



No Longer Indigenous

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Abstract

Investigating individual level-Indigenous identification change by Aboriginal and Torres Strait Islander Australians has been enabled through the linkage of census data across time. This study focusses on the population who moved from an identification of Indigenous in the 2011 census to not Indigenous in the 2016 census. We calculated transition probabilities for a range of personal characteristics to investigate the influence of broad life-course transitions on the pattern of identification change. In addition to age, we found that sex, employment, mixed ancestry, interstate migration, and living arrangements had the strongest associations with the risk of a transition to not Indigenous. The highest transition probabilities were at each end of the adult life-course and the role of “not stated” was implicated, destabilising assumptions that decisions to identify as Indigenous, or not, always reflect personal agency. Finally, the paper challenges the adequacy of an origin-based identity question to define the increasingly complex ethnic histories of Aboriginal and/or Torres Strait Islander people. Both improved definition and enumeration of Indigenous Australians are fundamental to current national conversations about constitutional recognition and continuing gaps in measured health and wellbeing.

Keywords Indigenous · Demography · Population · Ethnicity · Identity transition · Australia

Introduction

In 2023, Australians expect to vote in a referendum on changes to their constitution that will recognise Aboriginal and Torres Strait Islander people as the first peoples of Australia (NIAA, 2022). If successful, the changes will also formalise a representative Aboriginal and Torres Strait Islander body to advise and make recommendations to the Parliament on matters relating to their people and communities.

Although Aboriginal people and Torres Strait Islanders are recognised as distinct ethnic groups in Australia, their populations are characteristically diverse in terms of individual identification with nations, tribes, and language groups (Crooks et al.,

2019), the naming conventions used to describe their own distinct knowledge systems and identities (Williamson et al., 2021) and their evolving experiences since Australia was colonised in the eighteenth century (Carlson, 2016). No singular term has been agreed that sufficiently describes the diversity of their collective identity, however, we will use *Indigenous* to provide clarity and consistency for the reader.

In total, Indigenous Australians numbered close to 1 million people at the 2021 census, making up about 3.5% of the nation (ABS, 2022). This represents an increase of more than 750% since the 1971 census, which was the first Australian census to intentionally count the Indigenous population. Since colonisation, the lived and transmitted experiences of intergenerational trauma, racism and discrimination provide very legitimate reasons for Indigenous people not to identify themselves within government data collections (Atkinson et al., 2010; Maddison, 2013; Schwab, 1988). It is those who choose to identify as Aboriginal and/or Torres Strait Islander in the Australian census that become the basis for estimates of the population.

Statistical *identification* in data collections is presumed to be an active decision by the person identifying. However, responses to ethnicity questions have been shown to be situationally dependent. Identification differences can result from differences in collection methods such as the wording and response categories provided (Reid et al., 2016; Simpson et al., 2016), the context in which the question is asked, and, who asks the question and provides the answer (ABS, 2014; AIHW, 2013). Understanding people's decisions to identify themselves and their children are highly relevant to current actions towards constitutional recognition (Clark et al., 2017; Habibis et al., 2016). Both claiming and stepping away from an Indigenous identity is personal, culturally sensitive, political, and controversial (Carlson, 2016). However, Indigenous people in Australia have recognised that Indigenous identity can be fluid and have called for improved knowledge on identification changes and the impact on population counts (ABS, 2014; Crooks et al., 2019; Madden et al., 2016).

Investigation of individual transitions in the statistical identification of Indigeneity has been enabled through linked census data files—collectively labelled the Australian Census Longitudinal Datasets (ACL D). These offer the opportunity to better understand differential identification from one census to the next by using the additional people-based characteristics also collected. Analysis by the Australian Bureau of Statistics (ABS) of Indigenous population change between the 2011 and 2016 censuses showed that 21.4% of the population increase could not be explained by natural population change (births minus deaths) and was likely associated with people who newly identified ($n = 120,461$) (ABS, 2018). Because of the importance of this group to the growth of the Aboriginal and Torres Strait Islander population, they have been the focus of most research on Indigenous identification change. Studies have shown that the newly identified population is characterised as having better socio-economic status and is more concentrated in densely urbanised centres compared to rural areas (ABS, 2018; Biddle & Markham, 2018; Wilson, 2016).

During this same period, net population change also included those who formerly identified as Indigenous ($n = 45,042$). This identification change is less understood, and has been the subject of very little research. It consists of people who were

recorded as Indigenous in the 2011 census and changed to either non-Indigenous (approximately 40,000) or to “not stated” (approximately 4500) in 2016. Our paper focusses on this population and aims to (1) understand their socio-demographic and spatial profile, (2) investigate the influence of broad life-course transitions on identification change and (3) explore what this population reveals about the statistical collection of Indigenous identity.

A life-course approach is adopted because it is particularly suited to longitudinal data analysis by considering how a person’s past has impacted their present. Knowing that behaviours are more readily influenced during a life-stage transition (Kley, 2010), we have constructed age groups to identify the stages of childhood/youth, moving out of the family home, participating in employment, partnering and having children, and ageing further.

Defining Indigeneity in Australia

Despite their place as the first peoples of Australia, Aboriginal and Torres Strait Islander people have had little say in how they have been ‘defined’. After colonisation, inclusionary and exclusionary administrative practices enacted under any government legislation referencing blood quantum (i.e., the proportion of “racial heritage”) influenced estimates of the population size by defining who was—and was not—counted in the national population. A 1967 Australian referendum¹ established the responsibility of the ABS to fully enumerate Indigenous people in the national census from 1971. It changed the ‘race’ question to allow people to identify their racial origin rather than referring to ‘blood’, ‘race’, or ‘caste’ used in the previous census questions (Barnes, 1998).

In 1981, Federal Cabinet adopted a three-part working definition of Indigenous people in Australia: “An Aboriginal or Torres Strait Islander is a person of Aboriginal or Torres Strait Islander descent who identifies as an Aboriginal or Torres Strait Islander and is accepted as such by the community in which he or she lives” (DAA, 1981). The definition covers components of descent, self-identification and community acceptance. The current origin-based identification question (known as the Standard Indigenous Question (SIQ)) allows people to identify both Aboriginal and Torres Strait Islander origin:

Are you (Is the person) of Aboriginal or Torres Strait Islander origin?

