

Australian Values Study Technical Report

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Australian Values Study

Australia's voice in the
World Values Survey

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Introduction

1.1. About this report

This report covers the data collection and methodological aspects of the 2018 Australian Values Study (AVS), part of the World Values Survey (www.worldvaluessurvey.org). The survey was conducted by the Social Research Centre on behalf of the Australian National University from March to August 2018.

The purpose of this report is to:

- consolidate and summarise project information and assorted reports generated throughout the survey period
- provide analysis relating to sample characteristics and utilisation
- summarise data processing, coding, and weighting processes
- consolidate issues for consideration relating to the improvement of the questionnaire and refinement of the methodology for future surveys, if applicable.

1.2. Project background

Since 1981, the World Values Survey has tracked changes in the values and beliefs of citizens in 97 countries across the world, including Australia.

These surveys have identified considerable change in what people want out of life and what they believe. This is the seventh wave of the World Values Survey, allowing researchers to track changes between countries but also over time.

In each country, respondents are asked the same questions (across a range of different languages) to measure their views on religion, gender roles, work, democracy, good governance, social capital, political participation, cultural diversity and environmental protection.

The Australian component of the World Values Survey is referred to as the Australian Values Study or AVS. The Australian National University has been responsible for the AVS since 2005, with data collection carried out by the Social Research Centre. The research was funded by the ANU Centre for Social Research and Methods.

1.3. Project overview

The in-scope population for the 2018 AVS was adults (18 years of age or over) who are residents of private households in Australia. The sampling approach used address-based sampling with mail as the primary contact method. A sequential mixed-mode design was applied to data collection with participants self-completing via an online or paper-based survey.

The data collection period for the AVS was 3 April to 6 August 2018. The total achieved sample size was 1,813, equating to a response rate of 30.2% among all selections. Excluding ineligible sample (return to sender, respondent unavailable, etc.), a participation rate of 37.8% was achieved.

Key project statistics are summarised in Table 1 (over page).

Table 1 **Summary of key statistics**

Field	Outcome
Total sample	6,000
Total interviews achieved	1,813
<i>Online</i>	1,100
<i>Hard copy</i>	713
AAPOR Response Rate 1	30.2%
Participation rate*	37.8%
Main fieldwork start date	3-Apr-18
Main fieldwork finish date	6-Aug-18

*Note the "participation rate" is not an official AAPOR response rate. It shows the proportion of eligible selections who participated.

This research was undertaken in accordance with the Privacy Act (1988) and the Australian Privacy Principles contained therein, the Privacy (Market and Social Research) Code 2014, the Australian Market and Social Research Society's Code of Professional Practice, and ISO 20252 standards.

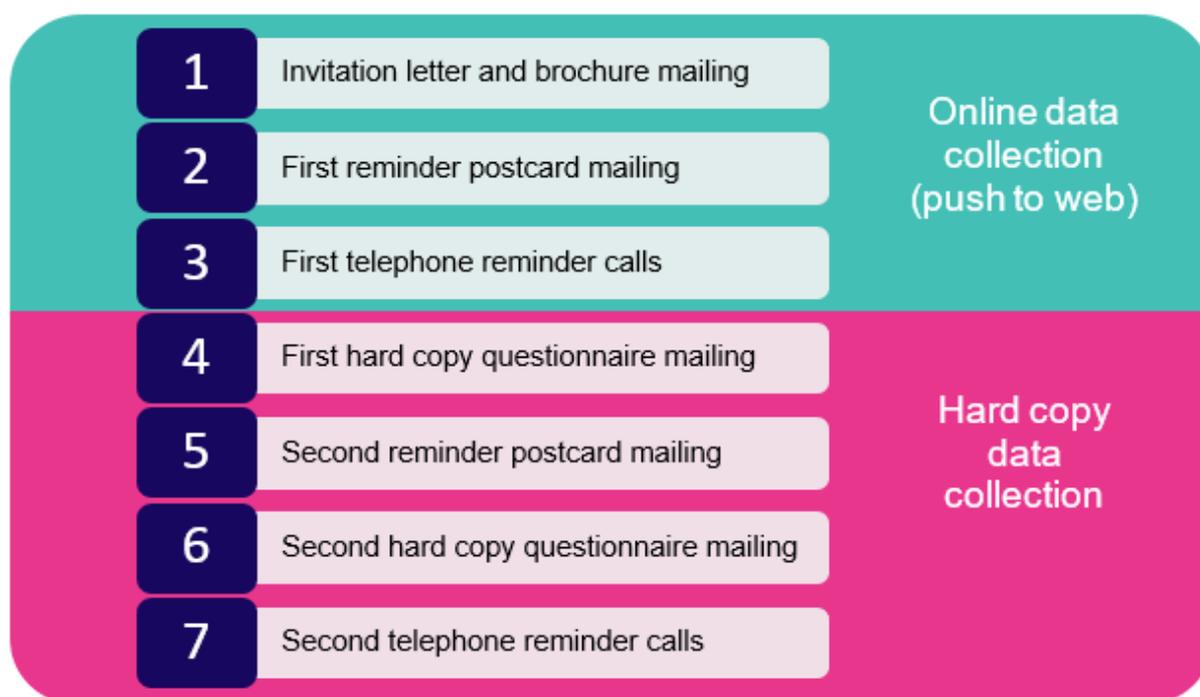
2. Methodology

2.1. Overview

Participation in the World Values Survey requires countries to survey a nationally representative sample of at least 1,200 residents aged 18 years and over. For most participating countries, this can be achieved using face to face interviews at a person's place of residence with data collection via a paper questionnaire or Computer Assisted Personal Interview (CAPI). In Australia, due to the vast geographical dispersion of residents, achieving a nationally representative sample of the population via door to door interviewing would be prohibitively expensive and, as such, an alternate methodology was recommended.

The methodology for the AVS was a sequential mixed mode approach to data collection using self-completion online and, later, paper-based surveys. An address-based sampling approach was used, with mail as the primary mode of contact. A range of response maximisation techniques were employed during data collection.

Data collection for the AVS involved the following key stages:



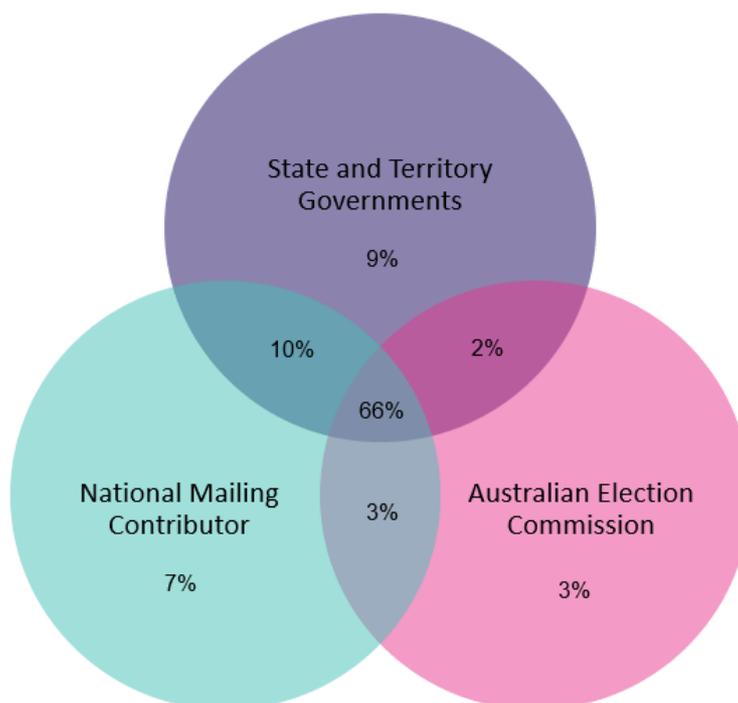
2.2. Sampling approach

An address-based sampling approach was used for the AVS due to the high coverage rates offered by the available frame; the Geocoded National Address File (G-NAF). The sample was selected using a stratified sample design in accordance with the distribution of the Australian residential population.

