

**THE COMMUNITY HOPES, FEARS AND  
ACTIONS SURVEY: SURVEY METHOD,  
SAMPLE REPRESENTATIVENESS  
AND DATA QUALITY**

*Malcolm Mearns and Valerie Braithwaite*



The Australian National University  
Australian Taxation Office  
Centre for Tax System Integrity



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*Series Editor:*  
Tina Murphy

## **Abstract**

This paper describes and discusses the method used to collect data on the hopes, fears and actions of Australians in relation to the tax system in 2000. Data were collected from June through to October 2000 by means of a national survey of Australians who were randomly selected from the publicly available electoral rolls. A response rate of 29% yielded 2040 questionnaires that could be used for further analysis. Diagnostic statistics comparing the sample with Australian Bureau of Statistics population estimates on age, sex, occupation and education suggested that the sample was broadly representative of the population, but with some bias in favour of those involved in occupations in which reading and writing skills are integral. The survey also under-represented younger age groups, a bias that is shared with many other social surveys of this kind. A number of regression models were run to find out if responses were affected by anonymity, time taken to respond to the survey and the introduction of the goods and services tax (GST) during the survey period. No evidence was forthcoming to suggest a direct relationship between any of these variables and tax-related attitudes and behaviours. We conclude that these data provide a satisfactory base for examining the relationships outlined and discussed in the Centre for Tax System Integrity Working Papers No. 2 and No. 3 (Braithwaite, 2001; Braithwaite, Reinhart, Mearns & Graham, 2001).

# **The Community Hopes, Fears and Actions Survey: Survey method, sample representativeness and data quality**

*Malcolm Mearns<sup>1</sup> and Valerie Braithwaite<sup>2</sup>*

## **Introduction**

The Community Hopes, Fears and Actions Survey (CHFA Survey) is a national survey conducted by the Centre for Tax System Integrity to assess the attitudes and beliefs of Australians towards paying tax. To our knowledge, it is the first comprehensive national survey of its type. This paper sets out to describe the method of data collection and to evaluate the adequacy of the database for researchers interested in explaining the relationships between tax-related attitudes and behaviour variables. Specifically, this paper will discuss the method of sampling, follow-up processes, response rates, sample representativeness, data processing, missing data, and possible confounding factors which one might have expected to affect the quality of the data.

## **Overview of the survey**

The CHFA Survey was conducted by Datacol Research Pty Ltd on behalf of the Centre for Tax System Integrity in the latter half of 2000. The timing of the survey coincided with the introduction of the goods and services tax (GST), offering the chance to measure the immediate impact on public attitudes to taxation matters. A sample of some 7754 Australian voters was sent a 40-page self-completion questionnaire containing approximately 450 questions. The sample was designed in the light of contemporary response rates to yield a response of at least 2000 cases to allow for the intended multivariate analysis and modelling. The questionnaire consisted of a number of psychometric scales measuring attributes of interest such as trust, procedural justice, distributive justice and social values. It also included a wide range of questions measuring interaction between the tax system and a selection of demographic and background variables of both the individual and a spouse, if present.

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<sup>1</sup> Datacol Research Pty. Ltd

<sup>2</sup> Centre for Tax System Integrity

The Centre for Tax System Integrity Working Paper No. 2 provides details of the measures incorporated in the survey (Braithwaite, 2001). The survey was posted to home addresses during June 2000 and non-respondents were followed up using a number of subsequent mailings between July and October 2000. Return was also by post using a reply-paid envelope. No incentives for completion were offered. A response rate of 29% was achieved after adjusting for out-of-scope responses.

### **Sampling method**

The existence of compulsory voting in Australia offers a convenient sampling frame for conducting surveys of the adult population. The *Commonwealth Electoral Act 1918* specifies that rolls of electors will be kept and that they be available for public inspection.

Until February 2000, these rolls could also be purchased by the public in microfiche form. At the time of writing, the microfiche form is not available, pending a review by the Electoral Commissioner of access to rolls. Printed rolls, however, can still be purchased and microfiches are available for public inspection at electoral offices.

The rolls available to the public contain the full name and address of electors, and their electorate, but do not contain any other information such as age, sex or occupation which is sought at the time of enrolment. The last microfiche available to the public was produced on 11 February 2000 and was used as the sampling frame for this research.

In February 2000 there were some 12.5 million enrolled voters on Australian rolls. The distribution of electors by state and territory is shown in Table 1. The number of electors in Australia has increased by 6.5% during the last five years (1996 to 2001). This increase has occurred across all states except Tasmania and both territories. The relative contribution each state or territory makes to the total has remained essentially static in the last five years.

A sample of 7754 electors was drawn using probability proportional to size sampling within each state and territory, but with an over-sample of both the Northern Territory

and Tasmania. To generate the random sample within each state and territory, the total enrolled electors were counted, allocated a unique number derived from their position on the microfiche, and then randomly sampled using the Australia-wide sampling fraction of 1/1662 (1/410 for the Northern Territory and 1/1306 for Tasmania). Each selected position was then found on the microfiche and the name and address were entered into the survey management database.

**Table 1: State electoral distribution over time and sample**

<b>State / Territory</b>	<b>Enrolled Feb 2000</b>	<b>Enrolled Feb 1996</b>	<b>Enrolled Feb 2001</b>	<b>Sampled</b>
NSW	4 175 280	3 925 466	4 131 784	2510
Vic	3 179 298	2 953 912	3 162 387	1913
Qld	2 251 567	2 082 402	2 274 462	1354
SA	1 026 087	992 822	1 022 636	617
WA	1 183 658	1 077 041	1 190 237	711
Tas	329 287	325 600	321 539	252
NT	110 226	97 697	106 217	269
ACT	214 079	200 676	212 616	128
<b>Total</b>	<b>12 469 482</b>	<b>11 655 616</b>	<b>12 421 878</b>	<b>7754</b>

The electoral rolls contain all persons who are Australian citizens as well as persons without Australian citizenship but who were British subjects before 1984. The rolls exclude foreign citizens, prisoners serving terms of over five years, persons convicted of treason, Australians living permanently overseas, and persons of unsound mind. In 1996 the difference between the census estimate of persons aged 18 years or over, with overseas visitors removed, and the number of persons enrolled to vote was 1,508,000, or 13% of the census count. Most of the persons living in Australia not available to a sample drawn from the electoral rolls fall into the class of foreign citizens. Evans (1998) found that persons from English-speaking countries such as the United Kingdom, United States, Canada and New Zealand tend to be slow to take up Australian citizenship, while those from non-English-speaking countries tend to take up their citizenship rights early. This suggests that the non-coverage effect of using the electoral rolls tends to be limited to persons from English-speaking backgrounds. Given the migration statistics, such people will be from predominantly western democracies with tax systems similar to that of Australia.



