RESEARCH NOTE

STABILITY AND CHANGE IN ETHNIC IDENTIFICATION IN AUSTRALIA: AN AGGREGATE LEVEL ANALYSIS

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A cohort approach is used to detect changes in ethnic identification between the 1986 and 2001 Australian censuses. The aim is to observe whether particular ethnic groups were more or less likely to state the same ancestry in 2001 as in 1986. Age–sex specific survival ratios are applied to the ancestry groups in three 15-year age cohorts in 1986 to estimate the number that would have survived to 2001, adjusting for emigration and underenumeration. Some ethnic groups appear to demonstrate remarkable consistency in their ancestry response in the two censuses. Others show an increase in size between the two censuses that could be attributed to differences in the format of the ancestry question and the guidelines and examples provided on the census form. The coding of only two ancestries appears to have contributed to a decrease in the size of some groups.

Keywords: census data, ancestry, ethnic origin, cohort analysis, ethnic groups, Australia

With many countries becoming more ethnically diverse because of increased international migration in the second half of the twentieth century, there is increasing interest in the ethnic origins of their populations. This is particularly the case in the countries of settler migration such as Australia, Canada, New Zealand and the United States. This has led to the inclusion of questions on ethnic origin or ancestry in the population censuses in these countries and subsequent interest in how people interpret and respond to these questions.

An ancestry question has been asked three times in the Australian census, in 1986, 2001 and 2006 (the 2006 data are not yet available). It was first included in the 1986 census in response to a high level of interest in the community for data on ethnic origin. The inclusion of the question, which was modelled after the ancestry question first asked in the 1980 United States census, was recommended by the Population Census Ethnicity Committee, convened by the Australian Bureau of Statistics (ABS) to advise it on the formulation of a suitable question on the ethnicity of the population. The committee had suggested that the ancestry question was a more historical approach to measuring ethnicity and therefore would provide a more consistent response than a self-perceived ethnic identification approach (Australian Bureau of

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Statistics 1984). Pilot tests of the question before the census and an evaluation of the data after the census indicated that most people had responded to the best of their knowledge about their ancestry. However, ABS (2000: 33) also noted that the ancestry question in 1986 was less useful in indicating the ethnicity of people whose ancestors had migrated to Australia a long time ago, than of people who were overseas-born or whose parents were overseas-born, whose answers were generally consistent with their responses to the birthplace, parents' birthplace and language questions (Australian Bureau of Statistics 1984; 1990).

The question was asked for the second time in the 2001 census to 'enable identification of those groups which cannot be identified through the census questions on language, religion, birthplace, parents' birthplace and Aboriginality' (Kunz and Costello 2003: 3). An examination of the ancestry data from the two censuses showed significant changes in some ancestry groups (Khoo and Lucas 2004). For example, there was a near-doubling of the number of people stating Australian or Irish ancestry and significant increases in the number with Italian or German ancestry. There were also large increases in the number of Serbians, Croatians and Macedonians but decreases in many other European ancestries. The number of people of non-European ancestries also increased substantially. But there was a large decrease in the number of people identifying as having Australian Aboriginal or Torres Strait Islander ancestry.

Some of the changes could be explained by changing immigration patterns during the 1980s and 1990s. Immigration from Asia, the Middle East, Africa and the Pacific region increased substantially in the late 1980s and 1990s but there was a slowdown in migration from Europe after the 1970s. Therefore the increase in people of non-European ancestries and decrease in some European ancestries were expected. There has been natural attrition due to mortality in many European migrant communities that are aging and not being replenished by new migrants, although immigration from some Eastern European countries increased in the late 1980s and early 1990s following political change in that region. Political change in Eastern Europe is also likely to account for the increase in the number or people claiming Serbian, Croatian and Macedonian ancestries.

It has also been suggested that differences in the format of the ancestry question in the 1986 and 2001 censuses could have affected the responses of people on their ancestry (Kunz and Costello 2003). Some of the increase in the number of people responding as Irish was thought to be attributed to Irish being second on the list of ancestries specified on the 2001 census form. Because ABS wanted to automate coding as much as possible, the six most common ancestries as recorded in the 1986 census plus 'Australian' were shown on the 2001 census form with boxes that people could check. As shown below there were also differences in the guidelines given in the two censuses on answering the question.

Given these changes, further analysis of the 1986 and 2001 ancestry data is needed to investigate which groups were likely to have changed their answer in responding to the ancestry question in the two censuses, taking into account the effects of immigration and population change. This paper uses a cohort approach to examine people's ancestry response at an aggregate level at the two censuses to find out which groups were likely to have changed their ancestry identification and whether any observed changes might be related to differences in the question format or real shifts in ancestry identification over the 15-year interval.