2.2.1. Sample frame and selection

The G-NAF sampling frame is maintained by the Public Sector Mapping Authority (PSMA) and is the authoritative national address index for Australia. The G-NAF is compiled from existing and recognised address sources from the state and territory government land records, as well as address data from a national mailing contributor (Australia Post) and the Australian Electoral Commission (PSMA, 2018); see Figure 1. G-NAF sample frames select addresses from a database with near universal coverage of residential homes as distinct from the traditional block-listing approach. The G-NAF was supplied by Mastersoft Group.

Figure 1 Source of G-NAF sample



Using the G-NAF frame as a starting point, our approach was to define in-scope addresses as residential dwellings with a validated postal address (89.4% of all records). Previous experience shows that very few completed questionnaires are obtained from non-validated addresses and that attempts to enumerate this sample also results in high rates of sample loss (58.3% unusable sample compared to 9.2% amongst the validated sample) and greatly reduced sample efficiency.¹

¹ Results obtained from the Social Research Centre's data collection for the *Australian Election Study* (2016) conducted on behalf of the Australian National University.

2.2.2. Sample design

Within the parameters outlined above, the AVS sample was selected from the G-NAF database using a stratified sample design in accordance with the geographical distribution of the Australian residential population aged 18 years and over. A total of 6,000 sample records were randomly generated within 15 geographic strata (see Table 2) to ensure sufficient sample was provided to achieve a minimum of 1,200 responses.

Table 2 Sample design

Region	Available sample	Sample selected	Proportion of selected sample (%)
Greater Sydney	1,966,118	1,244	20.7
Rest of New South Wales	1,276,936	679	11.3
Greater Melbourne	1,970,005	1,180	19.7
Rest of Victoria	730,490	373	6.2
Greater Brisbane	968,228	575	9.6
Rest of Queensland	1,165,742	611	10.2
Greater Adelaide	581,333	331	5.5
Rest of South Australia	207,083	96	1.6
Greater Perth	882,338	493	8.2
Rest of Western Australia	263,963	131	2.2
Greater Hobart	104,615	56	0.9
Rest of Tasmania	149,273	73	1.2
Greater Darwin	54,459	36	0.6
Rest of Northern Territory	19,233	22	0.4
Australian Capital Territory	170,627	100	1.7
Total	10,510,443	6,000	100.0

For the purpose of personally addressing survey invitations, and to allow reminder calls to be made, wherever possible, surname and phone number details were appended to the addresses selected from the G-NAF. A phone number and surname could be appended to 47.4% of sampled G-NAF records.

A within-household selection method was not applied to the AVS meaning that any responsible adult in the household could complete the questionnaire.

2.3. Data collection

The AVS used a sequential mixed mode (online and hard copy) data collection methodology. Incorporating a push to web approach (not offering paper to begin with) was recommended as this has been shown to increase online response, as people are more inclined to complete via paper when offered the choice (Dillman, 2017; Holmberg, Lorenc & Werner, 2010; McMaster et al., 2017; Messer & Dillman, 2011; Millar & Dillman, 2011; Smyth et al., 2010; Tourangeau, 2017). Additionally, offering respondents mode choice has been shown to reduce response (Medway & Fulton, 2012).

The primary mode of contact was via mail with telephone reminder calls introduced as part of the reminder cycle for matched sample. A range of materials (letter, an informational brochure, postcards, the questionnaire and reply-paid envelope) were distributed via mail to increase the likelihood of engagement and response.

2.3.1. Approach and reminder details

Approach and reminder materials were designed by the Social Research Centre in consultation with the Australian National University drawing upon learnings from previous experience and international studies (e.g. Groves et al., 1992).

Using a sequential mixed mode (push to web) approach first involved inviting respondents to complete the survey online with the aim of maximising responses received via this mode. Following the initial invitation, a further two contacts were made via postcard and telephone, again inviting participation solely via the online mode of collection (shown in green below).

Once these efforts were exhausted, hard copy questionnaires were sent to non-respondents including those who were yet to complete or opt out of the survey. Subsequent contact focused on eliciting completions via hard copy questionnaire returns.

The full approach and reminder schedule is detailed in Figure 2 below.

Figure 2 **Approach and reminder schedule**

		Sample (n=)	Date initiated	Days
1	Invitation letter and brochure mailing	6,000	3/04/18	+0
2	First reminder postcard mailing	5,827	13/04/18	+10
3	First telephone reminder calls	2,427	26/04/18	+23
4	First hard copy questionnaire mailing	4,627	16/05/18	+43
5	Second reminder postcard mailing	4,505	31/05/18	+58
6	Second hard copy questionnaire mailing	4,358	26/06/18	+84
7	Second telephone reminder calls	1,159	3/07/18	+91

The design of the approach (and reminder) materials was carefully considered based on previous experience and a review of international literature. Design decisions were based on the following response maximisation techniques:

- Sequential mixed mode design with paper not offered to begin with (Tourangeau, 2017)
- Questionnaire offered at 3rd or 4th contact (Dillman, 2017)
- Include a token of appreciation with the survey request (Dillman, 2009)
- Use of an illustrated questionnaire booklet cover page (Edwards, et al., 2009)
- To encourage mail opening / reading:
 - Personally address survey invitations (Dillman, 2009; Fan & Yan, 2010). Letters were addressed in one of two ways dependent on the available personal information; “To the [SURNAME] household or current resident” or “To the [SUBURB] resident”.
 - Do not include graphics or external messaging on envelopes (Dykema et al., 2015) or brightly coloured envelopes as these can be mistaken for marketing materials (Dillman, 2009). Survey branding was therefore not included on outer envelopes.
 - Approach envelopes sponsored by an official / authoritative academic or government body; ANU rather than Social Research Centre (Dillman, 2017; Fan et al., 2010; Groves et al., 1992).
- To encourage participation, the materials should:
 - Be brief and emphasise the importance / significance of the study (Dillman, 2009)
 - Mention being part of a small selected group (Groves et al., 1992; Fan et al., 2010)
 - Use different messages / tone / look used at different contact points (Dillman, 2009)

Further information on each of the contact methods is outlined below.

