Tests of an Anonymous Schedule.

- 1. Investigations have been proceeding for some time into the question of deleting any reference to name and address on Census Schedules. A pilot test was held concurrently in Sydney and Bathurst/Orange in July 1974 to evaluate what effect anonymity would have on the quality of Census data.
- 2. Three systems were tested:
  - (i) Standard surname and address supplied, Census Collector to check for completeness except when householder chose to seal schedule in an envelope.
  - (ii) Sealed Envelope surname and address supplied but no Collector check as all schedules sealed in envelope.
  - (iii) Anonymous no surname or address on form and no collector check as all schedules sealed in envelope.
- 3. The standard (i) collection system generally yielded a higher response rate for questions than the other two collection systems. The test indicated that the overall non-response rate would be significantly and unacceptably higher if an anonymous Census was conducted. In addition, the accuracy of the data collected suggested that respondents gave more reliable answers when name and address were required and the Collector could check the form for completeness.

# Future Developments

There have been a number of suggestions made to facilitate the taking of an anonymous Census, such as a 'tear-off' part at the top of the schedule which is given to the respondent by the collector at 'pick-up'. This detachable part would contain name and address. This type of system and others will probably be tested before the 1981 Census.

## Overseas Practice

No other country has ever conducted an anonymous Census

# Maintenance of Confidentiality

Unlike other governmental agencies (e.g. Taxation and Medibank) the Bureau does not retain any information on names and addresses. Once the statistical data has been successfully transferred to computer tapes all Census forms are destroyed. No details on names and addresses are transcribed to the data tapes and thus there are no means of linking the data back to individuals after this point.



# WORKING PAPER Nº P1

1981 Census of Population and Housing

Development Programme - Procedural Issues

# **ANONYMITY**



Development and Evaluation Subsection Population Census Branch AUSTRALIAN BUREAU OF STATISTICS Canberra

## 3 EVALUATION

#### A THEORETICAL EVIDENCE

Some literature has been written on the desirability and practicability of using anonymous schedules in a social research situation. Although an anonymous census has never been attempted anywhere (to the writer's knowledge), some of the findings made in regard to research surveys and their use of anonymous schedules can be translated to a census situation.

Social researchers have in the main advocated the use of anonymous questionnaires, (where identifiers were not necessary for follow-up purposes) for two reasons. Firstly, they believe that response will be higher and candour greater where persons' names are not associated with the responses given. Only under an absolutely anonymous system can respondents remain convinced that no repercussions will result from their responses. Secondly, researchers believe there is a tendency for respondents to answer questions in a manner they perceive as being favourable to the researcher, especially if their name is required on the questionnaire. Thus data collected is biased towards the perceived socially acceptable, unless confidentiality can be guaranteed.

With these two aspects in mind, researchers have attempted to statistically verify the presence or absence of these anonymity effects. However, results have varied considerably, and as expressed by Pearlin:

"the results of these inquiries are inconclusive, but they suggest that anonymity does NOT appreciably influence the nature of responses. They have shown that respondents tend to answer questionnaire items the same, identified or not." (P640).

Pearlin worked from the premise that anonymity would invite candour and participation by those holding critical opinions, and his research studied trainee nurses opinions' about the adequacy of their pay, promotional opportunities and the way in which things were run in the wards, as well as items touching on authority and influence in the hospital. His hypothesis was that those who felt positively about these conditions were more likely to sign the questionnaire than those holding negative opinions. This, however, was not the case. In conclusion Pearlin found that, "those who were positive in their answers were no more likely to sign than those who were negative", and proceeded to establish that the willingness to be identified with one's opinions was more likely to be influenced by one's personality (a self-worth syndrome), than by the nature of the opinions expressed.

Singer, on the other hand, maintained that confidentiality only became desirable when questions were intrusive. Using a range of twelve sensitive questions (ranging from income to smoking marijuana to masturbation), varying degrees of confidentiality were promised to the various subsamples.

Results, however, were not conclusive. Even amongst the sub-sample where there was no promise of confidentiality, only two questions elicited a total non-response rate of 10% or more: the question about income (11% non-response), and the question on masturbation (10% non-response).