US and Canadian experience

When the ancestry question was first asked in the 1980 US census, there was much interest in the data that were generated. A number of studies had also evaluated the quality of the data and their usefulness in measuring ethnicity in the US (e.g. Lieberson and Waters 1988, 1993; Alba 1990; Farley 1991). There was concern that there was a conceptual problem in the design of the ancestry question because people were asked to identify their ancestry, which could lead to some confusion between ancestry and identity (Lieberson and Waters 1993). It would appear that this concern would also apply to the ancestry question in the Australian censuses, although specific guidelines were given about the definition of ancestry. Farley (1991) also found inconsistencies in the ancestry counts of some US groups of European origin, particularly those whose ancestors had immigrated a long time ago. His analysis also suggested that people's responses were affected by the question on language, which preceded the ancestry question and asked whether English was spoken at home. The question prompted several people to state English as their ancestry. Farley's findings would suggest that specific mention of an ancestry on the Australian census form would also lead to a greater likelihood of people responding with that ancestry. Lieberson and Waters (1993) also addressed the instability and inconsistency of the responses of the white population in the United States to the ancestry question in the 1980 US census. Their analyses indicated that parents tended to simplify their children's ancestry – for example, responding with a single ancestry for their children when they (the parents) have different or multiple ethnicities – a finding that was also observed in analyses of the ancestry data from the Australian censuses (Khoo 1991; Khoo and Lucas 2004). Lieberson and Waters (1993: 421) also observed 'evidence of instability within a life span, particularly at the time of marriage and leaving home'. Examples they gave were people who changed their ethnic identification to match their spouse's when they married into strongly ethnic families, and young people being more likely to state a single ancestry when they no longer lived with their parents. Lieberson and Waters suggested that ethnic ancestry might be 'far more complicated and far less "fixed" than had hitherto been assumed'.

That people's responses to questions on their ethnic origin may change over time has also been indicated in an analysis of Canadian data (Goldmann 1998). The study, which applied cohort survival analysis to census data, showed that changes in the size of four ethnic groups – Chinese, German, Jewish and Ukrainian – could not be explained by mortality, emigration or differential undercount between the censuses, leading to the conclusion that the changes were due to the phenomenon of ethnic mobility (Goldmann 1998). It has been suggested that ethnic mobility, defined as 'the virtual movements of people through changes in their group affiliation' can occur with changes in people's circumstances or the sociopolitical context and environment (Goldman 1998: 124).

Changes in the responses about ethnic origins that result in a net outflow from an ethnic group over time can also indicate the assimilation of these groups in settler societies. Lieberson and Waters (1993) referred to the usefulness of ancestry data in providing an assessment of the degree of assimilation of later-generation European origin groups in the US. Their analyses indicated patterns of flux in the ethnic identity of the white population that they thought could have important implications for the future size of some groups and future research on ethnicity.

The ancestry questions in the 1986 and 2001 Australian censuses

The ancestry question in the 1986 census was:

> **What is each person's ancestry?**
> For example: Greek, English, Indian, Armenian, Aboriginal, Chinese, etc.

The following guidelines were given in a separate booklet distributed with the census form:

> 'Ancestry' means the ethnic or national group from which you are descended. It is quite acceptable to base your answer on your grandparents' ancestry. Persons of mixed ancestry who do not identify with a single ancestry should answer with their multiple ancestry. Persons who consider their ancestry to be Australian may answer 'Australian'.

The 2001 census asked the ancestry question in the following format:

> **What is the person's ancestry?**
> For example: Vietnamese, Hmong, Dutch, Kurdish, Australian South Sea Islander, Maori, Lebanese.
> Provide more than one ancestry if necessary.
>
> English ☐
> Irish ☐
> Italian ☐
> German ☐
> Greek ☐
> Chinese ☐
> Australian ☐
> Other – please specify . . . . . .

The guidelines given with the 2001 census read as follows:

> When answering this question consider and mark the ancestries with which you most closely identify. Count your ancestry back as far as three generations, if known. For example, consider your parents, grandparents and great grandparents. If you are a descendant of South Sea Islanders brought to Australia as indentured labour around the turn of the century, please answer 'AUSTRALIAN SOUTH SEA ISLANDER'.

