents have the same overall probability of exercising their vote as those who did nominate a choice. Several researchers have questioned the validity of this assumption, as well as the overall logic of the procedure.

More recent research has attempted to go beyond this rather rudimentary practice, focussing on the development of allocation models to classify the undecided group (see Daves & Warden, 1993). Using known characteristics and demographic details, these models allocate undecided voters according to the extent to which they share traits exhibited by those who have nominated a candidate or party for whom they would vote.

In this paper we examine and assess the overall accuracy of four methods of allocation: demographic models; opinion and behaviour models; a combination of these models; and proportional allocation.

### **Research Methodology**

Prior to the 1993 New Zealand General Election, face-to-face interviews were conducted in each of three marginal electorates at two different time periods, making a total of six rounds of interviewing. The first three rounds of interviewing took place two months prior to the election and outside the actual campaign period; the final three rounds occurred during the campaign period about two to three weeks before the election. A total of 4040 interviews were successfully conducted, representing a response rate of 61.4%. Starting addresses were selected at random from the electoral roll and interviewers conducted a cluster of six interviews around each starting point. Sample sizes for each round varied from 600 to 780. Just over half (2292) of the respondents were re-contacted immediately after the election to ascertain their self-reported voting behaviour, and interviews were successfully completed with 86.5% of this sub-sample.

All questionnaires included contextual or sensitising questions, though the position within the questionnaire where they appeared varied. Thus, for all respondents, we had details of their interest in the election, their views on different issues regarded as key election platforms, their party identification and the strength of

this, their voting registration status, overall probability of voting, past voting behaviour, and reported likely voting behaviour.

## **Results**

### **New Zealand Electoral Environment**

The election period during which these measurements were taken represented a period of unprecedented volatility. Two major new parties, (the Alliance and New Zealand First), had formed as a result of rifts within, and subsequent defections from, the two major parties (Labour and National) and were contesting every electorate. Thus voters' choice had effectively doubled and, since this was the first time these new parties had sought election, little or no prior behavioural data were available. In addition, disgruntlement with the first-past-the-post electoral system which had always operated in New Zealand had resulted in a referendum to decide the structure of future electoral contests; this was held in conjunction with the General Election. In many ways, therefore, dramatic changes to New Zealand's electoral history were heralded in at the 1993 election, and the unstable environment within which our research took place increased the difficulty of obtaining accurate predictions.

To develop a discriminant classification model, we estimated several equations using respondents' self-reported voting behaviour as the dependent variable and demographic and the various contextual variables as independent predictor variables. The following sections outline the details of these analyses.

### **Demographic Models**

Since all polls collect some demographic data, but vary in their administration of other questions, we first examined the power of these variables to discriminate amongst the various groups. As we limited the number of demographic variables examined, exploring only respondents' age, gender and education, only these variables could be entered, and it is possible that the inclusion of other variables, such as income or occupation, could have improved the proportion correctly classified. However, since both income and occupation tend to be highly correlated with education, we surmised that our results would present a reasonable, if conservative, estimate of the extent to which demographic variables discriminated between the different groups. Table 1 contains the results of this analysis.

**Table 1 Allocation of Undecided Respondents on the Basis of Demographic Variables**

Actual Group	Predicted Group			
	Alliance %	Labour %	National %	NZ First %
Alliance (n=29)	24.1	27.6	20.7	27.6
Labour (n=51)	9.8	31.4	29.4	29.4
National (n=37)	18.9	35.1	32.4	13.5
NZ First (n=6)	23.3	20.0	36.7	20.0

N = 123

Proportion of cases correctly allocated 31.7%

As Table 1 shows, these variables did not classify undecided respondents especially well, (nearly one third were correctly allocated), and the vast majority of cases were in fact mis-classified.

In political polling, researchers are concerned less with whether individuals act as they say they will, and more with whether the aggregate results prove reliable predictors. To assess this issue, we examined the mean absolute error associated with each classification. As the results in Tables 2 show, this was very high.

**Table 2 Absolute Error of Demographic Model Predictions**

Party	Actual Voting	Predicted Voting	Absolute Error
Alliance	23.6	15.4	8.2
Labour	41.5	30.1	11.4
National	30.0	28.5	1.5
NZ First	4.9	26.0	21.1
<b>Mean Absolute Error</b>			<b>10.6</b>

Accordingly, we turned next to explore whether variables more closely related to political topics would improve the accuracy of our model.

### Opinion and Behavioural Models

The variables explored as part of the contextual questions included in all questionnaires gave us information on respondents' policy preferences, past behaviour and party identification. It seemed logical to examine whether a model based on these variables would prove more accurate than the demographics based classifications outlined above. However, despite the

more intuitive logic of these variables, the equation which achieved the highest proportion of correctly classified cases was no better than that based solely on demographic variables (see Table 3).