Degree of confidentiality did, however, have some effect, both on response rate and on the propensity of respondents to admit to deviant behaviour:

"the assurance of confidentiality ..... does appear to affect the rate of non-response to individual questions. With one exception, respondents who were told that their answers would remain completely confidential had the lowest non-response rate...." (P151).

and:

"the condition in which the respondent is promised absolute confidentiality produced the highest estimates on three of the four most sensitive questions asked of the entire sample. Thus there is at least the suggestion that a promise of absolute confidentiality enhances the quality of response to sensitive questions, over and above its effect on item non-response." (P156)

This latter conclusion, however, has not been verified by all research into the effects of confidentiality; as the literature summary by Fuller states:

"While it has been generally assumed that respondents are less likely to report socially desirable answers when responding anonymously, previous research ... has revealed SMALL OR NO differences in the response given by subjects under anonymous and under identified conditions." (P292)

Indeed, in terms of the effects of confidentiality on item response, Fuller's study found the exact opposite to the predicted outcome. Administering questionnaires to both naval officers and enlisted men (half of which were required to give their name and half of which were not), he found that respondents who were required to identify their answers were MORE likely to respond and this tendency was more promounced among the officer group than the enlisted men.

Such an unexpected result could have two interpretations — firstly, certain persons may feel that their opinions are important to a study only when they are identified as their individual opinions. Hence an unintended consequence of anonymity may be a reduction of this perceived value of specific individual's response. Secondly, it could be that officers feel some pressure to respond, and the anonymity instructions reduced this perceived pressure.

Fuller did, however, find a small but consistent social desirability bias between the anonymous and identified groups - the responses given by the identified group tended to be more positive than the responses from their anonymous counterparts.

Wildman, in his study of mid-western non-union teachers' attitudes towards unions and strikes, found that such a socially-desirable bias from identified as opposed to anonymous respondents, was very insignificant, if indeed it existed at all. He did find though, that some of the questionnaires were returned with the identification particulars destroyed. Obviously a few (not sufficient to significantly influence results) respondents find identification threatening and this lends support to Pearlin's idea that willingness to give one's name depends on the personality of the respondent, and not the information sought.

Another study designed to test the existence of a bias in terms of more socially acceptable responses from identified respondents was carried out by Ash & Abramson. By questioning "middle-class white respondents" on their attitudes to blacks, ethnocentrism and political economic conservatism, they sought to reveal that answers would be biased in the direction of admitting to more socially approved attitudes than would have been the case had the questionnaires been completed anonymously.

The results of their study showed that on the Negro prejudice scale, the anonymous group had a slightly higher (more prejudiced) mean score than the identified group. On the other two scales, however, this relationship was reversed, causing Ash & Abramson to conclude:

"... that verbally expressed attitudes ... as recorded on scales relating to ethnocentrism, political—economic conservatism, and anti-Negro prejudice, are not biased in either a more "pro" or more "anti" direction as a result of the requirement that they sign the scales, thus identifying themselves." (P723)

The results obtained in this study however, could be interpreted in a different manner. It could well be possible that the respondents chosen for this survey did not perceive ethnocentrism or political - economic conservatism as being socially unacceptable, in which case the requirement of identification would result in bias to the Negro prejudice scale only (as was evidenced in these results).

The literature, therefore, yields no clear theoretical stance in favour of or against the use of anonymous data collection. It would appear that where data is of a particularly intrusive nature, guaranteeing confidentiality could improve the quality of the answers. Absolute confidentiality, however, can only be achieved in a situation where returns can be made anonymously. This point is illustrated by Singer:

"It has become increasingly clear that although research organisations
... promise to protect the confidentiality of respondent replies, such
guarantees ordinarily have no legal standing; the relation between
researcher and respondent is not recognised as privileged. If
records are subpoenaed, there is ultimately nothing, short of going
to jail, that the researcher can do to redeem the promise of
confidentiality made to respondents. If there is no need to identify
respondents for administrative purposes or follow-up studies, the problem
of confidentiality can sometimes be handled by destroying overtly
identifying information ..." (P146)

Erdos & Morgan Inc, a survey research incorporation in America has found that a promise of absolute confidentiality is more likely to have meaning to respondents where an identification code is used on the questionnaire in preference to respondent's names.