While the wording of the question in the two censuses remained more or less the same, there were differences in the format, guidelines and examples provided on how to answer the question. Ancestry was defined in the 1986 census but not in the 2001 census which only asked people to respond with the ancestries they most closely identified. Therefore, there might be a greater degree of self-perceived ethnic identification in people's responses in 2001 than in 1986. People were asked to go back three generations in 2001 but only two in 1986 when considering their ancestry. Also, in an unprecedented move in response to the Australian South Sea Islander community who felt that they were underenumerated in the 1986 census, a specific prompt was given in the 2001 census to people with claims to this ancestry to identify themselves.

It is not the aim of this paper to discuss the meaning and implications of these changes in question format and guidelines for the census ancestry data; that has been done in an ABS evaluation of the 2001 data (Kunz and Costello 2003). However, the

changes do raise the question to what extent the changes in ancestry between the two censuses may be the outcomes of these differences and to what extent they may reflect real shifts in people's ancestry identification over the 15-year interval aside from the effects of immigration and population change. In an attempt to answer this question, it is necessary to examine which people are likely to have changed their answer when responding to the ancestry question in the two censuses.

The optimal approach to examining which people change their ancestry response in the two censuses would be to link the two censuses at the individual level to form a data set that would allow a longitudinal analysis of ancestry response at the individual level. However, the census unit record file is de-identified and no such linkage is possible.

It is possible, however, to follow cohorts over time and examine their ancestry responses at an aggregate level. This would indicate which ancestry groups within the cohort are more or less likely to report the same ancestry response, on a net basis, in the two censuses, with the effects of immigration and natural attrition removed. This methodological approach was used by Goldmann (1998) to measure shifts in ethnic origin, or ethnic mobility, for four ethnic groups using Canadian census data. It is used in this paper to examine stability and change in people's ancestry response in the two Australian censuses.

A cohort analysis of ancestry groups

This cohort analysis compares the ancestry response of people in particular age groups in 1986 with their ancestry response in 2001 when they were fifteen years older. The population in 1986 was divided into three age groups corresponding broadly to three life cycle stages: 0–14, 15–29 and 30–44 years. People in each age group were divided by sex and whether they were born in Australia or overseas. Age–sex-specific survival ratios were applied to each age–birthplace cohort to estimate the number that would have survived over the fifteen-year period to 2001. The survival ratios were those based on the 1993 life tables for Australia (Australian Bureau of Statistics 1994), 1993 being the midpoint of the fifteen-year period between 1986 and 2001. The same age–sex survival ratios were applied to the non-Aboriginal Australian-born and overseas-born populations. Since the Australian Aboriginal population has a significantly lower life expectancy than the Australian population as a whole, separate survival ratios based on experimental life tables (Australian Bureau of Statistics 1999) were used for people of Aboriginal and Torres Strait Islander ancestry.

The survivors of the three cohorts aged 0–14, 15–29 and 30–44 years in 1986 would be aged 15–29, 30–44 and 45–59 years in 2001; their estimated numbers were compared with the actual 2001 census counts of people aged 15–29, 30–44 and 45–59 years. Those who were born in Australia were compared with the number of Australian-born in 2001; those who were born overseas were compared with the number in 2001 who were born overseas and had arrived in Australia before 1986. Any residual difference between the 1986 survivors and the 2001 census count would comprise the number of people who had left Australia permanently during the intervening period, or were temporarily abroad and not enumerated in the 2001, plus the net effect of underenumeration of the cohort in the two censuses[1]. This residual difference was used to calculate an adjustment factor, covering both emigration and the net effect of underenumeration, that was applied to each ancestry group within the

Table 1 Results of cohort analysis of age–birthplace cohorts, 1986–2001

	Age in 1986		
	0–14	15–29	30–44
Australian-born			
Number in 1986	3,383,069	3,165,885	2,393,770
Survivors to 2001[a]	3,360,141	3,117,598	2,309,167
2001 Census count	3,044,833	2,984,445	2,262,959
Not in Australia in 2001[b]	315,308	133,153	46,208
% not in Australia in 2001	9	4	2
Adjustment factor[c]	0.91	0.96	0.98
Overseas-born			
Number in 1986	217,135	674,802	1,001,445
Survivors to 2001[a]	215,753	665,486	967,996
2001 Census count of those who arrived before 1986	148,077	528,283	856,103
Not in Australia in 2001[b]	67,676	137,203	111,893
% not in Australia in 2001	31	21	12
Adjustment factor[c]	0.69	0.79	0.88

a Estimated by applying age–sex survival ratios to 1986 population.

b Emigrated during intercensal period or not enumerated in the 2001 Census.

c See text for explanation. Calculated as 1 minus the proportion not in Australia in 2001.

Source: Khoo and Lucas (2004) based on 1986 and 2001 Censuses.

age–birthplace cohort[2]. The assumption was that the rate of emigration and the net effect of underenumeration would be the same for all ancestry groups within each age–birthplace cohort.