## **Distribution and follow-up of non-response**

The survey process is modelled on the Dillman Total Design Method (Dillman, 1978) which has been the model for many major academic mail surveys conducted in Australia in recent times. These include the International Social Science Survey 1985 to 2001 (Bean, Gow & McAllister, 1998; Jones, McAllister, Denmark & Gow, 1993) and the Australian Election Study, 1987, 1993, 1996, 1998 (Kelley & Evans, 1998). The method provides for an attractive survey booklet with clear question layout, and for multiple mailings following up non-respondents over a period of time.

The initial package was posted to each person in the sample on 7 June 2000 and comprised a covering letter, the questionnaire and a reply-paid envelope. The covering letter explained the intent of the study, identified The Australian National University (ANU) as the sponsoring organisation, guaranteed respondent confidentiality, and referred potential respondents to a 1800 freecall number should they have any questions. To prevent respondents from declaring they had missed the cut-off and to prevent them not responding in general, no return date was nominated for the questionnaire. Each questionnaire contained an identification number to allow selective follow-up of non-respondents.

Following an interval of 19 days from the initial mail-out, the 6765 non-respondents were identified from the management database and were sent a reminder card encouraging them to have their say and to respond as soon as possible. A further 12 days on, a second reminder card was posted to the remaining 6060 non-respondents.

A second questionnaire was posted to the 5303 non-respondents following an interval of 35 days. Again, this mailing package comprised a covering letter, an identified copy of the questionnaire and a reply-paid envelope.

At this time a randomised trial was conducted to evaluate the effect of including with the mailing package a brochure covering frequently asked questions (FAQs) and to test the effect of variations in the wording of the covering letter. Three conditions were tested: letter version one; letter version one and FAQ sheet; and letter version two and FAQ sheet. The response rates of the three groups were compared at the

completion of the survey and were found to be 9.9%, 10.5% and 9.1% respectively. These responses suggest that there was no difference between the mailing treatment trials,  $\chi^2(2) = 0.0947$ ,  $p > 0.05$ .

After a further 24 days, another reminder card was sent to non-respondents and they were followed up again by a final reminder card eight days later. By the end of December 2000, a total of 2040 useable responses had been received. Throughout the survey administration period, respondents who had lost or misplaced their questionnaire and telephoned the 1800 freecall number were sent another questionnaire.

### **Response rates**

There is little doubt that response rates to surveys in Australia have been falling in the last decade. A study by Bednall, Cavenett and Shaw (2000) suggests that response rates may have fallen by up to 3% per annum from 1980 to the present. A number of reasons have been advanced such as the increased number of surveys being presented to the public, the increased use of surveys as selling tools by marketers, the increased pace of modern life, or a diminishing level of public spiritedness.

An interesting observation about response rates can be gleaned from the change in response rates obtained by the Australian Election Study in the five years between 1993 and 1998. In 1993, a 28-page questionnaire containing 293 variables was sent to 3502 electors, using a sample generated by the Australian Electoral Commission. After three mailings, the response rate, unadjusted for out-of-scope sample points, was 61%. In 1998, using a similar 28-page questionnaire containing 357 variables, the unadjusted response rate had fallen to 54% after four mailings.

Response rate is typically related to the size of the questionnaire and to the mode of delivery. For complex studies where a large number of variables are required for analysis, postal distribution and return still enjoy significant price advantages over face-to-face or telephone administration. While postal self-completion surveys suffer from lower response rates than the other methods, this matters only if non-response is

systematically related to the subject of enquiry. We will show later that the responses to this survey are generally representative of the Australian population.

After six mailings, the 40-page CHFA Survey, containing 476 variables, achieved an unadjusted response rate of 26%. When adjusted for persons who had moved or who were deceased, the response rate is 29%.

The use of the February 2000 electoral roll in June 2000 leads to there being more out-of-date addresses than there would be with a more up-to-date electoral roll. With the passage of time since a federal or state election, the accuracy of the roll diminishes, voters being most assiduous about enrolling and updating addresses around election time. Out-of-date addresses result in more return-to-sender replies and in more non-contacts in cases where current dwelling occupants forget or decline to return mail addressed to previous residents. The number of responses classified by type is shown in Table 2.

**Table 2: Number and percentage of responses to the CHFA Survey, classified by type**

<b>Class of response</b>	<b>Number</b>	<b>Unadjusted percentage</b>	<b>Percentage in scope</b>
Drawn sample	7754	100.0	
Out-of-scope (return to sender, deceased, incapable)	751	9.7	
In-scope	7003	90.3	100.0
Explicit refusals	336	4.3	4.8
Completed survey	2040	26.3	29.1

The number of explicit refusals is increased by the number of mailings performed and by the use of a 1800 number, which makes refusal easier and more immediate for the respondent than having to return an article by mail. Reasons cited over the telephone for refusing to participate were mainly of the nature 'Not interested' and 'Don't have the time', with a lesser number suggesting the nature of the questions was 'Too personal'. While very few respondents actually said they did not trust the survey process to be independent and impartial, the possibility that some thought participation could land them in trouble with the Australian Taxation Office (Tax

Office) cannot be discounted for at least some of the non-respondents. Survey staff monitoring the 1800 freecall line received occasional suggestions of this type.

### Sample representativeness

One way of judging how representative a survey is of the population is to compare the composition of the responding sample with population data. The Australian Bureau of Statistics was commissioned to provide a set of tables from the 1996 Census of Population and Housing, counting only those persons aged 18 years and over, from which comparisons could be made with the CHFA Survey. The Australian Bureau of Statistics tables count some persons who are outside the scope of the survey, such as persons not registered to vote. However, the effect of this on the distributions of parameters of interest such as age, sex, education, occupation and so on is judged to be trivial.