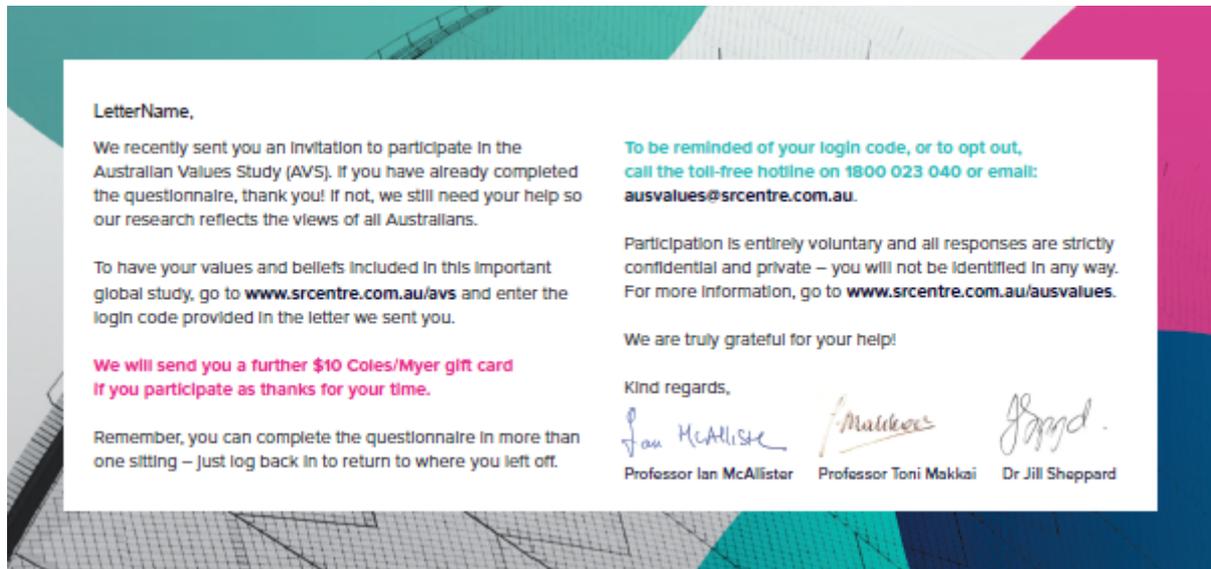
Invitation letter and brochure mailing

As the first point of contact, all sampled residences were sent an information pack and invitation to participate. Contents included a cover letter introducing the study, information on how to complete the survey online, referral to the website and Social Research Centre contact details, as well as an informational brochure and a \$5 non-contingent incentive (see p. 11 for further details on incentives).



First reminder postcard mailing

The first reminder postcards were sent as a follow-up to the approach letter to the majority of respondents ($n=5,827$). The only exclusions were sample records recording a completed survey, opt out or return to sender following the first few days of data collection (allowing time for sample draw and postcard printing).



First telephone reminder calls

The purpose of the first reminder calls was to answer respondent queries, encourage participation in the online survey and provide login details as required. Phone answerers were first screened to ensure their residential address matched the sampled address.

Only sample records with matched phone numbers were included in the reminder call sample ($n=2,842$). Prior to making calls, the sample was washed to remove sample records with an outcome recorded (completions, opt outs, return to sender).

Reminder calls were made to 2,368 numbers (1,606 landlines and 662 mobiles) by the Social Research Centre's team of highly experienced social research interviewers between 26 May and 6 June 2018. An average of 2.1 calls were made per sample record.

Eligible phone answerers who agreed to complete the survey online were offered a range of options from accessing the survey from which they nominated their preferred approach:

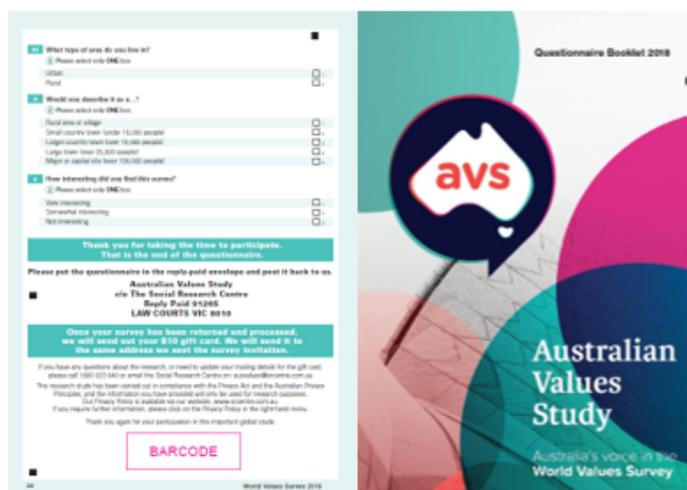
- login using the web address and unique code provided in the initial letter
- provide an email address to be sent a direct (unique) link to the survey
- receive the web address and unique login code over the phone.

Respondents who indicated they would be unable to complete online but were willing to participate via paper were advised that they would be sent a hard copy questionnaire for completion at a later stage.

First hard copy questionnaire mailing

As part of the push to web design (maximising completion via the online mode prior to introducing a second mode), considerable time was allowed between sending the approach letter and the first hard copy questionnaire booklet mailing (43 days).

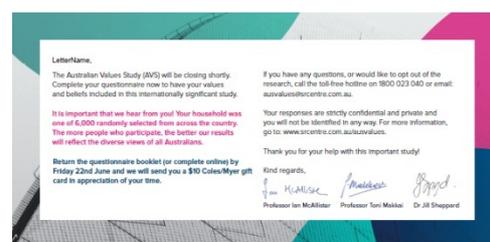
The sample preparation for the questionnaire mailing ($n=4,627$) was conducted as late as possible to maximise exclusions while allowing time for printing. The questionnaire booklet was accompanied by a cover letter and reply-paid envelope.



Second reminder postcard mailing

The second reminder postcard was sent to the remaining 4,505 sample members advising respondents that the AVS would be closing shortly and encouraging participation through return of the hard copy questionnaire.

Respondents were encouraged to return the completed booklet prior to 22 June 2018 to receive the \$10 gift card (see p. 11 for more details on incentives).



Second hard copy questionnaire mailing

Following 84 days of data collection, the remaining eligible households ($n=4,358$) were re-sent the questionnaire booklet with a final cover letter offering one last opportunity to participate in the study.

Second telephone reminder calls

As a final response maximisation effort, reminder calls were placed to matched sample, excluding respondents who had opted out and unusable sample identified during the first round of reminder calls. Additionally, any further survey completions and opt outs were removed prior to calling.