The residual differences are shown in Table 1. The smallest difference occurred for the Australian-born who were aged 30–44 years in 1986. This is not surprising, as most people in this cohort would be bringing up children during the 15-year period and in the middle of their working life, and would be less internationally mobile than younger people: they would be unlikely to emigrate during this stage of their lives. In contrast, some 300,000 of the Australian-born cohort aged 0–14 in 1986 were not enumerated in the 2001 census. Some of these young people, who would be aged 15–29 in 2001, were likely to be overseas, as many Australians go abroad at this stage of their lives to work and travel for a few years. Some of them may have been missed in the 2001 census, as the rate of underenumeration was over three per cent in the 20–29 age group in 2001.

Compared with the Australian-born population in each age cohort, a much larger proportion of the overseas-born of the same age who were present in Australia in 1986 were not enumerated in 2001. Some former immigrants might have returned

to their country of origin or moved again to another country. It has been estimated that settler loss from Australia during the years 1947–91 was about 21 per cent (Hugo 1994). There would also be some foreign students and foreign visitors among the overseas-born population. Most foreign students were in the 15–29 age group; those enumerated in 1986 would have returned to their home country by 2001, and would contribute to the number of overseas-born people aged 15–29 in 1986 who were not in Australia in 2001[3].

The age–birthplace cohorts by sex obtained from the 1986 census were tabulated by ancestry based on the number of persons in each age–sex–birthplace group who indicated a given ancestry as either their first/only or second ancestry[4]. The age–sex-specific survival ratios used earlier for each age–birthplace cohort were applied to each ancestry group in the cohort to estimate the number that would have survived to 2001. The total number of male and female survivors in each ancestry group[5] was then adjusted for emigration and the net effect of underenumeration in the two censuses using the adjustment factor for the age–birthplace cohort. This expected size of each ancestry group in 2001 was then compared with the actual 2001 census count based on the first and second ancestry responses and a ratio of observed to expected group size was calculated. These calculations were made only for ancestry groups with more than 1000 persons in the age–birthplace cohort in 1986.

These cohort analyses provide only an indication of stability and change in ancestry between 1986 and 2001 because a number of assumptions were made in surviving the 1986 age cohorts to 2001. One assumption was that all persons with the exception of people of Aboriginal and/or Torres Strait Islander ancestry were subject to the same mortality rates of the Australian life tables of 1993. However, many migrant groups have standard mortality ratios that are about 0.80–0.95 compared with the Australian-born non-Aboriginal population (Australian Institute of Health and Welfare 2002). The effect of applying the Australian survival ratios to the overseas-born population would be to underestimate the number of survivors for the overseas-born to 2001 by 5–20 per cent and to overestimate their ratios of observed to expected ancestry counts by the same amount. The second assumption was that the same adjustment factor was used to adjust for emigration and net underenumeration in all ancestries in an age–birthplace cohort, with the exception of the Aboriginal and Torres Strait Islander populations. No emigration was assumed for the indigenous Australians. It was of course possible that the adjustment factor for emigration and net effect of underenumeration in the two censuses might vary by ancestry.

It should also be noted that the census forms are usually completed by an adult member of the household on behalf of other members and certainly on behalf of children in the household. Thus in interpreting the results for the 0–14 cohorts, it should be noted that their parents or some other adult in the household would have reported their ancestry in the 1986 census, but in 2001, at age 15–29 they would probably have answered the ancestry question themselves.

Results and discussion of findings

Table 2 shows for selected ancestries[6] the ratio of the 2001 census ancestry count to the 1986 numbers survived to 2001 and adjusted for emigration and the net effect of under-enumeration in the two censuses. Ratios of actual to expected ancestry of less than 1.0 indicate a decline in identification with that ancestry in 2001 compared

Table 2 Ratio of actual to expected ancestry counts in each age–birthplace cohort for cohort for selected ancestries[a]