**Table 3: Distribution of males and females in the CHFA Survey and the Census**

Sample group	Sample proportion	Census proportion	Significantly different <sup>1</sup>	Difference
Male	46.9	48.9	No	2.0
Female	53.1	51.1	No	-2.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>		

1. Yes if Chi square (df = 1) > 3.841, p<0.05

The sample does not differ significantly from the distribution of males and females in the Australian population (see Table 3).

**Table 4: Distribution of age groups in the CHFA Survey and the Census**

Sample group	Sample proportion	Census proportion	Significantly different <sup>1</sup>	Difference
18-24	6.4	13.8	Yes	7.4
25-29	5.5	10.3	Yes	4.8
30-34	8.0	10.6	Yes	2.6
35-39	11.0	10.7	No	-0.3
40-44	11.8	10.0	Yes	-1.8
45-49	11.0	9.5	Yes	-1.5
50-54	12.0	7.5	Yes	-4.5
55-59	9.7	6.1	Yes	-3.6

60–64	7.3	5.2	Yes	–2.1
Over 65	17.4	16.3	No	–1.1
<b>Total</b>	<b>100.1</b>	<b>100.0</b>		

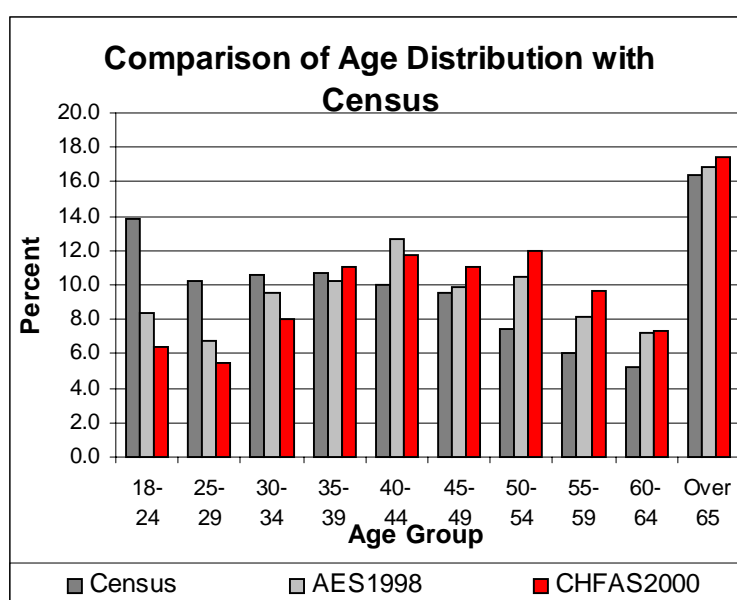
1. Yes if Chi square (df = 1) > 3.841, p<0.05

The sample tends to under-represent people younger than 35 years of age and over-represents those between 40 and 65 years (see Table 4). Those in the middle 35 to 40 year age group and those over 65 years are correctly represented. 18–24 year olds, notoriously difficult to get in any survey procedure, are under-counted in the CHFA Survey (6.4% versus 13.8% in the Census). These trends are typical of survey procedures, similar distributions having been found in the Australian Election Study in 1998.

**Figure 1: Comparison of age distribution in the CHFA Survey with the Australian Election Survey and the Census**

**Table 5: State distribution in the CHFA Survey and the Census**

Sample group	Sample proportion	Roll proportion	Significantly different <sup>1</sup>	Difference
NSW	31.5	33.5	No	2.0
Vic	25.7	25.5	No	–0.2
Qld	18.1	18.1	No	0.0



SA	9.2	8.2	No	–1.0
WA	9.1	9.5	No	0.4
Tas	2.8	2.6	No	–0.2
NT	2.4	0.9	Yes	–1.5

ACT	1.3	1.7	No	0.4
<b>Total</b>	<b>100.1</b>	<b>100.0</b>		

1. Yes if Chi square (df = 1) > 3.841, p<0.05

The sample does not differ significantly from the expected state distribution, with the exception that the Northern Territory response rate is a little lower than the rest of Australia. The over-sampling of the Northern Territory was designed to offset this problem.

**Table 6: Distribution of occupational category in the CHFA Survey and the Census**

Sample group	Sample proportion	Census proportion	Significantly different <sup>1</sup>	Difference
Managers & administrators	11.8	9.8	Yes	-2.0
Professionals	23.1	18.1	Yes	-5.0
Associate professionals	13.1	11.8	No	-1.3
Tradespeople & related workers	9.4	13.5	Yes	4.1
Advanced clerical & service workers	4.4	4.5	No	0.1
Intermediate clerical, sales & services workers	17.7	16.7	No	-1.0
Intermediate production & transport workers	7.8	8.9	No	1.1
Elementary clerical, sales & service workers	6.9	8.0	No	1.1
Labourers and related workers	6.0	8.6	Yes	2.6
<b>Total</b>	<b>100.2</b>	<b>100.0</b>		

1. Yes if Chi square (df = 1) > 3.841, p<0.05

Consideration of the distribution of occupations in the sample shows that there is a slight over-representation of managers and administrators and a larger over-representation of professional occupations (see Table 6). The sample under-represents tradespeople and labourers. Clerical, sales and service workers across the range of levels from elementary to advanced are all correctly represented. These results suggest that the mail survey method tends to be favoured by those occupations in which writing is an integral part. Similar results have been found in other mail surveys.

**Table 7: Distribution of educational level in the CHFA Survey and the Census**

Sample group	Sample proportion	Census proportion	Significantly different <sup>1</sup>	Difference
No post-secondary education	51.6	56.7	Yes	5.1
Post-secondary education	48.4	43.3	Yes	-5.1

<b>Total</b>	<b>100.0</b>	<b>100.0</b>
1. Yes if Chi square (df = 1) > 3.841, p<0.05		

The proportion of people in the Australian population who have completed some form of post-secondary education is 43.3% (see Table 7). The sample has yielded a small over-representation of this group at 48%. This is again consistent with findings from other similar surveys, for example, the Australian Election Study 1998 yielded a sample of 62% post-secondary educated people (the 1993 result was 53%). The International Social Science Survey, a large general social survey of the Australian population, yielded 53% of post-secondary educated people in 1996. This result, combined with the observations about occupations, lends weight to the hypothesis of response bias in mail surveys towards the educated and those in occupations involving writing (Moser & Kalton, 1971, p. 268).