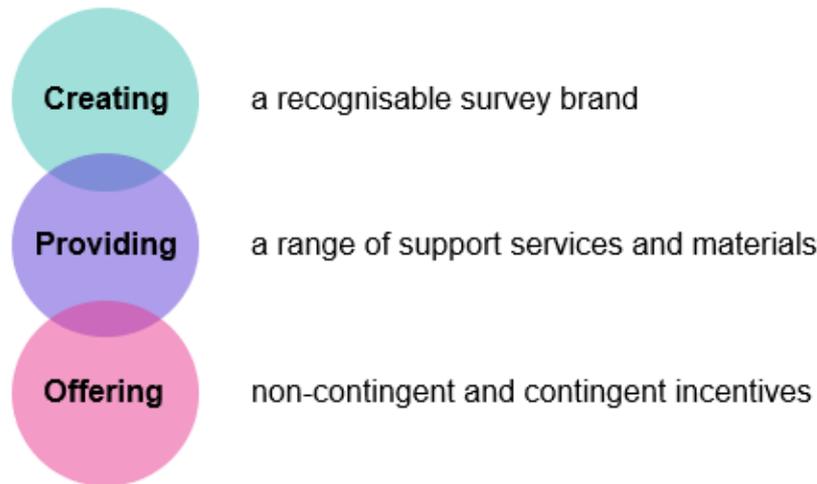
Reminder calls were made to 1,159 numbers (747 landlines and 412 mobiles) from 3 to 10 July 2018. An average of 2.1 calls were made per sample record.

Final reminder letter mailing (not required)

A final reminder letter mailing was scheduled to take place prior to the second telephone reminder calls. This was removed from the methodology as it was deemed unnecessary due to the high level of response up to that point in the collection.

2.3.2. Additional response maximisation techniques

A range of additional response maximisation procedures were employed in the delivery of the AVS, including:



Creating a recognisable survey brand

The Social Research Centre engaged specialist designers to develop a brand identity for the AVS. This included delivery of a logo package and documented brand and style guidelines.

Elements of the AVS logos and branding were carried across all materials to provide a recognisable identity for the study.

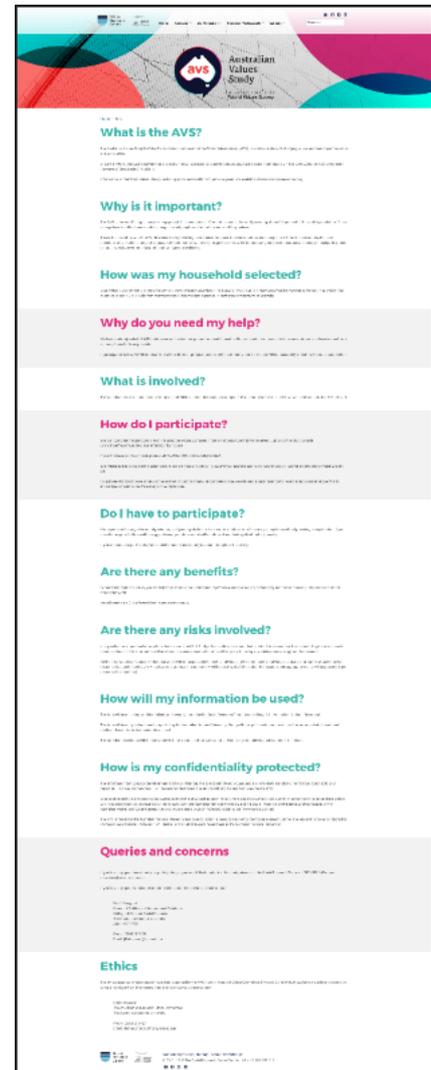
Providing a range of support services and materials

Information and support were provided to respondents through a range of mechanisms to alleviate any concerns about the survey bona fides, address queries from sample members and encourage response.

For this purpose, designers were engaged to prepare:

- An online AVS information page hosted on the Social Research Centre website
- An informational brochure for inclusion in the approach materials package.

In addition to written materials, the Social Research Centre operated a 1800 helpdesk number and a project-specific email address.



Offering non-contingent and contingent incentives

Previous studies have shown that including a non-contingent incentive with approach materials for push to web surveys improves online response (Dillman, 2017; Messer and Dillman, 2011; Millar and Dillman, 2011; Parsons and Manierre, 2014; Suzer-Gurtekin et al., 2016). All sample members were offered a \$5 non-contingent incentive in the form of a gift card along with the approach materials sent to their household.² In addition, a \$10 contingent incentive was offered for survey completion.³



² For the effectiveness of pre-paid incentives in mail surveys, see Church (1991), Dykema et al. (2015), Edwards et al. (2009), Mercer et al. (2015) and Trussell and Lavrakas (2004). For web surveys, see Parsons and Manierre (2014).

³ For the effectiveness of contingent incentives in mail surveys, see Church (1991) and Edwards et al. (2009); Mercer et al. (2015) finds no effect, however. For web surveys, see DeCamp and Manierre (2016) and Göritz (2006).

3. Questionnaire development

3.1. Overview

The draft questionnaire for the AVS was developed from the World Values Survey instrument and adapted for an Australian context by the Australian National University. The Social Research Centre conducted a further review of the questionnaire and provided advice regarding operationalising the questionnaire for online and paper-based administration.

Due to the self-completion administration of the hard copy questionnaire, there is no known average completion time; however, online completion times suggest an average completion time of 51 minutes.

3.2. Online survey instrument

The online survey was programmed and tested in house by the Social Research Centre. Our online survey software is specifically designed for survey research. It has the functionality to allow for ease of completion on a range of devices, including the ability to identify and tailor design for mobile devices.

Prior to launching the online survey, standard operational testing procedures were applied to ensure that the script truly reflected the agreed final version of the questionnaire. These included:

- programming the skips and sequencing instructions as per the final questionnaire
- rigorous checking of the questionnaire in 'practice mode', including checks of the on-screen presentation of questions and response frames on a range of devices
- randomly allocating dummy data to each field in the questionnaire and examining the resultant frequency counts to check the structural integrity of the script.

The 'live' survey was launched on the 3 April 2018 and was available at www.srcentre.com.au/avs. Respondents were provided with a unique username and password to access the survey. For security reasons, unique details were provided only in sealed mailings (not on postcards) and over the phone with screened sample members.

3.3. Hard copy questionnaire

The hard copy questionnaire was typeset by a professional mail house in line with the AVS brand guidelines. The final booklet was 28 pages in length including a designed cover page, one page of completion instructions and contact details on the inside cover and half page of return details on the back cover.

Prior to printing, testing was undertaken to ensure the contents accurately reflected the original questionnaire and the online programmed version. Additional checks were carried out by the data capture provider to ensure all scanning requirements were met.

The final hard copy questionnaire booklet is provided as Appendix 1.

4. Interviewer briefing and quality control

4.1. Interviewer briefing

All interviewers and supervisors selected to work on the reminder calls attended a one-hour briefing session, which focused on all aspects of survey administration, including:

- background and overview of the AVS and the World Values Survey
- survey procedures and sample design
- the approach and reminder schedule
- strategies to maintain co-operation
- detailed examination of the reminder call questionnaire.

After the initial briefing session, interviewers engaged in comprehensive practice calls. Additional briefings were held as required during the fieldwork period.

A total of 6 interviewers were briefed on the first reminder calls and 4 on the second reminder calls.