Erdos & Reiger conducted a study using both keyed and unkeyed questionnaires, half the keyed questionnaires being accompanied by a letter explaining the presence of the code and the reason it was needed; and assuring complete confidentiality of the data contained therein. The results from their study are perhaps most appropriate for the present inquiry:

"The results of this test indicated that, first, it is possible to use visible keys and get a high response rate with a long (eight page), fairly difficult questionnaire, which includes personal and financial questions .....

Second, there was no difference in the response rate to visibly keyed versus unkeyed questionnaires .....

Third, the procedures considered helpful in improving response rates are also helpful when using visible keys. For example ....

THE PRESTIGE OF THE SPONSOR HELPS THE RESPONSE RATE." (P16)

This final point highlights the need for the ABS to establish a rapport within the community it serves. Abundant positive publicity (stressing the measures taken to ensure confidentiality of data) prior to census taking is likely to have a much more positive effect on response rates and item response, than an anonymous collection system, if the conditions portrayed in this brief review of the literature are applicable to a census situation.

#### B TEST EVIDENCE:

The ABS has run a series of pre-tests in which it has attempted to assess the feasibility of an anonymous census. The benefits of an anonymous census intuitively appear to be improved public attitudes to the census because of a greater belief in the confidentiality of the information supplied. This increased credibility in the eyes of the public should be reflected in higher response rates, higher item response (especially for intrusive questions), and a better quality response - ie more accurate answers.

As we have seen in the literature section, studies which have sought to identify these types of effects resulting from the use of anonymous collections have had inconsistent results, the majority finding that response patterns do not vary with anonymous as opposed to identified schedules. The only studies which did find slight response improvements by using no name, were those whose questions were exceedingly intrusive — to the extent that answers often provided incriminating evidence against the respondent. It is thus pertinent to analyse the results obtained in the Australian context from the three field tests in which anonymity has been tested, to verify whether or not response would be significantly better were we to use an anonymous system in a census situation. This analysis will be in terms of:

- i overall response rates;
- ii item response rates; and
- iii accuracy of response

The three pre-tests which have tested a no-name schedule are the Sydney pre-test, 1974; the Wangaratta pre-test, 1977; and the Bathurst/Orange pre-test, 1978. The results of all these are detailed in Appendix A, B and C.

## B1 1974 SYDNEY PRE-TEST:

The results of the 1974 Sydney test are displayed in Appendix A - the three anonymity factors we are concerned with here are:

- i  $A_0$  standard collection full name required with the collector checking response.
- ii A<sub>1</sub> full name required, but respondents provided with envelopes.
- iii A2 first name required, and respondents provided with envelopes.

- Overall response the major feature of response between collection systems was that the two envelope systems ( $A_1$  &  $A_2$ ) resulted in the return of too high a proportion of completely blank schedules. Whereas the number of outright refusals was slightly lower in these systems than in the standard collection method, the proportion of blank schedules was 3% and 3.8% compared with 1%. Where the envelope was kept constant, ( $A_1$  &  $A_2$ ), it becomes evident that an anonymous schedule performs the worst in terms of non-response (but not significantly).
- 2 Item response analysis of item response rates (depicted in Appendix A), lead to the following conclusions;
- i the standard collection system ( $A_0$ ) generally yields a higher response rate for questions than the other two collection systems. Of the analysis carried out,  $A_0$  came up best in 17 of the cases (testing at the 95% level).
- ii The question on income is regarded as one of the more intrusive questions, and thus it might be anticipated that response to this question would be better where name is not required. However, this was not the case, as the highest response for this question came from the standard collection procedure (A and A and
- 3 Accuracy of response as measured by the post-enumeration survey, the quality or accuracy of response appeared not to be affected by the collection system tested.

This point was supported by evidence from the analysis of gross difference rates (a comparison of census answers with answers obtained in the post-enumeration survey):

"The anonymity of the collection system seems to have done little to improve (or indeed affect) the accuracy of census answers ...

The fact that the Gross Difference Rate for income was not affected by collection systems is quite significant. Obviously people do not feel more inclined to give more truthful answers to contentions questions under the protection of an anonymous system".