The departures from the Census distributions are small in all cases examined, with under an 8% absolute difference. The primary purpose of a study such as this and other similar surveys is to acquire sufficient data to conduct the multivariate analyses necessary to understand the structure of the system. To this end, minor variations from population distributions do little harm. Where population estimates are desired, normal post-stratification weighting techniques can be employed to adjust for over- and under-representations of groups. Use of such weighting techniques will be particularly useful where population estimates are required for variables where age, with a skew to the older person, is found to be a determinant of attitude or behaviour.

### **Data processing and coding**

Returned questionnaires were examined for completeness and a small number of questionnaires that were less than half-completed were put aside. Questionnaires more than half-completed were sent for data entry. The missing data are examined in the next section of this paper. Data entry was done manually by data processing operators at Datacol Research Pty Ltd using a special data entry template in their proprietary data entry system. The data entry template was set up so that each computer entry screen mimics the position and layout of each page in the questionnaire. Each variable range was checked on entry. The data set was single-punched.

There are a number of questions in the questionnaire where the respondent is asked for a written answer. To permit the use of these data in quantitative analyses, a coding process is undertaken whereby like answers are grouped together and given a numeric category. To permit ease of comparison with published statistics, standard coding frames developed by the Australian Bureau of Statistics were used where possible.

Examples are:

- Own occupation this year – Australian Standard Classification of Occupations 2<sup>nd</sup> edition
- Own occupation last year – Australian Standard Classification of Occupations 2<sup>nd</sup> edition
- Spouse occupation this year – Australian Standard Classification of Occupations 2<sup>nd</sup> edition
- Cash wages paid – Australian Standard Classification of Occupations 2<sup>nd</sup> edition
- Cash wages received – Australian Standard Classification of Occupations 2<sup>nd</sup> edition
- Country of birth – Standard Australian Classification of Countries.

Respondents were invited to describe the ‘sort of people who you think of as being in the same boat as you in paying tax’. The answers to this question were classified according to an ‘identity’ typology specially developed for this question by Michael Wenzel and Natalie Taylor from the Centre for Tax System Integrity. The typology contains 17 different dimensions which respondents could use to describe their taxpayer identity (e.g., economic status, educational level, employment type, family status, recipient of government payments); and each dimension comprises a varying number of categories (e.g., economic status: disadvantaged, middle income, advantaged; employment: unemployed, employed, self-employed). These data have been included in the data set.

The last page of the questionnaire contained space for respondents to write in any comments. These comments were reviewed and analysed by Natalie Taylor from the Centre for Tax System Integrity. This analysis is reported elsewhere. No categorisation of these comments exists in the data set.



Following data entry and coding, the data were examined closely to ensure there were no out-of-range values and that all variables and values were labelled.

Apart from these measures, the data were compiled with no further intervention. The adopted strategy in the data processing phase was to present an electronic facsimile of the returned data. It is left to the analyst to determine the treatment of missing values and of unanswered questions, and the internal consistency of respondents' answers.

### **Item non-response**

Item non-response or missing data in this survey has been quite low. For example, the missing data on the age and sex variables was 1% on each. On comparable surveys such as the Australian Election Survey, 6.8% and 1.6% were missing on age and sex. Typically, percent missing on the attitudinal variables throughout the questionnaire have been between 1% and 10%, with the vast majority being under 5%.

The amount of missing data was higher in the tax behaviour questions, as would be expected. Furthermore, it is of note that 18% of the sample did not submit a tax return for 1998–99, so they could not answer a subset of the tax behaviour questions asked in relation to the 1998–99 return. In general, however, the item non-response for this survey has been lower than normal.

### **Possible confounding factors**

In conducting this survey, two methodological issues weighed heavily in our deliberations. The first was the concern that unique identifier (ID) stickers used for follow-up mail-outs would discourage participation or cause respondents to falsify answers. We were therefore interested in finding out if those who removed their ID sticker differed from those who did not in the way they responded to the questionnaire. The second issue of concern was the effect of the introduction of the GST on responses. We wanted to know if the date of introduction of the GST systematically affected the responses of the sample. Finally, we looked at the effect of

time to return the questionnaire and whether respondents who needed several reminders differed from those who did not.

### *Unique identifier*

The follow-up of non-respondents after the first mailing was accomplished using the ID attached to each survey booklet, which was in turn linked to the sample name. While normal survey practice at the ANU guarantees that name and individual response are never matched, that names are never available to analysts and that all records are stored securely, this may or may not be understood by respondents.

As each booklet was returned, the name was marked off and no further mailing was made to that sample point. At the time of the next mailing any sample point not marked off was sent another survey reminder. The unique identifier was doubtless seen by some persons as providing a link to them which they would rather not have. Such respondents could respond to their concerns in one of a number of ways. Respondents could recognise the potential to link them to their responses, decide that the academic nature of the research and the guarantee of confidentiality affords sufficient protection of their interests, and complete and return the survey. Respondents could remove the ID labels and complete and return the survey, presumably wishing to guarantee their complete anonymity. Other potential respondents could evaluate the situation and decide not to return the questionnaire at all, either for reasons of confidentiality or for unrelated reasons such as disinterest, or lack of time.

It is evident from general survey practice and from discussion with the 1800 freecall operators on this survey that such computations of personal risk and confidentiality were not made by all respondents by any means. Many respondents did not see the survey process as presenting any sort of personal threat to them. Others were willing to answer any questions asked of them to the best of their ability once convinced of the bona fide nature of the research.

The 96 respondents who completed and returned their questionnaires after removing their ID stickers present an interesting opportunity to examine whether or not they

vary systematically from the respondents who did not remove their ID stickers. We will call these two groups 'removers' and 'leavers' respectively.