4.2. Fieldwork quality control procedures

The in-field quality monitoring techniques applied to this project included:

- Validation of 5.0% of the telephone surveys conducted via remote monitoring (covering the interviewers' approach and commitment-gaining skills, as well as the conduct of the interviews)
- field team de-briefing after the first shift and, thereafter, whenever there was important information to impart to the field team in relation to data quality, consistency of call administration, techniques to avoid refusals, appointment-making conventions, or project performance
- monitoring of average time taken to complete the calls by interviewer and outcome
- monitoring of the interview-to-refusal ratio by interviewer.

5. Response analysis

5.1. Overview

A total of 1,813 surveys were received prior to the closing date of 6 August 2018. Of these, 1,100 were completed online and 713 via hard copy.

The Social Research Centre uses standard industry definitions for calculating outcome rates (American Association for Public Opinion Research 2016). Table 3 summarises the final dispositions (or survey status) for the study using final disposition codes for mail surveys of unnamed persons outlined by the American Association of Public Opinion Research (AAPOR).

A response rate (AAPOR Response Rate 1) of 30.2% was achieved. Excluding the proportion of households who were not eligible to complete (undelivered mail, respondent unavailable, respondent unable/incompetent, no eligible respondent), a participation rate of 37.8% was recorded amongst eligible selections.

Table 3 Final outcomes (AAPOR disposition)

AAPOR code		<i>n</i>	%
1.1	Complete (AAPOR Response Rate 1)	1,813	30.2
1.2	Partial	64	1.1
2.11	Refusal	428	7.1
2.25	Notification that respondent was unavailable during field period	13	0.2
2.32	Physically or mentally unable / incompetent	43	0.7
3.19	Nothing ever returned	3,080	51.3
3.25	Cannot be delivered	557	9.3
4.7	No eligible respondent	2	0.0
Total sample		6,000	100.0
Participation rate (% of eligible selections who completed)*			37.8%

*Note the "participation rate" is not an official AAPOR response rate – it has been derived to show the proportion of households who participated from all eligible selections.

The achieved response rate of 30.2% was an improvement on the rates achieved for a similar 2016 survey carried out by the Social Research Centre using a push to web approach with a G-NAF sample frame (18.6%).⁴

The key design variations which are believed to have contributed to the increased response for the AVS are the inclusion of non-contingent and contingent incentives and adoption of a recognisable survey brand. The extent to which each contributed to the increase, and the influence of other factors, is unknown.

⁴ Response rate achieved for the G-NAF sample from the *Australian Election Study* (2016) conducted by the Social Research Centre on behalf of the Australian National University.

5.2. Response by stratum

Table 4 shows the location of respondents by mode of completion and reveals the resultant sample was distributed roughly in line with the original sample with limited variation by mode.

Table 4 Respondent location by mode

Region	Online		Hard copy		Total		Sample drawn	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Greater Sydney	240	21.8	134	18.8	374	20.6	1,244	20.7
Rest of NSW	115	10.5	94	13.2	209	11.5	679	11.3
Greater Melbourne	222	20.2	116	16.3	338	18.6	1,180	19.7
Rest of VIC	59	5.4	49	6.9	108	6.0	373	6.2
Greater Brisbane	116	10.5	77	10.8	193	10.6	575	9.6
Rest of QLD	100	9.1	69	9.7	169	9.3	611	10.2
Greater Adelaide	68	6.2	47	6.6	115	6.3	331	5.5
Rest of SA	13	1.2	11	1.5	24	1.3	96	1.6
Greater Perth	90	8.2	58	8.1	148	8.2	493	8.2
Rest of WA	13	1.2	17	2.4	30	1.7	131	2.2
Greater Hobart	11	1.0	12	1.7	23	1.3	56	0.9
Rest of TAS	14	1.3	18	2.5	32	1.8	73	1.2
Greater Darwin	6	0.5	0	0.0	6	0.3	36	0.6
Rest of NT	3	0.3	0	0.0	3	0.2	22	0.4
ACT	30	2.7	11	1.5	41	2.3	100	1.7
Total	1,100	100.0	713	100.0	1,813	100.0	6,000	100.0

Table 5 summarises respondent characteristics by completion mode. It shows that, compared to the population, the final achieved sample significantly over-represents females, those aged over 55 years and people who have a university degree or higher education.

Table 5 Respondent characteristics by mode

Respondent characteristics		Respondents						Aust. adults*
		Hardcopy (n=713)		Online (n=1,100)		Total Surveys (n=1,813)		
Total		n	%	n	%	n	%	%
Gender	Male	282	39.6	422	38.4	704	38.8	49.2
	Female	425	59.6	670	60.9	1,095	60.4	50.9
	Other	1	0.1	2	0.2	3	0.2	-
	No response	5	0.7	6	0.5	11	0.6	-
Age	18 to 24	19	2.7	58	5.3	77	4.2	12.2
	25 to 34	54	7.6	174	15.8	228	12.6	19.3
	35 to 44	82	11.5	168	15.3	250	13.8	17.1
	45 to 54	89	12.5	187	17.0	276	15.2	16.7
	55 to 64	154	21.6	238	21.6	392	21.6	14.9
	65 to 74	159	22.3	196	17.8	355	19.6	11.3
	75 and over	145	20.3	72	6.5	217	12.0	8.6
	No response	11	1.5	7	0.6	18	1.0	-
Education	University	218	30.6	566	51.5	784	43.2	25.6
	Non-university	427	59.9	532	48.4	959	52.9	74.4
	No response	68	9.5	2	0.2	70	3.9	-
State	NSW	228	32.0	355	32.3	583	32.2	32.1
	VIC	165	23.1	281	25.5	446	24.6	25.9
	QLD	146	20.5	216	19.6	362	20.0	19.8
	SA	58	8.1	81	7.4	139	7.7	7.1
	WA	75	10.5	103	9.4	178	9.8	10.4
	TAS	30	4.2	25	2.3	55	3.0	2.1
	NT	0	0.0	9	0.8	9	0.5	1.0
	ACT	11	1.5	30	2.7	41	2.3	1.7

*Source: Australian Bureau of Statistics, Estimated Residential Population, December 2017. Available from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0>

5.2.1. First reminder call outcomes

Of the 2,368 records called, contact was made with 44.9%. The majority of the remaining records were non-contacts, with unusable sample comprising 3.3% of the sample. Details of all final call outcomes are provided in Table 6.

Amongst those with whom contact was made ($n=1,064$), screening was conducted to ensure the record matched the selected sample address. Overall, 15.9% of contacts were screened out on this basis. Assuming this rate holds for non-contacts, and including disconnected, fax and non-residential numbers, the proportion of all matched numbers that were unusable for the purpose of reminder calls was 18.7%.

Amongst those with whom contact was made, approximately one-third of contacts committed to completing the survey; 21.3% indicated they would complete online and 11.2% via the hard copy questionnaire. Around two-fifths (40.3%) opted out of the survey during the reminder calls.