**Table 3 Allocation of Undecided Respondents on the Basis of Opinion and Behavioural Variables**

Actual Group	Predicted Group			
	Alliance %	Labour %	National %	NZ First %
Alliance (n=29)	34.5	27.6	13.8	24.1
Labour (n=51)	27.5	49.0	15.7	7.8
National (n=37)	16.2	18.9	18.9	45.9
NZ First (n=6)	33.3	16.7	16.7	33.3

N = 123

Proportion of cases correctly allocated 31.7%

Inaccuracies existed across all groups, but were particularly evident within the National Party. As the government, it could be expected that the results would contain a proportion of "protest" sentiment, and it is also logical that this sentiment would be associated with the NZ First party, which evolved after splitting away from the National Party.

As the proportions correctly classified suggest, the error appears to be consistent with an "anti-incumbent" sentiment; however, interpretations like this are easier to establish retrospectively than they are to formulate predictively.

**Table 4 Absolute Error of Opinion and Behavioural Model Predictions**

Party	Actual Voting	Predicted Voting	Absolute Error
	%	%	%
Alliance	23.6	26.0	2.4
Labour	41.5	33.3	8.2
National	30.0	16.3	13.7
NZ First	4.9	24.4	19.5
<b>Mean Absolute Error</b>			<b>10.9</b>

Given that this allocation was no better than that achieved by the demographic variables, we next examined whether a model combining demographic data, political opinions, and past voting behaviour would

be more accurate (see Table 5).

**Table 5 Allocation of Undecided Respondents on the Basis of Demographic, Opinion and Behavioural Variables**

Predicted Group				
Actual Group	Alliance %	Labour %	National %	NZ First %
Alliance (n=29)	24.1	20.7	27.6	27.6
Labour (n=51)	15.7	47.1	19.6	17.6
National (n=37)	16.2	16.2	45.9	21.6
NZ First (n=6)	0.0	33.3	0.0	66.7

N = 123

Proportion of cases correctly allocated 42.3%

Although the proportion of cases correctly allocated was still not higher than 50%, these results suggest that a major proportion of this error comes from the over allocation of support for the NZ First Party (see Table 6). Given the very small cell size (n=6), it is difficult to comment on this problem in detail. However, further analyses which included only the three more substantial parties showed a much higher level of accuracy (well over 50% of undecided cases correctly allocated) and a correspondingly lower absolute error.

**Table 6 Absolute Error of Demographic Opinion & Behavioural Model Predictions**

Party	Actual Voting	Predicted Voting	Absolute Error
Alliance	23.6	17.1	6.5
Labour	41.5	30.9	10.6
National	30.0	28.6	1.5
NZ First	4.9	23.5	18.6
<b>Mean Absolute Error</b>			<b>9.3</b>

Since the use of discriminant classification models represents a departure from the simpler and more widely used method of proportional allocation, the next logical step was to assess whether the models developed provided more accurate allocations of undecideds than did the proportional allocation method. Table 7 sets out the results of this comparison.

**Table 7 Comparison of Methods of Allocating Undecided Respondents**

Allocation Method	Proportion Correctly Classified	Mean Absolute Error
Demographics	32	10.6
Opinion & behaviour	36	10.9
Demographics, opinion & behaviour	42	9.3
Proportional	--	2.3

According to this comparison, proportional allocation resulted in the lowest absolute error while allocation based on opinion and behaviour variables resulted in the highest. Overall, none of the three discriminant models was as accurate as proportionally allocating the undecideds.

So what are the implications of these findings for pollsters? The first is that allocation of undecided voters to parties or candidates using discriminant models based on the demographics and opinions of this groups does not appear to result in any more accurate predictions than simply allocating them in the same proportions as those who have decided. In fact, these results suggest such models are actually less accurate than proportional allocation.

However, because of the volatile nature of the 1993 NZ General Election, and the fact that these were two new parties, and hence no past voting behaviour data with respect to these was available, we cannot say that allocation models which were able to include past voting behaviour would not prove more accurate than proportional allocation.

But, since it seems so difficult to develop models which successfully allocate undecided respondents, the obvious implication is that pollsters should direct their efforts at reducing the size of this group. If the size of the undecided group is small enough, the choice of allocation procedure will be largely academic.

As we have discussed previously, there are methods which will reduce the number of undecideds in opinion polls. Unfortunately, some of these are either not amenable to telephone surveys, or have not had their validity confirmed in telephone surveys. Nevertheless, we know that the proportion of undecideds can be reduced by the inclusion of appropriate contextual questions before the actual voting intention question.

We are also continuing our work with the Juster Scale to see if this method, which eliminates the undecided group entirely, can be successfully adapted to telephone interviewing.

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