No.

Yes, Aboriginal.

Yes, Torres Strait Islander.

¹ . The referendum asked eligible Australians whether they approved the proposed law to alter the Constitution allowing the Commonwealth Parliament to make laws with respect to Aboriginal people wherever they lived, and to include Aboriginal people in the national population count.

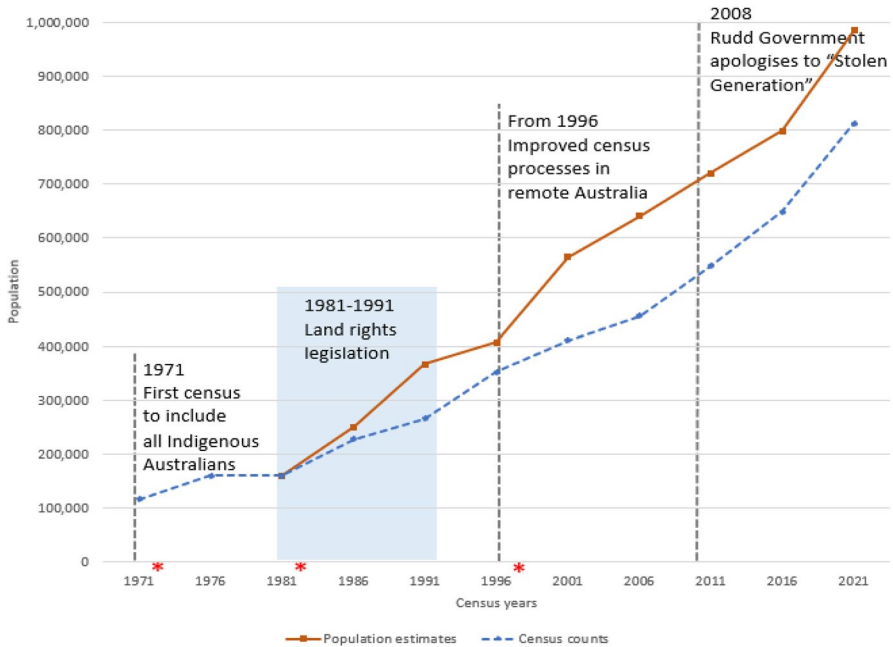


Fig. 1 Census counts and estimates of the Indigenous population, 1971 to 2021. * Changes in wording of SIQ in census Source: ABS Census counts (various), Estimates of Aboriginal and Torres Strait Islander Australians (various)

Yes, both Aboriginal and Torres Strait Islander.

While this question recognises two of the three concepts in the working definition (descent and identification), it only operationalises identification (Griffiths et al., 2019). This includes identification by oneself (self-identification) or by others. Griffiths et al. (2019) argue that the extent to which people who do self-identify is indicative of descent and/or community acceptance remains unknown.

In most family households, one person is generally responsible for completing the census form on behalf of others while other unrelated or group households can choose whether to complete a form individually or as a household. Additionally, when people are staying in places other than private homes, a dwelling-based form is completed to list all people resident there on census night, and separate personal forms are completed by individuals for themselves/their families that respond to the detailed census questions. There is no other ethnicity question included on the Australian census, though questions on ancestry, country of birth, religion and language spoken at home combine to provide indicators of the multicultural diversity of the Australian population.

Official statistics on the size of Indigenous Australian population over the last 50 years are illustrated in Fig. 1. The red line is the unadjusted population count from the census, while the blue line represents the Estimated Resident Population, which accounts for the net census undercount and those temporarily overseas

on census night. The intercensal increases are particularly significant from 1996 to 2001, although the growth trajectory across the whole period is substantial. This population growth should be interpreted in the context of changes to census wording and collection procedures (ABS, 2011; Barnes, 1998) and the political and social movements (significant events are annotated) associated with rights and recognition that strengthened racial confidence and pride over this same period (Rowse, 2013). The growth trend continues, with the latest census enumeration showing a population increase of 23% between 2016 and 2021.

Literature Review on Indigenous Identification Change

International Studies

Across other English-speaking colonised and settler states, similar patterns of Indigenous population growth have been recorded, including a shift to highly urbanised areas (Caron-Malenfant et al., 2014; Guimond, 1999; Thornton, 1997). Censuses in Canada, the United States and New Zealand gather information on multiple concepts of Indigenous identity, including ethnic origin and/or self-identification as an Indigenous person, race, membership of a tribal group and where applicable, registration status that allows determination of rights to lands, royalties, social benefits and government representation. In Canada, for instance, three distinct groups make up the Indigenous peoples, and population estimates of each have been sensitive to legislative changes around the registration rights associated with treaty arrangements. Ethnic mobility, the phenomenon where individuals and families report changes to which ethnic group they belong to over time, was put forward as the explanation for Canada's substantial Aboriginal population growth by a number of demographers (e.g., Caron-Malenfant et al., 2014; Guimond et al., 2014).

The complex nature of Indigenous *statistical* identification can be observed at the individual level with the introduction of linked or longitudinal data. Researchers using the annual New Zealand longitudinal Survey of Family, Income and Employment examined changes to self-identified ethnicity across three waves and found many respondents changed ethnicity at least once, with the strongest predictor being Maori, Pacific and Asian ethnicity, and those reporting membership of more than one ethnic group (Carter et al., 2009). Indigenous ethnic mobility was directly measured in the Canadian integrated census datasets and the National Household Survey for both 2006–2011 and 2011–2016, demonstrating its contribution to the growth in the Aboriginal population, and the movement between different Aboriginal groups (O'Donnell & LaPointe, 2019). In the U.S., Saperstein and Penner (2012) also used longitudinal data as evidence that an individual's identification of race changes over time, often responding to changes in social position and status, which they suggested had implications for reinforcing racial inequalities. Using both self-reported racial identity and interviewer reported racial identity, they found that changes in social circumstances could influence how an individual chooses their own racial category and also how they were classified by someone else.