Are removers different in their taxation attitudes and habits from leavers? We have used multiple linear regression modelling as a means of examining whether removers and leavers have different attitudes and behaviours. We have examined whether knowledge of their remover/leaver status can predict their answers to a selection of important questions in the survey. These questions have been combined into four multi-item scales: (a) respect for taxpayers, (b) individual belief in paying tax, (c) enjoyment in strategic tax thinking, and (d) disinterest in Tax Office stance. Two single-item outcome measures were also used: (e) satisfaction with government spending of taxpayers' money, and (f) declaring of cash income. A seventh outcome variable predicted from remover/leaver status was how many mailings were received before the questionnaire was returned completed. A concern that might be expressed is that respondents who are concerned enough to tear off the ID may be the most reluctant to participate, and may not have returned the questionnaire unless they had received a reminder card.

So that the net effects of being a remover or a leaver can be measured through regression analysis, we need to control for the effects of other variables also likely to have an impact on attitudes. We have controlled for a number of standard demographic variables: sex, age, years of education, political affiliation, work status and marital status. We have also controlled for two variables in the questionnaire that suggest respondents may want to keep clear of the Tax Office: ever having been 'fined or penalised in some way by the Tax Office' and 'How often do you agree with decisions made by the Tax Office'. In addition, reluctance to respond was included as a predictor in the first six regression analyses in the form of the number of mail-outs that had been sent before the respondent returned the completed questionnaire. In the seventh regression, the number of mail-outs was used as an outcome measure of reluctance, with remover/leaver status as the primary predictor. The regression models can be found in the Technical Appendix.

After controlling for the effects of these other variables, we found no differences between the removers and the leavers on any of the seven variables examined. These

results indicate that knowing of a respondent's desire for total anonymity confers no further information about their views or behaviours. Further, it suggests that the desire for total anonymity is probably unrelated to the substantive topics contained in this survey.

**Table 8: Multiple regression results using knowledge of remover/leaver status to predict a number of key concepts in the CHFA Survey**

Attitudinal and behavioural outcomes	Difference between removers and leavers	Regression coefficient (metric coefficient)	Standard error of regression coefficient	Standardised regression coefficient	T value
Tax Office respect for taxpayers	No	-0.051	0.078	-0.014	-0.651
Individual belief in paying tax	No	-0.062	0.062	-0.022	-0.986
Enjoyment in strategic tax thinking	No	-0.040	0.075	-0.013	-0.53
Disinterest in Tax Office stance	No	-0.006	0.060	-0.002	-0.102
Satisfaction with government spending of tax payers' money	No	-0.091	0.110	-0.019	-0.821
Amount of your cash income you declared on your 1998–99 income tax return	No	-0.020	0.503	-0.001	-0.04
Number of mailings before returning the survey <sup>3</sup>	No	-0.237	0.172	-0.033	-1.378

### *Effect of introduction of the GST*

On 1 July 2000 a new tax system was introduced. GST of 10% is applied to most transactions at both wholesale and retail levels with only a few exceptions, mainly common foodstuffs. The tax is collected by businesses engaged in trading such goods that attract GST and they remit the collected tax periodically. The introduction of the GST was accompanied by a reduction in the marginal rates of personal income tax and a reduction in the company tax rate. A number of taxes such as wholesale sales tax were abolished at the same time. It was widely known that a GST was to be introduced for two years before its introduction.

<sup>3</sup> As well as being an outcome variable, 'number of mailings before returning the survey' was also used in the above regression analysis as a control variable.

To allow for the quantification of the effects the GST may have on attitude, we included in our regression models (already described) a dummy variable which separates the survey respondents into two groups: those who responded before the GST was introduced and those who responded after the GST was introduced.

It seems plausible that public attitudes towards the tax system have changed with the advent of the new system. How fast they would change and when they would change is unknown. The questions in the questionnaire mainly relate to historical behaviour and to attitudes and opinions that must have been formed historically.

**Table 9: Multiple regression results examining the differences between pre- and post- GST returns on a number of key concepts in the CHFA Survey**

Attitudinal and behavioural outcomes	Difference between pre- and post-GST returns	Regression coefficient (metric coefficient)	Standard error of regression coefficient	Standardised regression coefficient	T value
Tax Office respect for taxpayers	Yes	-0.127	0.052	-0.082	-2.431*
Individual belief in paying tax	No	-0.010	0.042	-0.008	-0.234
Enjoyment in strategic tax thinking	No	0.011	0.050	0.008	0.216
Disinterest in Tax Office stance	No	-0.001	0.041	-0.001	-0.03
Satisfaction with government spending of taxpayers' money	Yes	-0.164	0.075	-0.079	-2.196*
Amount of your cash income you declared on your 1998-99 income tax return	No	-0.256	0.335	-0.033	-0.763

\*p<0.05

The regression model results show differences between pre- and post-GST respondents in two of the six variables examined.

In the case of the Tax Office respect for taxpayers scale, pre-GST respondents scored the Tax Office on average slightly lower (0.13 out of 5) than post-GST respondents. By ordinary standards, however, the effect is small and leads to no strong conclusion.

In the case of the satisfaction with government spending scale, pre-GST respondents scored their satisfaction, net of other influences, slightly lower than post-GST respondents by 0.16 points on a five-point scale.

A confounding issue is that the introduction of the GST coincided with the first reminder card. Although we have controlled for which mail-out preceded the return of a questionnaire, there remains the possibility that the effect of number of mailings is not linear. Further analysis of response timing to other similar surveys without the GST introduction would shed further light on the matter. There appears to be no compelling explanation for the small effects found. We conclude that the introduction

of the GST had no obvious or significant effect on the attitude and opinions measured in the survey.

### ***Response time***

The question of whether early responders to surveys are different from late responders is an interesting methodological question. Late responders, who require increased follow-up to obtain a response, are certainly more expensive than early responders. Is the extra effort in chasing non-response worthwhile? If certain types of respondents respond early and different types late, then the sample composition will be affected by how much follow-up is done. The argument has also been made on occasions that late responders are more like refusals than are early responders. If one less mail-out had been conducted, then the proportion that did respond with the extra prodding would have been refusals. Further knowledge of response patterns will lead to a better understanding of whether response rate is related to the subject of enquiry and, ultimately, to questions of the representativeness of the sample.