Table 6 First reminder calls – Final call outcomes

Final outcome	<i>n</i>	% of total	% of contacts
Contacts	1,064	44.9	100.0
Agreed to complete	346	14.6	32.5
Refusals	429	18.1	40.3
Other contacts (away duration, LOTE, etc.)	120	5.1	11.3
Screen outs (selected address didn't match phone)	169	7.1	15.9
Non-contacts	1,225	51.7	
No answer	417	17.6	
Answering machine	768	32.4	
Engaged	40	1.7	
Unusable	79	3.3	
Fax	11	0.5	
Number disconnected	39	1.6	
Not a residential number	29	1.2	
Total	2,368	100.0	

Of the 346 respondents who agreed to participate during the reminder calls, 62.1% went on to complete the survey. Of these, 42.7% completed online and 57.2% via hard copy.

5.2.2. Second reminder call outcomes

Final call outcomes are shown in Table 7. Due to these calls being conducted late in the data collection period and unusable contacts from the first reminders being removed, just 1,159 records were included in the sample for the second reminder calls. Of these, contact was made with 18.6% of records.

Of those with whom contact was made ($n=215$), approximately two-fifths committed to completing the survey; 19.5% online and 21.9% via hard copy. Almost a third (32.6%) of the phone contacts refused to participate.

Table 7 Reminder calls 2 – Final call outcomes

Final outcome	<i>n</i>	% of total	% of contacts
Contacts	215	18.6	100.0
Agreed to complete	89	7.7	41.4
Refusals	70	6.0	32.6
Other contacts (away duration, LOTE, etc.)	38	3.3	17.7
Screen outs (selected address didn't match phone)	18	1.6	8.4
Non-contacts	905	78.1	
No answer	292	25.2	
Answering machine	579	50.0	
Engaged	34	2.9	
Unusable	39	3.4	
Fax	0	0.0	
Number disconnected	36	3.1	
Not a residential number	3	0.3	
Total	1,159	100.0	

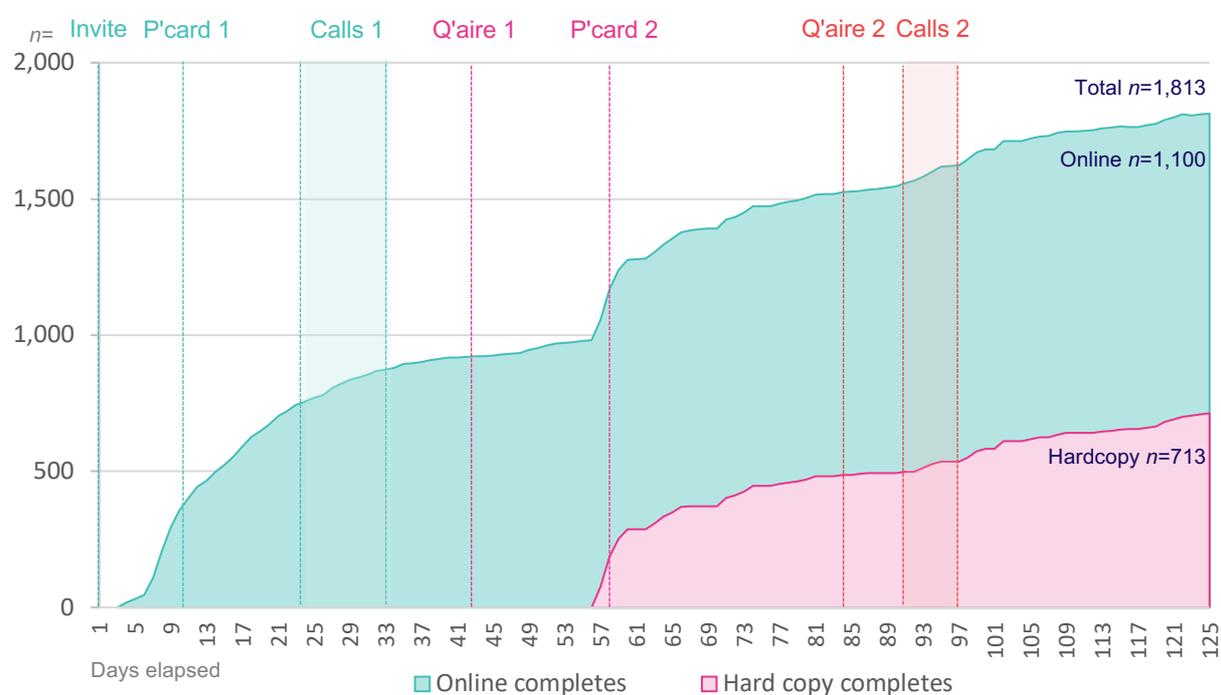
Of the 89 respondents who agreed to complete, 31.5% went on to complete the survey. Of these, 47.2% completed online and 52.8% via hard copy.

5.3. Response by mode

Figure 3 shows the number of responses received during the data collection period by mode of completion along with the points at which contact was made. The first phase, with contact modes depicted in green, was the push to web stage. The first hard copy questionnaire mailing (pink) was distributed 43 days after online data collection commenced. A final phase, the second questionnaire mailing, is represented in red and commenced 84 days into data collection.

Prior to the hard copy mailing, 918 online survey responses were received online (representing 50.6% of the final sample). The primary mode of completion after this time was via hard copy booklet with 713 respondents (39.3%) completing via this mode. Following delivery of the booklets, a further 182 online surveys were completed (10%) despite reminder materials focussing on encouraging hard copy completion during this time. See Table 8 on the following page for further details.

Figure 3 Survey response by mode



Of the online completions, 73.5% were completed using a desktop computer, 14.2% on a tablet, and 12.4% via a mobile device.

5.4. Response by stage

There were no significant differences in the composition of the sample by gender or state across the three main data collection periods. However, some differences in age and educational attainment were noted between those who completed via push to web and those completing following delivery of the first hard copy questionnaire.

A significantly higher proportion of respondents aged under 35 years or with a university education (i.e., a bachelor's degree or above) completed during the push to web phase when compared to those who completed following the first questionnaire mailing. Following hard copy questionnaire introduction, the proportion aged under 35 years moved further from the benchmark while the proportion of non-university educated respondents moved to closer to the benchmark. That is, introducing hard copy collection did not result in greater representativeness on any variable except education.