The investigation of changes to racial and ethnic identification in the U.S. census by Leibler et al. (2017) found that response change was more common for American Indigenous peoples (those reported as American Indian, Alaska Native or Native Hawaiian), as well as *Other Pacific Islanders* and those in multiple-race response groups. In a previous study, Leibler and Ortyl (2014) specifically examined the growth in the American Indian population between the 1990 and 2000 censuses. They found ethnicity, age, sex and education differentially influenced the population growth, and suggested changes in the definition of “American Indian” and the opportunity to report more than one race in 2000 may have especially affected these groups. Leibler and Ortyl (2014) pointed to the results of other researchers who concluded that the increased race response instability of people with mixed racial heritage could result from a more dynamic self-identity which was harder to align with standard classification systems (Rockquemore, 1998), as well as result from the likelihood of being inconsistently identified by others (Porter et al., 2016).

Kukutai (2008) emphasised the importance of life-stage in ethnic identification, finding adolescents in New Zealand experienced changes to their reported ethnic affiliation because of a change from parental to self-reporting. Research on Aboriginal identity in Canada supported these conclusions, finding increases in every age group between 2011 and 2016 except those moving from the 15–19 group to the 20–24 group (Bollman, 2020).

To summarise, international research points to changing Indigenous population definition, life-stage, changing social status, and ethnic mobility and identity perception associated with ethnic mixing, as the strongest indicators of Indigenous identification change.

Evidence of Indigenous Identification Transitions in Australia

The 2006–2011 Australian Census Longitudinal Dataset was first used by Campbell et al. (2018) to demonstrate the impact of identification change on the growth of the Indigenous population. They found that the changed status of children generally coincided with the changes in the status of one of their parents. For the adult population, being middle aged, having an intimate partner who identified as Indigenous, changing residential address, living in remote and rural areas, not being employed, and not completing year 12 schooling, significantly increased the likelihood of people newly identifying as Indigenous. In addition, Biddle and Markham (2018) used the 2011–2016 ACLD to show the largest amount of net identification change increased the 0–14 age group by 17%, but it was lowest for people in their later teens to their mid-30 s. Overall, they concluded, “the relationship between age and identification change appears to be complex and non-linear” (p.4). Additional work by the same authors found the contribution of the newly identifying population improved progress in some socio-economic indicators and they demonstrated that this disguised outcomes for those who consistently identified as Indigenous, which in some cases declined (Markham & Biddle, 2018).

In their investigation of unexplained growth in the Indigenous population between 2011 and 2016, Markham and Biddle (2018) found a substantial increase in

the number of “not stated” records. These records included partially completed census forms ($n=223,165$, 1.0%), forms associated with people in non-private dwellings ($n=182,606$, 0.8%) (many of whom did not return their personal forms) and records where no census form was returned but the dwelling was judged as occupied ($n=1,005,727$, 4.5%). In instances of partial responses, the ABS may impute other data although never Indigenous status. Markham and Biddle (2018) showed that the number of imputed records was substantially greater than the number of records for people identifying as Indigenous, concluding this had a significant chance of biasing the understanding of population change. Although records that have imputed demographics are less likely to be linked on the ACLD, our interest is whether there is evidence that a change from Indigenous to “not stated” is associated with a person’s active decision not to identify their Indigeneity, or whether the process of census data collection does not offer the opportunity to self-identify.

Australian research examining the underlying factors driving Indigenous identification change is limited, however, focus group research found feelings of pride, the perception of positive consequences (both individually and collectively) and being provided an understanding of the purposes for which the data would be used, encouraged identification (ABS, 2013; NSW Aboriginal Affairs, 2015). Comparatively, and not surprisingly, the perceived risk of prejudicial treatment and stereotyping, past experiences of racism and discrimination, and discomfort with the manner in which the question was asked discouraged identification.

Data and Methods

Data

The ACLD was created to provide linked census records for a representative 5% sample of the Australian population between consecutive censuses (ABS, 2019). The 2011–2016 panel linked about 1.2 million records, which included most of the 2006–2011 records and additional records to represent births and new migrants. The process involved a deterministic linking method using exact or close matches for a set of common variables. It then applied probabilistic linkage based on the overall agreement in a common set of variables allowing a link to be assigned despite missing or inconsistent information where there was sufficient agreement on other variables.

Indigenous status was used to block links (in cases where Indigenous status did not match) and build links (in cases where they did) when creating the 2006–2011 panel. This may have increased the likelihood of assigning a link to a record pair that contained consistent Indigenous status information. In their study of identification changes between 2006 and 2011, Campbell et al. (2018) suggested that records in the group who no longer identified appeared to include a higher proportion of false links. An anonymised key using First name and Surname was constructed to link 2011 and 2016 records. This assisted in decreasing the proportion of false links²

² The false link rate is a precision indicator. $\text{Precision} = (\text{Total links} - \text{False link estimate}) / \text{Total links}$. $\text{False link rate} = 1 - \text{Precision}$.

and Indigenous status was dropped as a linking variable. Because of the unknown impact of differences in these linkage methodologies, we focussed on the linked panel between 2011 and 2016.

The overall linkage rate for the 2011–2016 panel was 76%, meaning about three quarters of the sample could be linked across the two census time points, with an estimated false link rate of 1.4%. The linkage rates, however, were lower for people identifying as Indigenous (about 64%) compared to non-Indigenous people (77%). They were also lower for people living in remote (69%) and very remote (59%) areas³ and for the age groups between 20 and 29 years, and 75 years and over.⁴

For analysing the data, we used the ACLD TableBuilder interface to extract custom tables from the census data variables made available in the ACLD 2011–16 linked file. Weighting was pre-applied to person-level data ensuring results were applicable to the whole population. Benchmarks were based on the 2011 and 2016 Estimated Resident Population (ERP), adjusted by the estimated probability that the person belonged to the longitudinal population using the approach developed by Chipperfield et al. (2017). Therefore, data extracted through TableBuilder produced weighted population counts.