#### B2 1977 WANGARATTA PRE-TEST

The 1977 Wangaratta field test did not consciously test an anonymous census system, as there was no control group against which the optional name response could be compared. Never-the-less, some interesting facts emerged. Table 1 in Appendix B shows the number of respondents who chose to give their name, and the number who chose not to, when given the option. The relatively high proportion that chose to give no name (44.3%) indicates that this option is

adopted by more than just that segment of the population who strongly resent giving their name on a census schedule. Obviously many respondents who would have no qualms about giving their name under normal circumstances, did not because it was not required. If such a policy (ie that of an optional name census schedule) was adopted for an actual census, the Bureau must be prepared to accept that as many as 50% of schedules will be returned anonymously, and probably even more if civil liberty groups etc use the media to encourage respondents not to give their name.

- Overall response this was extremely high in Wangaratta, with the occurrence of only two refusals. This may have been a function of the fact that name was optional, and hence respondents were more likely to feel secure of the confidentiality of their answers; or it may be a function of the cooperative and amiable nature of the Wangaratta population. Given the friendly reception given to most of the collectors during this test, the latter is likely to be the case!
- 2 Item response a comparison of response between those who did and those who did not give their name, for selected questions, is given in table 2 of Appendix B. Although there was no control group, and thus no conclusions can be made with respect to how response may have differed had name been made compulsory, table 2 indicates that response levels between the two groups were virtually identical. This was so even for the intrusive question (income) which in fact scored better when respondents identified themselves, but not significantly so.
- Accuracy of response from an analysis of the PES, the Wangaratta test scored badly as far as accuracy of data was concerned. Of the 761 persons in the PES, 259 (34%) "mucked up" at least one question; although the majority of these persons (211) mucked up only one question. Because the Wangaratta test was testing the use of an OMR self coding schedule, a factor likely to be associated with many of the "mucked up" answers, no inference can be made about the use of optional name schedules and data accuracy from this test.

## B3 1978 BATHURST-ORANGE PRE-TEST

The Bathurst/Orange field test used three sample groups relevant to the confidentiality issue:

- C<sub>1</sub> respondents required to provide first names only.
- C<sub>2</sub> respondents required to provide their full name; and
- $C_3$  name was made optional.

The C<sub>1</sub> option was seen as a type of compromise - first names do not provide sufficient information for there to be a breach of confidentiality; and yet is sufficient to use in imputing certain information, and act as a guide to the respondent.

An analysis of the types of name supplied in terms of the ammount of name information required on each schedule type is given in Appendix C Table 3. This table reveals that for all those persons given a C3 (optional name) schedule, 44.1% gave their full name, whilst 46.5% gave no name. These results are in accordance with the results of a similar analysis in the Wangaratta test.

Non-response rates for each of the schedule types are displayed in Appendix C (for those questions where denominators are reliable).

- Overall response. The covert refusal where respondents simply sealed the blank schedules in the envelope and returned it to the collector as occurred in the July 1974 test was also prevalent here, with a total of 411 schedules being returned blank in this manner (ie approximately 2.5% of schedules). This practice may also have been encouraged in the C<sub>3</sub> option by the fact that name was not required; and hence the threat of being followed up and penalised was somewhat diminished. As is evidenced in Appendix C Table 2, the C<sub>3</sub> option had a significantly higher number of blank covert refusals than both the C<sub>1</sub> and C<sub>2</sub> options (3.3% as opposed to 2.0% and 2.3% respectively).
- Item response the table desplayed in Appendix C shows that response is significantly better under the standard, full-name approach. Using a t-test and testing for significance at the 95% level, the results were:-
- i For 11 person questions and 10 dwelling questions the  $\rm C_1$  system performed significantly better than the  $\rm C_3$  system.
- ii For 17 person questions and 5 dwelling questions the  ${\rm C_2}$  system performed significantly better than the  ${\rm C_3}$  system.
- iii For 12 person questions and 3 Dwellings the  $\mathrm{C}_2$  performed significantly better than the  $\mathrm{C}_1$  system.
- iv For 4 person questions and 0 dwelling questions the  ${\rm C}_3$  system performed significantly better than the  ${\rm C}_1$  system.
- v For only 4 person questions the  $\rm C_2$  system did not perform significantly better than either the  $\rm C_1$  or  $\rm C_3$  systems.

These results clearly demonstrate that despite the intuitive appeal of an anonymous census collection, the results are negative. It would appear that the real effect of an anonymous system is purely to reduce the threat of the penalty for non-compliance.