	Australian-born			Overseas-born		
Ancestry	0–14	15–29	30–44	0–14	15–29	30–44
Increased identification						
Croatian	1.70	2.17	5.34	–	2.01	1.68
Macedonian	1.57	1.39	–	–	1.93	1.66
Serbian	7.50	12.63	20.19	–	8.80	6.16
Slovenian	1.42	2.10	–	–	–	1.55
Decreased identification						
American	0.78	0.51	0.60	–	0.47	0.75
British	0.03	0.02	0.02	0.07	0.07	0.08
Jewish	0.39	0.36	0.41	–	–	0.61
Torres Strait Islander	0.56	0.56	0.68	–	–	–
Czech	0.62	0.60	–	–	0.67	0.71
Danish	0.71	0.60	0.63	–	0.86	0.94
French	0.68	0.45	0.44	0.79	0.79	0.84
Swedish	–	0.57	0.62	–	0.70	0.89
Swiss	–	0.71	0.69	–	0.76	0.96
Welsh	0.75	0.52	0.49	1.12	1.05	1.11
Stability of identification						
Dutch	1.07	1.07	0.95	1.10	1.03	1.07
Filipino	0.99	–	–	1.09	0.99	0.98
Finnish	0.96	0.90	–	–	1.15	0.99
Hungarian	1.03	1.05	1.08	–	–	1.09
Latvian	1.06	1.10	1.08	–	–	1.08
Lithuanian	1.01	1.08	1.10	–	–	1.19
Maltese	1.01	1.03	0.96	–	1.00	0.97
Polish	0.98	0.98	1.00	1.10	0.98	1.02
Russian	1.06	0.98	0.98	–	1.05	1.03
Turkish	0.92	0.97	–	1.07	1.03	0.87
Ukrainian	1.06	1.09	1.14	–	–	1.18
Vietnamese	1.06	–	–	1.12	1.01	1.00

a None of these ancestries appeared on either year's census form.

Source: Author's calculations based on customized tabulations of 1986 and 2001 census data.

with 1986, while ratios greater than 1.0 show an increase in identification. Some of the ancestry groups registered a substantial increase or decrease and some remained fairly stable over the 15-year period. None of the ancestries in Table 2 appeared on the census forms in 1986 or 2001; at both censuses people had to actually write these ancestries on the census form in answering the ancestry question. The observed changes are therefore less likely to be due to differences in question format.

Among the ancestries that registered a substantial increase between 1986 and 2001 were the ethnic groups with origins from the former republic of Yugoslavia. In all age groups, both for the Australian-born and overseas-born, some people who did not say that they were Serbian, Croatian, Macedonian or Slovenian in 1986 appeared to have changed their responses and stated these ancestries in 2001. These changes in ethnic identification were likely to be related to the ethnic conflicts in the Balkan peninsula in the 1990s, the subsequent breakup of the former Yugoslav republic and the formation of separate Serbian, Croatian and Macedonian nation states. In 1986 more than 148,000 people stated Yugoslavian ancestry (Australian Bureau of Statistics 1990); very few people did so in 2001. Most of these people were likely to be of Serbian ancestry and responded as such in the 2001 census, resulting in the very high ratios shown in Table 2. It was interesting to note that the ratios increased with age for both Serbian and Croatian ancestries for the Australian-born, who would be mostly second-generation. Ethnic conflicts can have a polarizing effect on diaspora populations; the political conflicts in the Balkans and the subsequent formation of nation states along ethnic lines appears to have awoken a particularly strong sense of ethnic identification among the second generation of adult age.

In contrast to the Balkan ancestries, many other European ancestries showed a decline in numbers even after the effects of natural attrition through mortality and reduced immigration in recent years were removed in the cohort analysis. One of the contributing factors to the decrease in these European ancestries was likely to be the ABS decision to code only the first two ancestries. Many European ancestries were stated as the third or fourth ancestry in the 2001 census and therefore were not counted; as a result they lost a significant percentage of their count in 2001 (Kunz and Costello 2003). It was estimated that the French, Swedish and Danish lost at least 45 per cent of their count while the Swiss lost over 30 per cent (Kunz and Costello 2003: 25). The Welsh lost about 40 per cent of their count; most of these would be the Australian-born who were second, third or later generation as the overseas-born first generation appeared to be fairly stable in their ancestry response. Many people also specified American as a third or fourth ancestry, and American lost one-third of its 2001 count (Kunz and Costello 2003). If these 'lost' ancestry counts were added to the 2001 counts[7], their ratios would have been closer to 1. The ratios for the European ancestries were also lower for the Australian-born than the overseas-born cohorts and were around 0.9 for some of the overseas-born in the 30–34 age cohort. Most Western European groups have had high rates of intermarriage (Khoo 2004; Price 1993) so the ancestries were likely to be stated as the third or fourth ancestry particularly among the Australian-born who were second, third or later generation. The lower ratios for Czech ancestry among the overseas-born could in part be a reflection of considerable return migration to the Czech Republic during the 1990s of former immigrants, many of whom came to Australia as refugees in the 1970s following the Warsaw Pact intervention in Czechoslovakia in 1968.