The ACLD 2011–16 file included a predefined variable that ABS constructed to describe the consistency of Indigenous status across the two census points. This created the populations who (1) consistently identified as non-Indigenous across the two censuses, (2) consistently identified as Indigenous, (3) newly identified as Indigenous and (4) formerly identified as Indigenous. The formerly identified Indigenous population were people who transitioned from an Indigenous status in 2011 to non-Indigenous or not stated in 2016. The newly identified population transitioned from non-Indigenous or not stated in 2011 to Indigenous in 2016, while both the Consistently Indigenous and Consistently non-Indigenous populations had the same Indigenous status at both time points. The pre-definition of the formerly identified Indigenous population limited comparison between the groups who transition to a status of non-Indigenous compared to a status of ‘not stated’.

Methods—Constructing Transition Probabilities

Transition probabilities were calculated based on the risk of an identity transition. The no-longer-Indigenous transition probability was calculated as the number of people who formerly identified as Indigenous as a proportion of the population at risk of transitioning to not Indigenous (i.e., the total population of Indigenous people in 2011). Likewise, the newly Indigenous transition probability was calculated as the newly identified Indigenous population as a proportion of the population at risk of transitioning (i.e., the total population of not Indigenous people in 2011).

³ The ASGS is the Australian Statistical Geography Standard. The Remoteness Structure divides Australia into five classes of remoteness based on their relative access to services using the Accessibility and Remoteness Index of Australia (ARIA+).

⁴ See ABS Information Paper, ACLD 2011–2016 (2018) for detailed table of linkage rates.

Sankey diagrams, where the width of the lines are proportional to the flow of people, were used to visualise population flow between 2011 and 2016 based on their Indigenous status. They were constructed using the R code provided in the Appendix. Transition probabilities were also calculated for geographies based around concepts of geographic remoteness and for various people-based characteristics collected in the census by life-stages that were associated with changing Indigenous status in the literature. These included sex, household/living circumstances, labour force status, Indigenous status of parent or partner (where applicable), a linked indicator of whether the person had the same usual address in 2016 compared to 2011, and ancestry. The Australian census ancestry question collected up to two responses and these were processed by the ABS as ancestry 1 and ancestry 2 in the order they were provided on the census form and do not imply the relative significance of one ancestry over the other. All transition probabilities were separately compared to the probabilities calculated for the global no-longer-Indigenous transition for each life-stage. We also separately identified those making a no-longer-Indigenous transition to non-Indigenous or to 'not stated' where possible.

Methods—Testing the Risk of a No-Longer-Indigenous Identity Transition

To assess which characteristics are more strongly associated with the risk of a no-longer-Indigenous transition, a binary logistic regression model was applied to ACLD microdata using the GLM function in R Studio. We included unweighted variables⁵ based on the person's 2016 census characteristics, reasoning a person's current socio-economic circumstances and life-stage are likely to exert most influence on point-in-time identification. This differs from the a priori approach used by Campbell et al. (2018), although their results were applied to the model assumptions. We focussed on the adult population using their evidence that children were strongly tied to how others chose to identify them. The dependent variable was the probability of moving from an Indigenous identity in 2011 to not Indigenous in 2016. Apart from the Indigenous status of partner,⁶ the explanatory variables were included as follows:

Age group—These were aligned to the life-stage age groups. We expected young adults moving from late teens to early adulthood would be most at risk of changing identification.

Sex—Men experience the life-course differently to women (Campbell et al., 2018). Coupled with evidence from the New South Wales Aboriginal Affairs (2015) focus group studies showing women were more likely to always identify, we expected females would have a lower risk of changing their Indigenous status than males.

Household relationship—People living in family relationships will be at lower risk of changing their Indigenous status compared to people in other housing

⁵ As guided by advice in Winship and Radbill (1994)

⁶ Indigenous status of partner completely overlapped the household relationship of 'significant other' therefore both variables could not be included.

arrangements because the SIQ is likely to be completed by a family member. In contrast, we expected to see people in non-familial living circumstances as having a higher risk of changed Indigenous status.

Mixed ancestry—Research strongly links identity transitions to having mixed ethnic heritage. The two ancestry responses were combined into a single ancestry variable that identified: Aboriginal and/or Torres Strait Islander ancestry only, those with a mixed Indigenous and another ancestry, those identifying no Indigenous ancestry, and the case where both ancestries were not stated. We expected those with mixed ancestry, or no Indigenous ancestry, to have the highest risk of identification change.

Labour force status—Being employed may signal a life-stage transition for younger people but is also associated with increased mixing with other social groups for all adults. We expected labour force participation to have a higher risk of identification change.

Residential mobility—Migration may be linked to more general changes, both in people's lives and in the process of structuring their identities. It is highest for younger adults who are more likely to move for reasons associated with post school education and employment. The ACLD provides a linked variable that identified a move from the person's usual address in the previous census, either within the same jurisdiction or across state borders. We expected people making a cross-border residential move from one census to the next to be at higher risk of changing their Indigenous status.

Results

Figure 2 illustrates the flows of people making up the Indigenous population counted in the 2011 and 2016 censuses. A clear majority consistently identified as Indigenous (573,375), but substantial numbers changed their identification. An estimated 40,456 people identified as Indigenous in 2011 but non-Indigenous in 2016, and another 4586 moved from identifying as Indigenous to 'not stated' in 2016. A larger number newly identified as Indigenous from either non-Indigenous or 'not stated' in 2011 (129,619). The probability of transitioning from Indigenous to not Indigenous was 0.07 (or 7 people in every 100).