Accuracy of response - the PES in the Bathurst/Orange pre-test consisted of a DCC and a PCC only, so no conclusions can be made with regard to the accuracy of the answers given under the different C systems.

#### B4 CONCLUSION

The evidence from field tests carried out by the ABS, like that found in the literature, does not lend support to the theory that people are more willing to respond in an anonymous collection, or that their answers will be any more accurate. The opposite in fact appears to be the outcome. If names are not required on the census schedule, the threat of penalty for non-compliance is diminished, and hence response rates fall significantly.

From the studies done, accuracy of answers does not appear to be affected by the anonymity or otherwise of the system. This was found to be true even for the income question, which is regarded by some as being the most intrusive question on the Schedule.

Such evidence would imply that the issue of confidentiality is no more than a myth created by the media because of its "newsworthy" value prior to a National Census. It is obvious that respondents are no more willing to respond to Census questions if their name is not required on the schedule in fact, they are less willing.

## B5 RECOMMENDATION:

Because of the problems which arise in the Field, Processing and Evaluation operations when name is not required; and because of the significant drop in response which can be attributed to anonymity, it is recommended that the requirement to provide full name be retained in future censuses.

Dwellings:	(Full Name)	A <sub>1</sub>	A <sub>2</sub> (No Name)
Type of dwelling unit	.96	.96	.96
Material of outer walls	1.00	.98	•99
Source of water supply	•99	.98	.98
Rooms	1.00	.98	•99
Fuel - cooking	•97	.97	.98
- home heating	.92	.87	.89
- water heating	•94	.90	.91
- lighting	•97	.94	•95
Motor Vehicles	.98	.94	
Mortgages - (a) owned	•95	.92	.93
	•95	.96	.94
(b) mortgage (c) mortgage holder	1.00	1.00	1.00
, ,	.98	.99	.98
- payments, 1st		1.00	1.00
- payments, 2nd etc	1.00	.88	
Rent - yes/no	.91		.87
Rural holdings	•99	•99	•99
Persons:	07	0.4	06
Relationship to head	•97	.94	
Sex	•99	.98	.98
Age	•95	.94	.91
Present marital status	•95	.94	.94
Usual residence	•99	.99	•99
Usual residence 3/7/73	.98	.97	•97
Usual residence 3/7/69	.97	.95	.92
Holidays	•99	.97	.98
Country of Birth	•99	.98	.98
Nationality	.98	.97	.98
Resident/visitor status	.98	.98	.97
Birthplace of father	.98	.96	
Birthplace of mother	•97	.95	. 95
Language - at home	.98	.96	
Language - not at home	•92	. 89	
Racial origin	•93	.91	. 89
Religion	•95	.95	• 95
Pre-school	.91	.90	.90
Child-minding	. 89	.87	. 89
Handicaps	•93		. 89
Life assurance	.73		.66
Medical benefits	.92		
Hospital benefits	.87		
Educational institution	.82	.76	.78
Level of schooling	. 89	.81	
Qualifications	.95	.91	
Retirement benefits scheme	•93	.91	
Social security benefits	.90	. 87	
Licence - motor vehicle	.96	.92	
<ul><li>motor cycle/scooter</li></ul>	•53	. 47	
Issue - ever married females	•94	.90	• 90
- present marriage	.92	.88	.90
Duration of present marriage	•93	.91	
Income	.91	.89	.88
Do any work last week	.98	.98	.98
Have a job	.91	.86	.74
Looking for work	.89	.81	
Usual hours worked	•94	.94	
Occupational status	•95	.95	
Occupation	.96	.95	
Industry - trading name	.94		
- address	.91		
- kind of -	.87		.83
Mode of travel to work	.96	•95	
		•//	
TOTAL RESPONSE:	•94		.91

# APPENDIX B: 1977 WANGARATTA PRE-TEST

TABLE 1: NO OF PEOPLE USING NAME/NO MANE WHEN GIVEN THE OPTION

TYPE OF NAME	SCHEDULE TYPE					
	A	В	C	TOTAL		
NO NAME	2752 35.8%	2499 32•5%	2440 31.7%	7691 44•3%		
FULL NAME	2778 31.4%	3039 34•4%	3025 34.2%	8842 51.0%		
INITIALS	14 -	5 <del>-</del>	6 -	25 -1%		
SURNAME	89	112	83	284 1.6%		
GIVEN NAME	90	78 -	73 -	241 1.4%		