To explore this question we have used response date to make a variable indicating how many rounds of mail a respondent had received before they replied. Again we have used regression modelling to predict how many mail-outs are necessary to get a response using a range of demographic and behaviour variables.

The significant predictors of response time are (a) years of education (Beta  $-0.13$ ), with more years predicting an earlier response, (b) working full time (Beta  $0.08$ ), with full time predicting a later response, and (c) satisfaction with how the government spends taxpayers' money (Beta  $0.08$ ), with satisfaction predicting a later response. The other demographic variables confer no predictive power and neither do the tax behaviour questions: previous penalties from the Tax Office; agreement with decisions of the Tax Office; or the amount of cash income declared on their latest tax return.

We conclude that the amount of effort needed to get responses from reluctant respondents is unrelated to the substantive areas of enquiry in the questionnaire.

## Conclusion

The purpose of this working paper has been to describe the CHFA Survey and to evaluate the adequacy of the sample and data set for testing the kinds of relationships described in the Centre for Tax System Integrity Working Papers No. 2 and No. 3 (Braithwaite, 2001; Braithwaite et al., 2001). The Australia-wide probability proportional to size sample yielded 2040 useable questionnaires, a response rate of 29%. This response rate is at the lower bounds of what we consider acceptable. The Australian response rate benchmark we have adopted is currently set by the Australian Election Survey at 50% to 60%. Various reasons have been offered for why this rate may be hard to achieve for any survey in Australia at this time. Added to this, tax researchers have claimed that tax surveys consistently produce lower response rates and it is more realistic to expect a rate around 30% to 40% (Wallschutzky, 1996). The argument made is that people do not like too many questions about tax. This may be correct. The Community Participation and Citizenship Survey (Job, 2000), a companion survey to the CHFA Survey, was conducted at the same time and yielded a response rate of 43%. Approximately 50 tax questions were asked in this companion survey, compared with over 350 questions on taxation in the CHFA Survey.

In spite of a response rate that lies on the low side, diagnostics of sample adequacy have failed to produce evidence of serious under- or over-representation of standard social and demographic indicators. Like many mail surveys, we slightly overestimate the educated, managers and professionals. Furthermore, our sample underestimates the young, in particular, we share the common survey fate of being unable to engage a satisfactory proportion of 18–24 year olds. None of these biases, however, are likely to interfere with our capacity to test hypotheses about the factors that shape compliance and compliance management by Australian citizens.

The tax focus of this survey raises concerns about our not being able to capture those in the population who have ‘shady’ tax histories or who are staying clear of the tax system. It would be extremely optimistic of us not to believe that some of this is happening. More importantly, however, is our finding that the major drivers of openness and readiness to return a completed questionnaire are not related to tax behaviour variables. As in most surveys, it seems that intrinsic interest in the survey



and available time are the primary considerations in understanding who has taken part and who has not.

Overall, the CHFA Survey provides a data set that comprehensively measures the taxpaying behaviour and attitudes of Australian citizens in 2000 at the time of introduction of tax reform. The sample on which the survey is based is broadly representative of the Australian population on basic social demographic variables. The sample of 2040 respondents provides a database that can provide a sound footing for future social research on taxpaying behaviour and preferences in this country.

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## **Technical Appendix**

Regression modelling of effects of removing ID sticker and returning completed questionnaire before the introduction of the GST.

### **The dependent variables**

When developing measures of human attitudes in the social sciences we are seeking to achieve both validity and reliability. Validity means that we are measuring what we set out to measure and reliability means that our measure will work again and again in the same way. In the physical sciences, when we wish to measure some quantity we take a number of measures of the same thing and average them. This has the effect of reducing the measurement error. Our goal in making the dependent variables for this analysis is to make multi-item measures of important concepts using questions to which the answers are highly correlated. This at one step reduces the amount of measurement error and produces scales with construct validity. Reliability cannot be established in one cross-sectional survey; at least two measures close together in time of the same subjects are required. This has not been done for this sample. We must wait for the second survey to establish reliability of these scales. However, scales made in this way are typically robust measures of attitude and are widely used in the social sciences.

The 61 items from Section 4 of the questionnaire, entitled ‘Your views on the Tax Office’ on pages 6 to 11 were factor analysed using the Factor Analysis Routine in SPSS (Maximum Likelihood extraction and Varimax rotation). The resulting 11-factor solution was examined and items with low correlations with their factor or with high cross-loadings between factors were discarded and the factor analysis re-run. Four factors were thus extracted which measure four salient dimensions of taxpayer attitude. These four dimensions are: (a) Tax Office respect for taxpayers; (b) individual belief in paying tax; (c) individual enjoyment of strategic tax thinking; and (d) individual disinterest in Tax Office stance. These four empirical dimensions incorporate a number of facets of scales that will be used in forthcoming working papers. These four dimensions are defined by the subsets of items listed in Table 1.

**Table 1: Definition of items used in the factor analysis**

**Factor 1 – Tax Office respect for taxpayers comprises items:**

- 38. – The Tax Office considers the concerns of average citizens when making decisions.
- 24. – The Tax Office is concerned about protecting the average citizen's rights
- 53. – The Tax Office tries to be fair when making their decisions
- 40. – The Tax Office cares about the position of taxpayers

**Factor 2 – Individual belief in paying tax comprises the following items:**

- 42. – Paying tax is the right thing to do
- 52. – Paying tax is a responsibility that should be willingly accepted by all Australians
- 11. – I feel a moral obligation to pay my tax
- 55. – Paying my tax ultimately advantages everyone

**Factor 3 – Enjoyment in strategic tax thinking comprises the following items:**

- 22. – I enjoy talking to friends about loopholes in the tax system
- 19. – I enjoy spending time working out how changes in the tax system will affect me
- 3. – I like the game of finding the grey area of tax law
- 48. – I enjoy the challenge of minimising the tax I have to pay

**Factor 4 – Disinterest in Tax Office stance comprises the following items:**

- 23. – I don't care if I am not doing the right thing by the Tax Office
- 25. – If the Tax Office gets tough with me I will become uncooperative with them
- 39. – If I find out that I am not doing what the Tax Office wants, I'm not going to lose any sleep over it
- 33. – I personally don't think that there is much the Tax Office can do to me to make me pay tax if I don't want to.