Table 8 Respondent characteristics by completion stage

Respondent characteristics		Respondents						Aust. adults*
		Push to web phase (n=918)		Questionnaire 1 mailing (n=608)		Questionnaire 2 mailing (n=243)		
Total		n	-	%	n	%	n	%
Mode	Online	918	100.0	116	19.1	66	27.2	-
	Hard copy	0	0.0	492	80.9	177	72.8	-
Gender	Male	360	39.2	244	40.1	85	35.0	49.2
	Female	552	60.1	359	59.0	156	64.2	50.9
	Other	1	0.1	1	0.2	0	0.0	-
	No response	5	0.5	4	0.7	2	0.8	-
Age	18 to 24	42	4.6	22	3.6	13	5.3	12.2
	25 to 34	140	15.3	54	8.9	30	12.3	19.3
	35 to 44	132	14.4	79	13.0	35	14.4	17.1
	45 to 54	142	15.5	90	14.8	36	14.8	16.7
	55 to 64	207	22.5	122	20.1	52	21.4	14.9
	65 to 74	182	19.8	117	19.2	48	19.8	11.3
	75 and over	67	7.3	120	19.7	22	9.1	8.6
	No response	6	0.7	4	0.7	7	2.9	-
Education	University	463	50.4	201	33.1	103	42.4	25.6
	Non-university	454	49.5	352	57.9	129	53.1	74.4
	No response	1	0.1	55	9.0	11	4.5	-
State	NSW	287	31.3	191	31.4	92	37.9	32.1
	VIC	234	25.5	142	23.4	59	24.3	25.9
	QLD	185	20.2	131	21.5	34	14.0	19.8
	SA	72	7.8	51	8.4	14	5.8	7.1
	WA	86	9.4	63	10.4	25	10.3	10.4
	TAS	23	2.5	19	3.1	11	4.5	2.1
	NT	7	0.8	1	0.2	1	0.4	1.0
	ACT	24	2.6	10	1.6	7	2.9	1.7

*Source: Australian Bureau of Statistics, Estimated Residential Population, December 2017. Available from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0>

6. Data processing

6.1. Hard copy returns processing

Hard copy questionnaire returns were processed by the Social Research Centre and sent to a professional data capture provider for processing using data scanning technology.

6.1.1. Returns management and reporting

Hard copy survey returns were logged on a daily basis and sorted into the following categories for mid-field status reporting:

- Accepted for processing – some effort had been made to complete the form (first page or last page complete)
- Refusal – includes blank returned forms that were not ‘return to sender’
- Out of scope – includes ‘deceased’
- Sample loss / unusable sample – includes ‘return to sender’.

A log of hard copy and online returns was updated daily to consolidate scanned survey outcomes and online survey completions. This log was used to provide weekly updates to the Australian National University. Status reports included the total number of completes for both the online and hard copy surveys. The status of each record was finalised upon closing the survey.

Completed surveys were processed and batched for mailing to the data capture provider.

6.1.2. Data scanning and capture

Once received by the data capture provider, hard copy returns were scanned and processed using a mixture of optical mark read and key from image technologies.

Fully trained data entry operators reviewed scanned images of the returned survey forms to:

- Resolve multiple responses for questions requiring a single response
- Verify that responses to multiple response questions were valid
- Check ‘blanks’ where the survey sequencing suggested that the respondent should have answered the question
- A double-key and verify process was used to ensure the accuracy of data capture, and a batch processing workflow was used to track returns from initial logging to the completion of data capture.

Hard copy forms were securely destroyed following delivery of data and a reference file of scanned images to the Social Research Centre.

6.2. Data cleaning rules

Rules used to clean the hardcopy and online data to ensure data integrity and logic flow included:

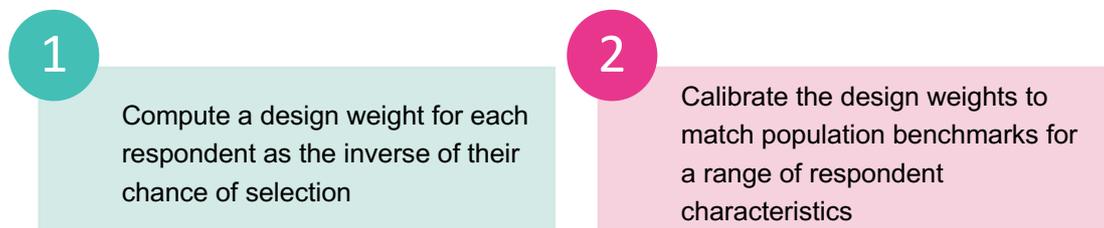
- Date of birth computed from age if the former not given and vice versa
- Date of birth and age cleaned based on each other (e.g. DOB=50 and Age=68, DOB corrected to 1950)
- If multiple responses given for a single response question, code as an invalid response
- If multiple letters were input for questions Q152-157, accept first response
- If more than 5 responses selected for questions Q7-17, retain all and flag cases
- If verbatim response did not match code selected, item was reviewed
- For consistency, additional variables followed rules from World Values Survey committee.

6.3. Coding

Verbatim responses were coded in line with agreed coding rules using standard Australian Bureau of Statistics (ABS) code frames where relevant.

6.4. Weighting

To ensure results were as representative as possible of the Australian adult population, weights were calculated for each respondent and included in the final dataset. The approach to deriving weights consisted of the following steps:



The first step is essential in providing the statistical framework necessary for making population inferences from a sample survey. The second step accounts for non-response bias and ensures that survey estimates are consistent with other sources.

6.4.1. Design weights

The design weights account for the different probabilities that respondents have of being selected to take part in the survey. Each respondent's weight is the inverse of their probability of selection:

$$d_h = \frac{1}{p_h} = \frac{N_h}{n_h}.$$

A random selection of addresses was drawn from each of the geographic strata shown in Table 8, which also shows the number of available and selected records. Within the h th stratum, the selection weight is the ratio of available to selected addresses, N_h/n_h .

Table 9 Population and sample sizes, by stratum

Location	Available addresses	Selected addresses	Selection weight
Greater Sydney	1,966,118	2,075	947.5
Rest of New South Wales	1,276,936	1,131	1,129.0
Greater Melbourne	1,970,005	1,966	1,002.0
Rest of Victoria	730,490	622	1,174.4
Greater Brisbane	968,228	958	1,010.7
Rest of Queensland	1,165,742	1,019	1,144.0
Greater Adelaide	581,333	551	1,055.1
Rest of South Australia	207,083	160	1,294.3
Greater Perth	882,338	822	1,073.4
Rest of Western Australia	263,963	218	1,210.8
Greater Hobart	104,615	93	1,124.9
Rest of Tasmania	149,273	121	1,233.7
Northern Territory	73,692	97	759.7
Australian Capital Territory	170,627	167	1,021.7

6.4.2. Calibrating to population benchmarks

To ensure estimates made from the dataset are representative of the target population, the design weights were adjusted to match external benchmarks of key demographic parameters likely to be correlated with the survey outcomes and the likelihood of response. For this study, these included gender, age, education, location and country of birth.

The method for calibrating the design weights was generalised regression weighting which used non-linear optimisation to minimise the distance between the design and calibrated weights subject to the weights meeting the benchmarks. This method requires non-missing data, as such, values for the small number of respondents who did not provide answers to the weighting questions were estimated through statistical imputation.⁵

6.4.3. Benchmarks

The external benchmarks that were used for calibrating the design weights are shown in Table 9. These were obtained from 2016 Census data, updated for the December 2017 estimated resident population, sourced from the Australian Bureau of Statistics (2017, 2018). Also included in the table is the proportion of respondents in each category along with the average weight.⁶

⁵ Refer to Lumley (2017) for more details on the implementation of regression calibration in R (R Core, 2018) and to Valliant et al. (2013) for a more general treatment of weighting and estimation for sample surveys.

⁶ Where the responding and population proportions are similar, the average weight will be closer to one.