Table 3 Ratio of actual to expected ancestry counts in each age–birthplace cohort by appearance on census forms

	Australian-born			Overseas-born		
Ancestry	0–14	15–29	30–44	0–14	15–29	30–44
A. Listed on 2001 form						
English[a]	0.93	0.87	0.88	1.03	1.12	1.11
Irish	2.48	1.84	1.92	2.26	1.84	1.71
Italian	1.22	1.14	1.17	1.36	1.16	1.06
German	1.57	1.28	1.31	1.51	1.23	1.20
Greek[a]	0.98	1.00	1.04	0.96	1.02	0.95
Chinese[a]	1.20	1.34	1.41	1.17	0.87	1.02
Australian	1.42	1.67	1.67	1.51	1.92	1.86
B. Example on 2001 form only						
Lebanese	1.16	1.06	1.09	1.22	1.17	1.13
Maori	1.07	1.08	–	0.98	0.93	0.98
Vietnamese	1.06	–	–	1.12	1.01	1.00
C. Example on 1986 form only						
Aboriginal	0.37	0.35	0.38	–	–	–
American	0.75	–	–	–	0.96	0.94
Indian	0.74	0.67	–	0.89	0.77	

a Also appeared as an example on the 1986 census form.

Source: Author's calculations based on customized tabulations of 1986 and 2001 census data.

There was also a very large decrease in identifying as British. It is possible that some of the people who wrote British on the 1986 census form might have marked off one of the boxes on the 2001 census form instead. The decline in Jewish ancestry is less likely to be related to question format and may reflect a real shift in identifying as such, indicating the occurrence of ethnic mobility. A similar conclusion was reached in Goldmann's (1998) study of the Jewish group in Canada.

Table 2 also shows a number of ancestries with ratios around 1.0 indicating quite remarkable stability between the two censuses. They include a number of Southern and Eastern European, Middle Eastern and Asian ancestries. All these groups are communities formed as a result of immigration during the 1950s, 60s, 70s and early 1980s and seem to have maintained a strong sense of their ethnic ancestry. Besides the ancestries shown in Table 2, others with observed counts that were within 10 per cent of their expected counts were Portuguese, Assyrian, Egyptian, Iranian, Khmer, Lao and Sinhalese in the overseas-born adult age cohorts.

Table 3 (Part A) shows the seven ancestries that were listed on the 2001 census form with boxes for people to tick. All had ratios of observed to expected counts that

were close to or greater than 1.0 and some (such as Irish, German and Australian) had ratios that were substantially greater than 1.0. It would appear that the specification of ancestries on the census form had a positive effect on identification, prompting people to tick the box if they considered the specified ancestry to be part of their ethnic heritage. The ratios were lower for the Australian-born of English ancestry (closer to 0.9), for Greek ancestry (closer to 1.0) and for overseas-born older cohorts of Chinese ancestry (in the 0.9–1.0 range). English, Greek and Chinese also appeared on the 1986 census form as examples and this might have lessened the positive effect seen among the other ancestries that were specified on the 2001 census form but not the 1986 census form.

The high ratios observed for Irish ancestry suggest that other factors might also have a role in prompting many people to identify as Irish in 2001 but not in 1986. Irish ancestry appeared to be underidentified in the 1986 census when compared with other estimates of the ethnic composition of Australia's population at the time. Work by Price (1988) on the ethnic origins of Australia's population indicated that many Australians had some Irish heritage and that the Irish component of the population was at least 17 per cent in 1987. Yet only six per cent of the population identified as having Irish ancestry in the 1986 census (Khoo and Price 1996). Since then many Australians may have become more aware of their Irish heritage owing to an increased interest in genealogy in the 1990s, particularly in the origins of ancestors who migrated to Australia in the nineteenth century, many of whom were Irish.

The relatively high ratios for Australian ancestry may also be due to an assimilation effect, particularly among people in the two adult cohorts. Note that the ratios are higher for the adult cohorts than the 0–14 age cohort. Many of these people who were second, third or later generation[8] had become more likely to state Australian as their ancestry or one of their ancestries in 2001. The proportion of the total population stating Australian ancestry increased from 22 per cent in 1986 to 36 per cent in 2001. About 10 per cent of the total population identified Australian as one of two or more ancestries as did 18 per cent of the second generation (people born in Australia with one or both parents born overseas) (Khoo and Lucas 2004).

The positive effect on ethnic identification that an ancestry appearing on the census form can have is further illustrated by the ratios in Part B of Table 3 for three ancestries that appeared as examples on the 2001 census form only. All the ratios are close to or greater than 1.0. None had ratios that were less than 0.9. Contrast this with the ratios for ancestries listed in Part C of Table 3 that appeared as examples on the 1986 census form but not on the 2001 census form. The negative effect of this combination seems to be particularly acute in the case of Aboriginal ancestry.