**Table 2: Factor loadings from the rotated factor matrix**

Item	Factor 1	Factor 2	Factor 3	Factor 4
P9Q38	0.828	0.114	0.038	-0.026
P9Q40	0.781	0.138	0.105	-0.033
P8Q24	0.715	0.120	0.088	-0.129
P10Q53	0.657	0.254	0.054	-0.056
P9Q42	0.115	0.748	-0.062	-0.123
P10Q52	0.135	0.742	-0.047	-0.146
P10Q55	0.205	0.590	-0.091	-0.077
P7Q11	0.137	0.576	-0.053	-0.203
P8Q22	-0.025	-0.042	0.617	0.259
P10Q48	0.069	-0.104	0.583	0.115
P8Q19	0.216	0.077	0.580	0.035
P6Q3	-0.004	-0.148	0.554	0.161
P8Q23	-0.115	-0.197	0.137	0.642
P8Q25	-0.111	-0.053	0.137	0.567
P9Q39	-0.052	-0.085	0.085	0.510
P9Q33	0.086	-0.163	0.173	0.403

**Table 3: Summary statistics for the scale variables**

Scale	Scoring	Cronbach's alpha	Mean	Std Dev	Skew	Kurtosis
Tax Office respect for taxpayers	1 low to 5 high	.850	3.056	.760	-.377	-.276
Individual belief in paying tax	1 low to 5 high	.777	3.956	.581	-.818	1.847
Enjoyment in strategic tax thinking	1 low to 5 high	.685	2.437	.665	.238	.025
Disinterest in Tax Office stance	1 low to 5 high	.646	2.189	.553	.662	1.444

## Single variable dependent variables

We have also used the following single variables as dependent variables in our modelling:

P30Q113 – Overall how dissatisfied or satisfied are you with the way the government spends taxpayers' money? (1 dissatisfied to 5 satisfied) (M = 2.48; SD = 1.02)

P23Q93 – How much of your cash income did you declare on your 1998–99 income tax return? (0 none to 10 all) (M = 7.97; SD = 3.87)

## Regression models

**Table 4: Regression to predict Factor 1 (Tax Office respect for taxpayers)**

Variable	Regression coefficient (metric)	Standard error of coefficient	Standardised coefficient	T	Sig T
Male	-0.087	0.035	-0.057	-2.462	0.014
Age	0.000	0.001	0.016	0.595	0.552
Years of education	-0.016	0.007	-0.054	-2.231	0.026
Family income	0.000	0.000	-0.058	-2.370	0.018
ALP supporter	0.056	0.040	0.032	1.394	0.164
Conservative supporter (Lib/Nat)	0.101	0.042	0.057	2.418	0.016
Single/Married	0.001	0.040	0.004	0.164	0.870
Removed ID sticker	-0.051	0.078	-0.014	-0.651	0.515
Number of mailings before returning survey	-0.010	0.017	-0.019	-0.568	0.570
Working full time	-0.088	0.045	-0.058	-1.938	0.053
Working part time	-0.072	0.052	-0.037	-1.386	0.166
Self-employed	0.010	0.052	0.004	0.187	0.852
How often agrees with decisions of Tax Office	0.286	0.016	0.393	17.541	0.000
Fined or penalised by Tax Office	0.154	0.046	0.074	3.334	0.001
Responded to survey before 1 July 2000	-0.127	0.052	-0.082	-2.431	0.015
(Constant)	1.978	0.173		11.414	0.000

**Table 5: Regression to predict Factor 2 (Individual belief in paying tax)**

Variable	Regression coefficient (metric)	Standard error of coefficient	Standardised coefficient	T	Sig T
Male	0.003	0.028	0.002	0.091	0.928
Age	0.009	0.001	0.219	7.951	0.000
Years of education	0.017	0.006	0.073	2.918	0.004
Family income	0.000	0.000	0.044	1.741	0.082
ALP supporter	0.064	0.032	0.047	1.984	0.047
Conservative supporter (Lib/Nat)	0.047	0.033	0.034	1.399	0.162
Single/Married	0.008	0.032	0.006	0.261	0.795
Removed ID sticker	-0.062	0.062	-0.022	-0.986	0.324
Number of mailings before returning survey	-0.010	0.013	-0.025	-0.710	0.478
Working full time	0.072	0.036	0.061	1.979	0.048
Working part time	0.107	0.041	0.071	2.589	0.010
Self-employed	0.014	0.041	0.008	0.333	0.739
How often agrees with decisions of Tax Office	0.160	0.013	0.283	12.224	0.000
Fined or penalised by Tax Office	-0.070	0.037	-0.043	-1.882	0.060
Responded to survey before 1 July 2000	-0.010	0.042	-0.008	-0.234	0.815
(Constant)	2.746	0.139		19.792	0.000

**Table 6: Regression to predict Factor 3 (Enjoyment in strategic tax thinking)**

Variable	Regression coefficient (metric)	Standard error of coefficient	Standardised coefficient	T	Sig T
Male	0.039	0.034	0.029	1.144	0.253
Age	-0.002	0.001	-0.035	-1.201	0.230
Years of education	-0.031	0.007	-0.123	-4.644	0.000
Family income	0.000	0.000	-0.008	-0.286	0.775
ALP supporter	-0.012	0.039	-0.008	-0.324	0.746
Conservative supporter (Lib/Nat)	0.077	0.040	0.050	1.927	0.054
Single/Married	-0.053	0.038	-0.035	-1.396	0.163
Removed ID sticker	-0.040	0.075	-0.013	-0.53	0.596
Number of mailings before returning survey	0.041	0.016	0.095	2.556	0.011
Working full time	-0.089	0.043	-0.068	-2.062	0.039
Working part time	-0.070	0.049	-0.041	-1.419	0.156
Self-employed	0.063	0.049	0.031	1.273	0.203
How often agrees with decisions of Tax Office	-0.060	0.016	-0.095	-3.858	0.000
Fined or penalised by Tax Office	0.043	0.044	0.024	0.969	0.333
Responded to survey before 1 July 2000	0.011	0.050	0.008	0.216	0.829
(Constant)	3.050	0.166		18.352	0.000