Spatial Distribution

To explore the spatial distribution of no-longer-Indigenous transitions, we mapped transition probabilities by remoteness categories within state/territory boundaries (Fig. 3). These categories grade remoteness by using an accessibility index and define areas as being major cities, inner regional, outer regional, remote, and very remote. Overall, no-longer-Indigenous transitions probabilities for people living in very remote Australia were one-tenth of those living in major cities (0.011 vs 0.11) and there was a falling gradient as remoteness increased. As illustrated in Fig. 3, the highest transition probabilities were for people living in major cities located in the south-eastern corner of Australia. In addition, they were higher for major cities

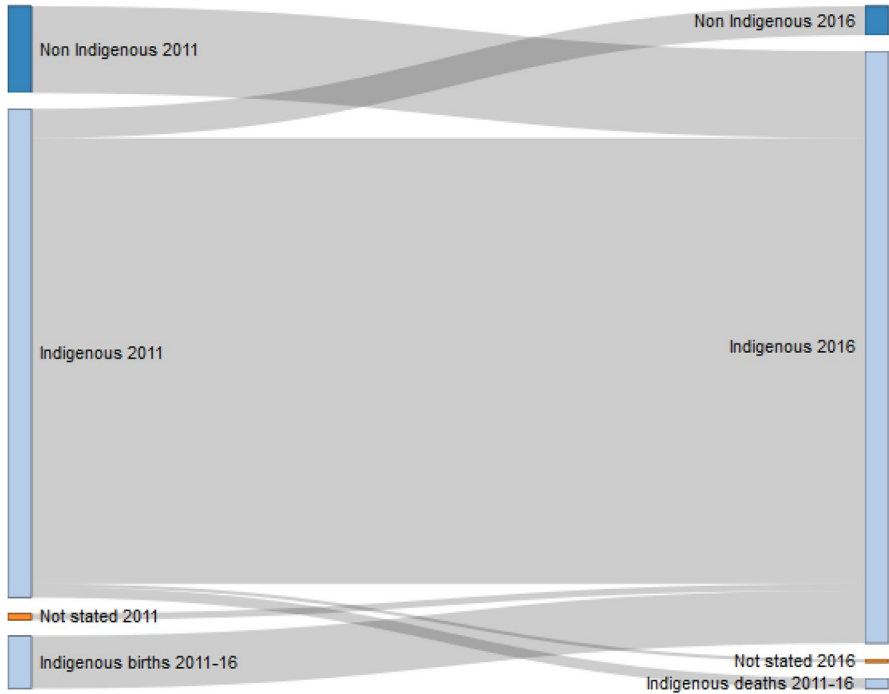


Fig. 2 Flows to and from identification as Indigenous between the 2011 and 2016 censuses. Source: Authors’ calculations from the 2011 to 2016 ACLD

relative to the regional and rural areas in each state and territory, corresponding to places of significant urbanisation.

Across the Life-Course

Transition probabilities are presented in Table 1 for each of the four consistency of Indigenous status categories, for the global population and each life-stage. They were highest across all life-stages for those who consistently identified as non-Indigenous, followed by those who consistently identified as Indigenous. For the newly identified Indigenous population, results showed decreasing transition probabilities as age increased, with the highest transitions recorded for children. This is distinct from those who were formerly identified which shows the second lowest transition probability recorded for children, while the highest were at either end of the adult life-course. These broadly align with life-stage transitioning—young adults moving out of home and older adults moving into facilities providing health or aged care. The middle years were associated with lower no-longer-Indigenous transition probabilities, similar to the transition probability for children.

More males than females made a no-longer-Indigenous transition (25,000 compared to 20,000 females), but both sexes were consistent in having the

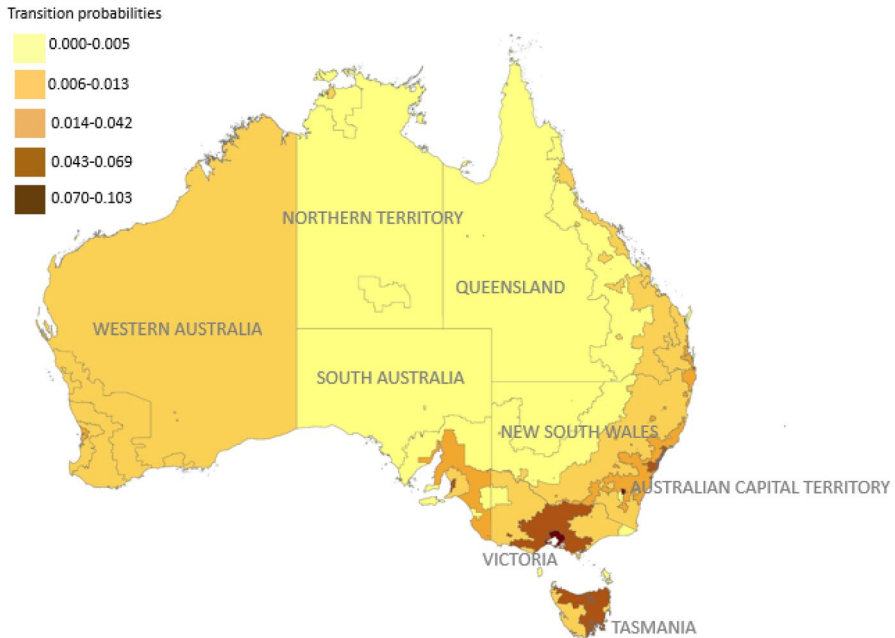


Fig. 3 No-longer-Indigenous transition probabilities by remoteness areas overlaid on state/territory boundaries, 2011–2016. Source: Authors calculations from ACLD 2011 to 2016

lowest transition probabilities for children (both less than 0.05) and showing a strong increase for young adults ageing to 20–24 in 2016 (0.11 for males and 0.10 for females). They were also consistent in having increasing transition probabilities for people ageing past 60, for example, 0.20 for males aged 80 to 84 and 0.14 for females.

Additional investigation of no-longer-Indigenous transition probabilities showed differences in the broad pattern of being recorded as ‘not stated’ rather than non-Indigenous in 2016. Figure 4 shows transition probabilities for more granular 5-year age groups by both statuses. No-longer-Indigenous transitions to a status of non-Indigenous identifies the jump between adolescent and young adult identification, and a marked increase from age 75. In contrast, the move to ‘not stated’ is remarkably uniform across all ages but with an observable increase past the age of 60.

Moving to “not stated” as a proportion of the formerly identified population is graphed in Fig. 3. It shows that the youngest and oldest life-stages make the largest contribution. This certainly suggests that agency is implicated in the process of being identified in these periods because they align with a higher likelihood of the SIQ being completed by someone else. But the observed patterns for older ages in Fig. 2 also suggests that misrepresentation of Indigenous people as non-Indigenous may occur for very similar reasons (Fig. 5).