Table 10 Population benchmarks used for calibration

Benchmark category	Respondents (%)	Benchmark target (%)	Average weight
Age and highest level of education			
18-24 Bachelor and above	1.9	1.6	0.84
18-24 Below Bachelor	2.3	10.6	4.58
25-34 Bachelor and above	7.5	7.4	1.00
25-34 Below Bachelor	5.1	11.9	2.34
35-44 Bachelor and above	8.6	6.2	0.72
35-44 Below Bachelor	5.5	10.9	2.00
45-54 Bachelor and above	7.7	4.3	0.57
45-54 Below Bachelor	7.9	12.3	1.55
55-64 Bachelor and above	8.0	3.3	0.41
55-64 Below Bachelor	13.7	11.6	0.84
65+ Bachelor and above	9.9	2.7	0.27
65+ Below Bachelor	22.0	17.1	0.78
Country of birth			
Australian born	71.8	66.3	0.92
Mainly ESB background	13.5	10.6	0.79
Mainly NESB background	14.7	23.1	1.57
Gender			
Female	60.9	50.9	0.84
Male	39.1	49.1	1.26
Location			
Australian Capital Territory	2.3	1.7	0.74
Greater Adelaide	6.3	5.5	0.87
Greater Brisbane	10.7	9.6	0.90
Greater Hobart	1.3	0.9	0.74
Greater Melbourne	18.6	19.7	1.05
Greater Perth	8.2	8.2	1.01
Greater Sydney	20.6	20.8	1.01
Northern Territory	0.5	1.0	1.95
Rest of New South Wales	11.5	11.3	0.98
Rest of Queensland	9.3	10.2	1.09
Rest of South Australia	1.3	1.6	1.21
Rest of Tasmania	1.8	1.2	0.69
Rest of Victoria	6.0	6.2	1.04
Rest of Western Australia	1.7	2.2	1.31

6.4.4. Margins of error

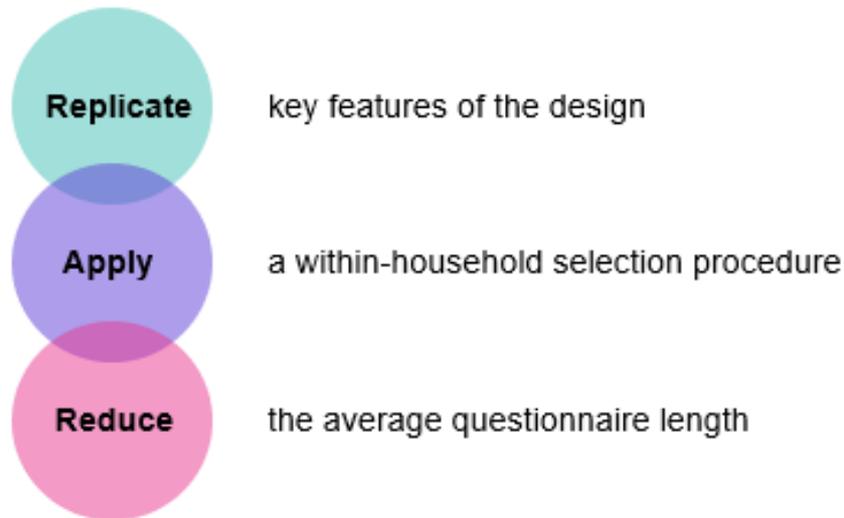
The overall sample size achieved was 1,813. Weighting and survey design features that depart from simple random sampling tend to result in an increase in the variance of survey estimates. This increase, known as the design effect or DEFF, should be incorporated into the margin of error, standard errors, and tests of statistical significance. The overall design effect for a survey is commonly approximated as $1 + CV^2$, where CV is the coefficient of variation of the weights. For this survey, the margin of error (half-width of the 95% confidence interval) incorporating the design effect for full-sample estimates at 50% by sample:

± 4.6 percentage points.

Estimates based on subgroups will have larger margins of error. It is important to remember that random sampling error is only one possible source of error in a survey estimate. Other sources, such as question wording and reporting inaccuracy, may contribute additional error.

7. Recommendations

Overall, there are limited recommendations for improvement following the 2018 delivery of the AVS. These include:



Replicating key features of the design

The methodology for the survey was informed by a review of international literature and learnings from prior experience administering similar surveys, as detailed throughout this report. The specific combination of response maximisation efforts utilised for the AVS led to a response rate of 30.2%, up from 18.6% in a similar 2016 study in which some of these design features were not employed (survey branding and incentives).

To maintain similar response rates, we recommend replicating the following design features from the AVS:

- select addresses from the validated national postal contributor records in the G-NAF (unless coverage is more critical than sample efficiency)
- use of a sequential mixed mode approach to data collection (push to web)
- preparing a detailed approach and reminder schedule including a number of touch points, a range of modes and materials
- if time permits, maximise duration between key contact points, particularly questionnaire mailings, to all but exhaust returns and remove sample with known outcomes prior to the next sample draw
- develop a recognisable brand identity for the study and carry this through all survey materials
- for multi-national surveys like the World Values Survey, emphasise the importance of the Australian study in the global survey context
- offer non-contingent incentives with the first mailing to encourage participation
- offer contingent incentives to encourage full completion (reduce drop off / partial completions)

As the incentives and branding were new features of the design, it is likely these contributed to some extent to the improved response. However, as it is unclear the extent to which each contributed and which, if any, other design features led to the increased response, experimental designs could be considered to assess these.

If budget permits, and further increasing the response rate is desirable, it may be useful to test offering higher incentives as an additional response maximisation mechanism.

Applying a within-household selection method

A within-household selection method was omitted from the design due to concerns that it had contributed to higher rates of non-response in a previous push to web study conducted on behalf of the Australian National University. For the AVS, the error introduced through non-response bias attributable to completing the selection routine was seen as a greater risk than self-selection.

To reduce the biases associated with self-selection for household surveys in future studies, we recommend conducting an experiment contrasting self-selection against a systematic process for selecting the respondent in order to understand the errors associated with each process. Possible selection methods for address-based studies include a next / last birthday approach (Battaglia et al., 2008 and Olson, Stange & Smyth, 2014) or a youngest / oldest approach (Olson et al., 2014). The latter approach yields a lower response rate but improves the representation of young people in the sample (which is a known issue for hard copy surveys). The recommended experimental approach would therefore depend on the objectives of the study.

Reduce questionnaire length

One final response maximisation recommendation would be to reduce the length of the survey.

Previous studies have demonstrated that mail out surveys achieve higher rates of non-response the more pages are contained in the booklet (Edwards et al., 2009; Sahlqvist et al., 2011). For the hard copy questionnaire to be more appealing, the length of the survey booklet could be reduced and more 'white space' introduced to the design, making the questionnaire appear less dense.

Additionally, mobile devices are being increasingly used to complete online surveys. People who participate via this mode are more likely to be on the move, distracted and around other people, meaning they constitute a less captive audience. The Pew Research Center recommends that errors associated with completing on a mobile device can be reduced by limiting both the wordiness (of questions and response options) and the number of questions in the instrument (McGeeney, 2015).

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Appendix 1 Final questionnaire booklet