In 1986 only eight per cent of people who identified as Aboriginal or Torres Strait Islander in a separate question on indigenous status gave their ancestry as Australian; the vast majority (81 per cent) reported their ancestry as Aboriginal or Torres Strait Islander (Australian Bureau of Statistics 1990: 23). Yet in 2001, more than half (53 per cent) of all people who identified as Aboriginal or Torres Strait Islander in the question on indigenous status checked 'Australian' as their ancestry (Khoo and Lucas 2004). Only 25 per cent stated their ancestry as Aboriginal or Torres Strait Islander or other Australian indigenous peoples. It was likely that the inclusion of Australian in the list of ancestries with tick boxes on the 2001 census form prompted many Aboriginal Australians to identify their ancestry as Australian.

There was also a considerable decrease in the identification with Indian ancestry

Table 4 Number (and percentage) of ancestries in each age–birthplace cohort by size of ratio of actual to expected ancestry counts

Age–birthplace cohort	Ratio of actual to expected ancestry			Total
	> 1.1	0.9–1.1	< 0.9	
Australian-born				
0–14 in 1986	14 (29%)	18 (38%)	16 (33%)	48
15–29 in 1986	11 (27%)	15 (37%)	15 (37%)	41
30–44 in 1986	8 (24%)	11 (33%)	14 (42%)	33
Overseas-born				
0–14 in 1986	10 (37%)	12 (44%)	5 (19%)	27
15–29 in 1986	11 (21%)	26 (50%)	15 (29%)	52
30–44 in 1986	14 (24%)	27 (46%)	18 (30%)	59
Total	68 (26%)	109 (42%)	83 (32%)	260

Source: Author's calculations based on customized tabulations of 1986 and 2001 census data.

for both Australian-born and overseas-born cohorts. The ratios for Armenian ancestry in the overseas-born cohorts are closer to 1.0. The Armenian migrant community appears to have maintained their ethnic identification between the two censuses even though Armenian ancestry was not specified on the 2001 census form.

Although a cohort analysis was not carried out for the Australian South Sea Islander ancestry because of its very small number in 1986 (521 people), its inclusion as an example on the 2001 census form and in the specific guidelines had a positive effect on identification: there was a sixfold increase to 3442 in the 2001 census (Khoo and Lucas 2004).

Table 4 summarizes the results of the cohort analyses by showing the number of age–birthplace-specific ancestries (or ancestry groups) that have shown stability or significant change between 1986 and 2001. Overall, 42 per cent of the ancestry groups had ratios within the range 0.9–1.1 indicating a fair amount of stability in their aggregate ancestry responses between 1986 and 2001. A further 26 cent had ratios exceeding 1.1, and 32 per cent had ratios less than 0.9. The overseas-born population showed more stability in their ancestry responses than the Australian-born population, with 44–50 per cent of ancestry groups having ratios in the 0.9–1.1 range compared with 33–38 per cent of the ancestry groups in the Australian-born population. In contrast, the Australian-born population had a greater percentage of ancestry groups with ratios less than 0.9 compared with the overseas-born population. These patterns are consistent with the expectation that the first generation would have a greater likelihood of maintaining its ethnic ancestry while the second, third and later generations (who are Australian-born) would be less likely to identify their ethnic origins with the passage of time because of changing perceptions of ethnic identity related to assimilation and other life course events[9]. This might be similar to the

'flux' in ethnic identification in the US white population referred to by Lieberson and Waters (1993).

Table 4 also shows an increase with age in the percentage of ancestry groups with ratios less than 0.9. It would appear that older adults were more likely than younger people in 2001 to cease identifying with the ancestry they reported in 1986. The results for the 0–14 age cohorts did not show any particular pattern to suggest that it mattered whether it was their parents or themselves who reported their ancestry in the two censuses.

Conclusion

This cohort analysis was undertaken in an attempt to compare the ancestry responses of the same group of people by age group and whether Australian-born or overseas-born, in the 1986 and 2001 Australian censuses, to observe if particular groups of people were more or less likely to state the same ancestry in 2001 as in 1986, after controlling for the effects of mortality and adjusting for emigration. The results suggest that some of the changes in ancestry counts between the two censuses may be related to differences in the format of the ancestry question as well as shifts in ethnic identification or ethnic mobility. They also indicate patterns of stability and change that may be consistent with each group's sense of ethnic identity at the time of the two censuses.