Table 1 Transition probabilities by consistency of Indigenous status 2011–2016 and life-stage in 2011

Life-stage 2011	Consistently Indigenous (Indigenous → Indigenous)	Formerly Indigenous (Indigenous → not Indigenous)	Newly Indigenous (Not Indigenous → Indigenous)	Consistently non-Indigenous (Non-Indigenous → non-Indigenous)
Transition probabilities				
All ages	0.927	0.073	0.006	0.985
0–14	0.946	0.054	0.013	0.979
15–19	0.894	0.105	0.009	0.985
20–24	0.913	0.085	0.007	0.989
25–34	0.923	0.076	0.006	0.990
35–59	0.929	0.071	0.004	0.989
60+	0.878	0.119	0.002	0.980

Source: Authors calculations from ACLD 2011–2016

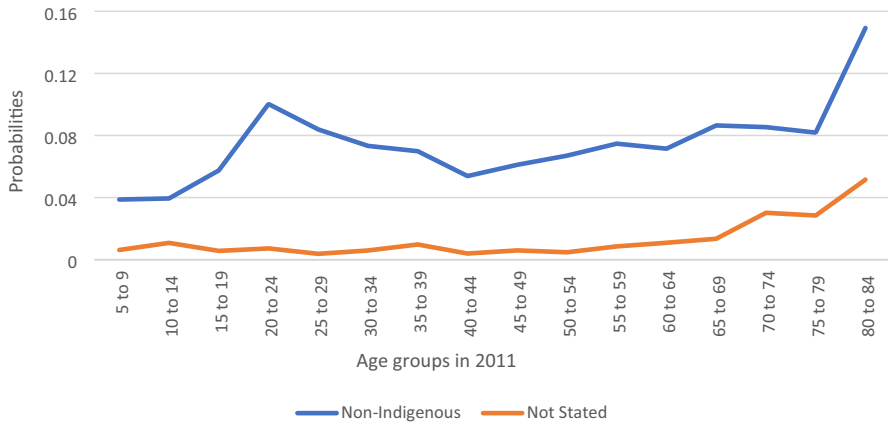


Fig. 4 No-longer-Indigenous transition probabilities by age group in 2011 and Indigenous status in 2016. Source: Authors calculations from ACLD 2011 to 2016

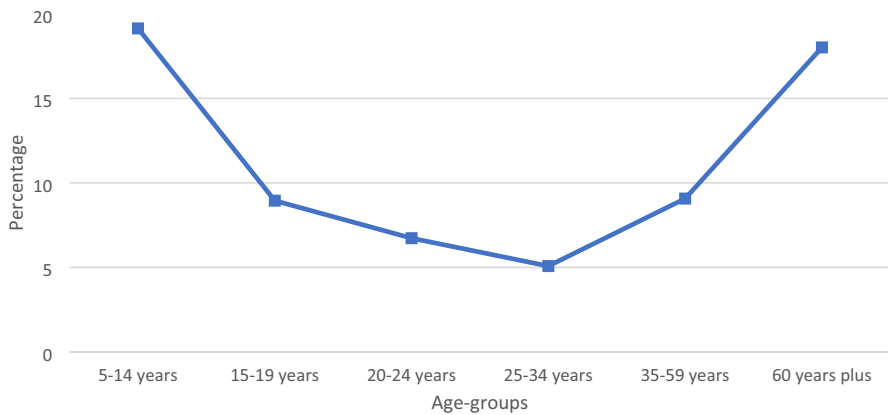


Fig. 5 ‘Not stated’ as a percentage of the formerly identified population, by broad life-state. Source: Authors calculations from ACLD 2011–2016

Child Identification

A total of 12,343 Aboriginal and Torres Strait Islander children aged 0–14 in 2011 were changed to a status of not Indigenous in 2016 equating to a transition probability of 0.05. More children were newly identified (50,212). Of those newly identifying, 3993 came from a “not stated” Indigenous status in 2011 (7.9%), while of those who were formerly identified, a higher proportion (13.8%) went to “not stated” in 2016 (1698).

The Sankey diagrams in Fig. 6 show the transition flows of the child’s Indigenous status for those whose mothers formerly or newly identified, and likewise for their fathers. Of children making a no-longer-Indigenous transition, about half moved

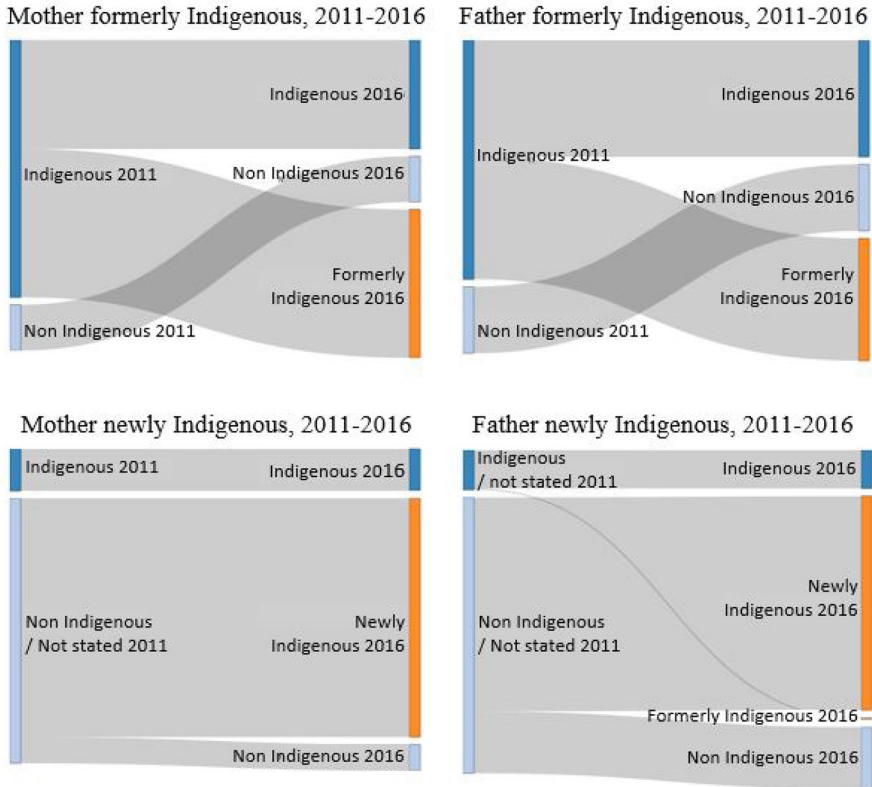


Fig. 6 Child transitions 2011–2016, by changed Indigenous status transitions of their parent. Source: Authors calculations from ACLD 2011 to 2016