TABLE 2: RESPONSE RATES TO SELECTED QUESTIONS BY NAME FACTOR QUESTION NO NAME FULL NAME TOTAL SEX .96 .96 .96 .96 MARITAL STATUS .96 .96 RELATIONSHIP .97 .97 .97 .96 ACTIVITY .96 .96 USUAL RESIDENCE .95 .92 .93 BIRTHPLACE .99 .99 .99

.66

.66

.65

INCOME

3.7

1.8

APPENDIX C: 1978 BATHURST/ORANGE PRETEST
ITEM NON-RESPONSE RATES BY ANONYMITY FACTOR

TIMI NON-IMALONAL INITIA DI IL		11101						
DWELLING QUESTIONS								
	C1			C2			C3	
Type of Dwelling	4.5	\$	+	6.2		+	7.8	
No. of Dwelling Units	8.8	\$	+	12.5		+	14.3	
Material of Outer Walls	0.5		+	0.7			1.0	
No Rooms	1.3		+	1.6			1.9	
No. Bedrooms	1.2		, +	1.4			1.7	
Bathroom	0.4			0.3			0.3	
Kitchen	0.7			0.7			0.7	
Water Supply	0.1	\$	+	0.4			0.3	
Sewerage	0.2	\$	+	0.5			0.5	
Cooking	1.6			1.5			1.9	
Home Heating	5.8		+	5.1		+	7.1	
Water Heating	7.7		+	6.2	*	+	8.2	
Lighting	4.9		+	4.7	*	+	6.1	
Date Built	4.7			4.6			4.7	
Motor Vehicles	2.4			2.2			2.5	
Rural Holdings	3.2			3.2			3.9	
Owned/Purchased	4.7			3.8	*		4.5	
PERSON QUESTIONS:								
Relationship	2.0			2.0			2.0	
Major Activity	1.1			0.9			0.9	
Usual Resident	5.5			5.4			5.0	*
Moved into area since 1976	10.2			8.1	*	+	9.7	
Period of Residence	1.1			0.9		+	1.2	
Religion	3.4			2.5	*	+	2.9	*
Childminding	2.4			1.6	*		1.7	
Birthplace	2.4			1.5	*		1.7	*
Educational Institution	11.8			11.6			11.5	
Age Left School	7.7		+	6.8	*	+	8.7	
Qualifications	17.3		+	15.9	*	+	21.5	
Income	12.3			11.2	*	+	12.8	
Work Last Week?	12.2			10.8	*	+	12.2	
Job Status	5.5			5.0			4.9	*
Occupation	4.0			3.4	*	+	3.9	
Industry	4.3			3.6	*	+	4.1	
Birthplace-father	1.8		+	1.7		+	3.7	
B00000000								

2.0

Birthplace-mother

	C1		C2			C3
Languages	2.4	+	2.4		+	3.8
Travel to Work	1.2	\$	1.5	*		1.4
Handicap	2.1		2.2			2.2
Benefits	3.2	\$ +	4.1	*	+	6.5
Total Issue	8.0	+	7.1		+	12.1
Duration of Marriage	2.3	+	1.9		+	7.1
Married Issue	9.1	+	8.5		+	14.0
Car Licence	1.4	+	1.7		+	4.3
Bike Licence	2.9	+	3.3			3.6

NB The above questions are the only ones displayed because they are the ones for which reliable denominators are known for calculating response rates.

- \* Significantly better than C<sub>1</sub>
- \$ Significantly better than C<sub>2</sub>
- + Significantly better than C<sub>3</sub>
- C<sub>1</sub> First name
- C<sub>2</sub> Full name
- C<sub>3</sub> Optional name

TABLE 2: NUMBER OF COVERT REFUSALS x 'C' FACTOR

DIVISION	C1	C2	C3
01	57	55	82
02	49	74	94
TOTAL:	106	129	176
	2%	2.3%	3.3%

TABLE 3: Particulars of name information given for the three 'C' schedule types

		Full name	Surname Only	No Name	Other
C	(First name only)	26.0%	2.6%	19.5%	51.9%
C2	(Full name)	73.0%	1.7%	20.2%	5.0%
C3	(Optional name)	44.1%	4.0%	46.5%	5.4%

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