**Table 7: Regression to predict Factor 4 (Disinterest in Tax Office stance)**

Variable	Regression coefficient (metric)	Standard error of coefficient	Standardised coefficient	T	Sig T
Male	0.143	0.027	0.132	5.226	0.000
Age	-0.002	0.001	-0.048	-1.674	0.094
Years of education	0.002	0.005	0.007	0.284	0.777
Family income	0.000	0.000	0.012	0.440	0.660
ALP supporter	-0.035	0.031	-0.028	-1.118	0.264
Conservative supporter (Lib/Nat)	-0.076	0.032	-0.059	-2.339	0.019
Single/Married	-0.070	0.031	-0.057	-2.289	0.022
Removed ID sticker	-0.006	0.060	-0.002	-0.102	0.919
Number of mailings before returning survey	0.002	0.013	0.007	0.180	0.857
Working full time	-0.046	0.035	-0.043	-1.321	0.187
Working part time	-0.030	0.040	-0.022	-0.758	0.448
Self-employed	-0.034	0.040	-0.020	-0.842	0.400
How often agrees with decisions of Tax Office	-0.124	0.013	-0.236	-9.810	0.000
Fined or penalised by Tax Office	0.035	0.036	0.023	0.976	0.329
Responded to survey before 1 July 2000	-0.001	0.041	-0.001	-0.030	0.976
(Constant)	2.759	0.135		20.480	0.000

**Table 8: Regression to predict satisfaction with the way the government spends taxpayers' money**

Variable	Regression coefficient (metric)	Standard error of coefficient	Standardised coefficient	T	Sig T
Male	-0.037	0.050	-0.018	-0.729	0.466
Age	0.000	0.002	0.004	0.143	0.886
Years of education	0.010	0.010	0.025	0.977	0.329
Family income	0.000	0.000	0.027	1.013	0.311
ALP supporter	-0.066	0.057	-0.028	-1.153	0.249
Conservative supporter (Lib/Nat)	0.351	0.059	0.149	5.905	0.000
Single/Married	-0.058	0.057	-0.025	-1.024	0.306
Removed ID sticker	-0.091	0.110	-0.019	-0.821	0.412
Number of mailings before returning survey	0.015	0.024	0.022	0.605	0.545
Working full time	-0.042	0.064	-0.021	-0.654	0.513
Working part time	0.031	0.074	0.012	0.419	0.675
Self-employed	0.027	0.074	0.009	0.367	0.714
How often agrees with decisions of Tax Office	0.237	0.023	0.242	10.114	0.000
Fined or penalised by Tax Office	0.051	0.066	0.018	0.771	0.441
Responded to survey before 1 July 2000	-0.164	0.075	-0.079	-2.196	0.028
(Constant)	1.376	0.248		5.556	0.000

**Table 9: Regression to predict amount of your cash income declared on 1998–99 income tax return**

Variable	Regression coefficient (metric)	Standard error of coefficient	Standardised coefficient	T	Sig T
Male	0.152	0.226	0.020	0.671	0.502
Age	0.002	0.009	0.007	0.196	0.845
Years of education	-0.021	0.046	-0.014	-0.453	0.651
Family income	0.005	0.003	0.051	1.673	0.095
ALP supporter	0.025	0.258	0.003	0.099	0.921
Conservative supporter (Lib/Nat)	-0.097	0.259	-0.011	-0.375	0.708
Single/Married	-0.044	0.253	-0.005	-0.175	0.861
Removed ID sticker	-0.020	0.503	-0.001	-0.040	0.968
Number of mailings before returning survey	-0.072	0.108	-0.029	-0.664	0.507
Working full time	0.480	0.295	0.063	1.627	0.104
Working part time	0.981	0.332	0.104	2.958	0.003
Self-employed	0.143	0.312	0.013	0.459	0.646
How often agrees with decisions of Tax Office	0.301	0.105	0.081	2.868	0.004
Fined or penalised by Tax Office	-0.023	0.295	-0.002	-0.078	0.938
Responded to survey before 1 July 2000	-0.256	0.335	-0.033	-0.763	0.446
(Constant)	6.653	1.112		5.986	0.000

**Table 10: Regression to predict number of mailings before return of questionnaire**

Variable	Regression coefficient (metric)	Standard error of coefficient	Standardised coefficient	T	Sig T
Male	0.012	0.091	0.004	0.135	0.893
Age	-0.005	0.004	-0.046	-1.373	0.170
Years of education	-0.084	0.018	-0.136	-4.611	0.000
Family income	0.001	0.001	0.025	0.837	0.403
ALP supporter	-0.046	0.104	-0.013	-0.444	0.657
Conservative supporter (Lib/Nat)	0.036	0.105	0.010	0.346	0.730
Single/Married	0.112	0.102	0.032	1.100	0.272
Removed ID sticker	-0.119	0.201	-0.016	-0.594	0.553
Working full time	0.243	0.118	0.079	2.056	0.040
Working part time	0.012	0.134	0.003	0.092	0.927
Self-employed	-0.187	0.125	-0.042	-1.489	0.137
How often agrees with decisions of Tax Office	-0.075	0.044	-0.050	-1.694	0.091
Fined or penalised by Tax Office	0.052	0.118	0.012	0.440	0.660
Satisfaction with government spending of taxpayers' money	0.119	0.045	0.078	2.671	0.008
How much of your cash income did you declare on your 1998–99 income tax return	0.000	0.011	-0.001	-0.040	0.968
(Constant)	3.300	0.426		7.749	0.000

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WORKING PAPERS**

- No. 1. Braithwaite, V. & Reinhart, M. *The Taxpayers' Charter: Does the Australian Taxation Office comply and who benefits?* Dec. 2000.
- No. 2. Braithwaite, V. *The Community Hopes, Fears and Actions Survey: Goals and Measures.* March 2001.
- No. 3. Braithwaite, V., Reinhart, M., Mearns, M. & Graham, R. *Preliminary findings from the Community Hopes, Fears and Actions Survey.* April 2001.
- No. 4. Mearns, M., & Braithwaite, V. *The Community Hopes, Fears and Actions Survey: Survey method, sample representativeness and data quality.* April 2001.