from being identified as Indigenous with their formerly identified mother (49%), while a smaller proportion (38%) transitioned with their formerly identified father. However, more children moved to being newly identified with their newly identifying parents: 78% of newly identified children moved with their newly identified mother and 68% of newly identified children moved with their newly identified father.

These results confirm conclusions by Campbell et al. (2018) using the 2006–2011 panel that newly identified children are likely to have a newly identified parent. They also align with their broader suggestion that changes in the Indigenous status of children are tied to the changing identification status of their parents, but also on which parent identifies the child.

Socio-Economic Characteristics of Adult Transitions

Investigations of whether no-longer-Indigenous transitions are associated with characteristics other than ageing were revealing. Table 2 presents transition

Table 2 No-longer-Indigenous transition probabilities by age group in 2011 and personal circumstances in 2016

Circumstances (2016)	Age groups (2011)				
	15–19	20–24	25–34	35–59	60 plus
<i>Household relationship</i>					
Being a significant other	0.106	0.078	0.080	0.068	0.118
Being an adult child/relative in family household	0.089	0.077	0.047	0.082	0.085
Being a lone parent	0.053	0.029	0.044	0.046	0.082
Being a lone person	0.035	0.123	0.116	0.078	0.120
Being in a group household	0.211	0.221	0.117	0.078	0.069
Being in a non-related family	0.108	0.106	0.088	0.109	0.159
Being in a NPD	0.190	0.175	0.124	0.144	0.148
<i>Indigenous status of significant partner</i>					
Non-Indigenous	0.160	0.108	0.117	0.102	0.166
Indigenous	0.015	0.030	0.017	0.012	0.039
<i>Labour Force status</i>					
Employed	0.146	0.114	0.095	0.076	0.157
Unemployed	0.068	0.056	0.036	0.076	0.134
Not in the labour force	0.063	0.052	0.058	0.064	0.114
<i>Mobility indicator</i>					
Did not move	0.063	0.061	0.051	0.059	0.102
Moved elsewhere in same State	0.124	0.076	0.085	0.082	0.147
Moved to different State	0.138	0.131	0.123	0.105	0.212
Overseas in 2011	0.903	1.000	0.510	0.723	1.000
Global life-stage	0.105	0.085	0.063	0.071	0.119
15 years and over					
Ancestries	First	Second			
Not Australian	0.148	0.055			
Australian	0.065	0.031			
Australian Indigenous	0.004	0.005			
Not Stated	0.180	n.a			
Total 15 years plus	0.084				

Source: Authors calculations from ACLD 2011 to 2016

probabilities for variables that identify key life-course transitions as they were recorded in 2016—moving through different housing and family circumstances, participating in the labour force, partnering, and migrating, and the global no-longer-Indigenous transition probabilities for each life-stage. Declaring ancestries other than an Indigenous origin is also included but cannot be presented by life-stage because of data release rules imposed by the ABS. Instead, these are compared to the transition probability for the adult population.

Overall, the results emphasise the importance of household living circumstances at particular life-stages. Living in a family household (as an adult child or relative, with a significant partner, or as a lone parent) generally decreased the probability of a no-longer-Indigenous transition and particularly for people living with an Indigenous partner in a married or de-facto relationship who had lower no-longer-Indigenous transition probabilities compared to the global life-stage transition probabilities for each life-stages. In contrast, living in group households increased the probability of a no-longer-Indigenous transition for younger adult life-stages, but not so for older life-stages. Staying in a non-private dwelling (NPD) was associated with consistently higher transition probabilities when compared to global life-stage transitions. Further analysis showed that of the total population making a no-longer-Indigenous transition who were recorded in NPDs, the highest proportion were in adult corrective institutions (26%), followed by those living in residences that were for staff accommodation, boarding school or student colleges (24%), and those in nursing homes, aged care facilities, or in hospitals (21%). These circumstances have implications across the adult life-course.

People not participating in the labour force or being unemployed had lower probabilities of formerly identifying, although understandably it was not a clear marker in the oldest life-stage. In terms of residential mobility, people who were recorded at the same address in 2016 as 2011 had lower no-longer-Indigenous transition probabilities across all life-stages, while moving residence generally increased transition probabilities. Moving from an overseas address had even higher transition probabilities which may be a marker of issues with the Indigenous identification question. Further data analysis showed that about 1,900 people who formerly identified as Indigenous were not Australian citizens in 2016 therefore their status as Indigenous is questionable.

It certainly makes sense that people identifying an Indigenous ancestry in response to the ancestry question had the lowest no-longer-Indigenous transition probabilities compared to all other characteristics presented in Table 2 (0.004 and 0.005) as it is consistent with their Indigenous identification status. However, identifying an ancestry other than Australian increased the no-longer-Indigenous transition probability (0.148, 0.055), higher than identifying as Australian for either ancestry 1 or 2 (0.065, 0.031). Interestingly, non-response to this question had the highest no-longer-Indigenous transition probability of those calculated.

Modelling the Risk of a No-Longer-Indigenous Transition

Results from the application of binomial regression are presented in Table 3. Negative coefficients are interpreted as being more likely to make a no-longer-Indigenous transition compared to the base case, while positive coefficients are less likely. Overall, they support the suggestion that circumstances relevant to particular life-stages are strongly associated with some no-longer-Indigenous transitions.