The positive effect on ancestry counts of an ancestry appearing on the census form was demonstrated in the analysis by ratios showing that all the ancestries listed with tick boxes or as examples on the 2001 census form showed either little change or an increase in all age–birthplace cohorts between 1986 and 2001. None showed a significant decline in numbers between the two censuses. Those that showed stability within each age–birthplace cohort included English, Dutch, Greek, Vietnamese and Maori. English and Greek also appeared as examples on the 1986 census form. Those that showed an increase included Irish, Italian, German, Chinese, Australian and Australian South Sea Islander.

The effect of question design was also indicated in the case of Aboriginal ancestry. Many people who stated Aboriginal and/or Torres Strait Islander ancestry in 1986 did not do so in 2001. The data showed instead that the percentage of the Indigenous population (who were separately identified by the question on Indigenous status) who stated Australian ancestry rose sixfold between 1986 and 2001. Aboriginal was specified as an example on the 1986 census form but not on the 2001 census form, whereas Australian ancestry was listed on the 2001 census form with a tick box but not on the 1986 census form.

A number of Western European ancestries such as French, Swiss, Danish and Swedish also experienced a real decrease in their ancestry counts. Because of high intermarriage rates and the sequencing of tick boxes, many of these people stated these ancestries as their third or fourth in the 2001 census and the ABS decision to code only the first two ancestries stated meant that these ancestries lost a significant number of people.

All the ethnic groups that made up the former Yugoslav republic showed substantial increases in their ancestry counts between the 1986 and 2001 censuses. These increases indicate a shift in ethnic identification on the part of many Australian residents with origins in the former Yugoslavia that was likely to be related to political

change in the Balkan peninsula in the 1990s and the formation of separate Serbian, Croatian and Macedonian nation states.

Some ethnic groups appeared to demonstrate remarkable consistency in their ancestry response at the aggregate level in the two censuses. They included many Southern and Eastern European ancestries such as Greek, Maltese, Polish, Hungarian, Russian and Ukrainian, both Australian-born and overseas-born. They also included many Middle Eastern, Asian and Pacific ancestries such as Turkish, Vietnamese, Filipino, Sinhalese and Maori. These ancestry groups are all of recent migrant origin and most people are first or second generation Australians. The consistency of their ancestry counts suggests a keen sense of their ethnic origin.

The cohort analyses can show the net change in people's ancestry response only at the aggregate level, not at the individual level. It is possible that within ancestry groups, individual responses have offset each other resulting in a reduced net impact at the aggregate level. Notwithstanding these limitations in the cohort approach, the results of the current analysis have indicated changes in ancestry counts that appear to be related to question design and other methodological or substantive factors. A more definitive analysis of the consistency of people's ancestry responses at the individual level will have to await the creation of a statistical longitudinal census data set as proposed recently by ABS starting with a five per cent sample from the 2006 census. This will allow comparisons of each individual's response to the ancestry question at successive censuses and studies of the contextual factors of ethnic mobility.

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Notes

1 Underenumeration was about the same in both censuses: 1.9 per cent in 1986 and 1.8 per cent in 2001. However there were some differences by age. The rate of undercount in the 2001 Census was 3.1 per cent for people aged 20–24 and 3.2 per cent for people aged 25–29, with males in these age groups having the highest rates of 3.7 and 3.8 per cent respectively (Australian Bureau of Statistics 2003: 20). This residual would also include Australian-born people who were overseas in 1986 but had returned in 2001.
2 The adjustment factor is calculated as 1 minus the residual difference as a proportion of the cohort survivors to 2001, as shown in Table 1.
3 Some foreign students might not have filled in the census form in 1986 if they considered themselves to be overseas visitors. Foreign students and visitors in the 2001 census were not included in this analysis since the 2001 census counts included only overseas-born people who arrived in Australia before 1986.
4 Only the first two ancestry responses were coded for each individual in both the 1986 and 2001 censuses. 12 per cent of the total population stated at least two ancestries in 1986 and 22 per cent did so in 2001.
5 Aboriginal ancestry groups were excepted as no emigration was assumed in their case.
6 For full results, see <http://www.jpr.org.au/upload/JPR23-1-Khoo-append.pdf>.
7 It was not possible to do this because the 'lost' counts were not known for each of the six age–birthplace cohorts.

8 Only 1.4 per cent of the people who responded as Australian were born overseas (the first generation). Among the overseas-born first generation, only 1 per cent stated Australian as the sole ancestry and another 1 per cent stated Australian as a multiple response.
9 There are of course variations among the ethnic groups, with some minority groups, especially those with well-developed communities and institutions or classified as visibly different from the mainstream population, being more likely to retain a keen sense of their ethnic origin into the second and third generations.

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