As predicted, compared to people aged 15–19 in 2016, young adults (aged 20–24) and the elderly (aged 60 and over) had significantly greater risk of making

Table 3 Modelled risk of adults making a no-longer-Indigenous transition 2011–2016 based on 2016 characteristics

Probability of change from Indigenous to not Indigenous, 2011–2016		
Explanatory variables (based on 2016)	Coefficient	Significance
Age group (base case = 15–19 years)		
20–24 years	−0.480 (0.111)	***
25–34 years	−0.218 (0.117)	*
35–59 years	−0.175 (0.113)	NS
60+ years	−0.637 (0.127)	***
Sex (base case = female)		
Male	−0.241 (0.059)	***
Ancestry (base case = Indigenous only)		
Mixed, Indigenous and other	−1.117 (0.398)	***
No Indigenous ancestry identified	−3.484 (0.360)	***
No ancestry provided	−3.660 (0.403)	***
Household relationship (base case = being a child or relative in family household)		
With significant other (husband, wife, partner)	−0.023 (0.092)	NS
Lone parent	0.454 (0.133)	***
Lone person	0.043 (0.124)	NS
Group household	−0.342 (0.141)	**
Living with an unrelated family	−0.168 (0.229)	NS
Non private dwelling or no address	−0.337 (0.114)	***
Labour force status (base case = employed)		
Unemployed	0.328 (0.114)	***
Not in the labour force	0.241 (0.067)	***
Mobility (base case = moved to different state compared with the previous census)		
Did not move	0.524 (0.115)	***
Moved within same State	0.334 (0.114)	***
Constant	3.467	***
Number of observations*	14,519	
AIC	8434.5	

*908 observations deleted due to missingness

NS not significant, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors calculations from ACLD 2011–2016

a no-longer-Indigenous transition ($p < 0.01$). In addition, being male significantly increased the risk compared to being female.

Compared to only identifying an Indigenous ancestry, identifying a mixed Indigenous and other ancestry significantly increased the risk of a no-longer-Indigenous transition ($p < 0.01$). Likewise, identifying no Indigenous ancestry at all, or not providing any ancestry response, was also strongly associated with the risk of former identification ($p < 0.01$). Further analysis found that over 90% of people who made a no-longer-Indigenous transition did not identify any Indigenous ancestry. However,

this was also the case for nearly 70% of those who were consistently identified as Indigenous.

Living as a significant other (married or de-facto, with or without children) did not increase the risk of a no-longer-Indigenous transition when compared to living as an adult child (dependent, independent, or related) in a family household. However, living as a lone parent significantly decreased a no-longer-Indigenous transition ($p < 0.01$). As expected, the circumstances of living in a group household increased the risk of a no-longer-Indigenous transition ($p < 0.05$), while living with an unrelated family applied no significant risk. Living in other non-family arrangements (being in institutions such as a hospital, prison, boarding house, aged care facility or being houseless on census night) showed the strongest risk of a no-longer-Indigenous transition ($p < 0.01$), reinforcing a link to being misidentified in the census data collection process.

Both being unemployed and not being attached to the labour force significantly decreased the risk of a no-longer-Indigenous transition compared to being employed ($p < 0.01$). The fact that not moving residence or moving residence within the same state also significantly decreased the risk when compared to those who had moved across state/territory borders ($p < 0.01$) may be related to the strong link between residential migration and employment (Dyrting et al., 2020).

Discussion

Statistically, the Aboriginal and Torres Strait Islander population is defined by an origin-based identity question on the Australian census. Data from the ACLD show that about 45,000 people moved from being Indigenous in the 2011 census to being classified as not Indigenous in 2016. This no-longer-Indigenous transition equates to 7 in every 100 people identified as Indigenous in 2011. Who does and does not identify their Indigenous origin affects population estimates and many associated calculations of progress on wellbeing indicators (e.g., Lovett, 2016). Of interest to this study was understanding the characteristics of the no-longer-Indigenous population and its implications to the collection of identity statistics. Many people assume the statistical identification of Indigeneity is a personal decision, regardless of whether it aligns with the establishment of individual identity. Our results both support and challenge a number of areas in the statistical identification process and pose some questions about evolving personal identity through the life-course.

Impacts of 'Not Stated'

Given the limitation in the construction of the variable describing the consistency of Indigenous status in the ACLD, we could not find evidence that being 'not stated' fully explained the issue of agency. Rather, it appeared to contribute to the pool of people who are likely to have had the SIQ completed by another person. Higher proportions of 'not stated' were at both ends of the life-course—for children less than 15 and for adults aged 60 and over. We believe, however, a status of non-Indigenous

was also a likely outcome of this same process therefore the data cannot be used to confirm that agency was not also involved in decisions to leave the SIQ blank.

No-Longer-Indigenous Transitions Across the Life-Course

These results provide more evidence that the Indigenous status of children are essentially linked to the status of their parents, with the exception being circumstances where the child is not in their care. A child's transition to or from identifying as Indigenous closely followed their parent's choice to also identify differently. Child transitions are likely to be common in families where the parents have separated and the responsibility for completing the form shifts over time. But transitions could also occur in circumstances of out-of-home care such as boarding school, foster care or being in hospital on census night. Overall, we found children had the lowest probability of a no-longer-Indigenous transition across all life-stages (5 in every 100), clearly different from the newly Indigenous transition that contributed to the increase in the Indigenous population identified by Markham and Biddle (2018).

In the adult population, the probability of making a no-longer-Indigenous transition was highest at each end of the adult life-course, calculated as 11 in every 100 for adults aged 15 to 19 in 2011, and 12 in every 100 for those 60 years and over. This compares to between 7 and 9 per 100 for the life-stage groups in between. The higher no-longer-Indigenous transition rates for young adults are consistent with other research (e.g., Kukutai, 2008), supporting the proposition that young people in this life-stage may choose a different identification when they have the agency to do so. Personal identity construction is considered the most important task of adolescence (Erikson, 1968), and the core dimensions of identity exploration and commitment strengthen over time (Phinney & Ong, 2007). However, there are additional challenges to identity formation associated with belonging to groups that suffer from discrimination, racism and exclusion (Dotterer & James, 2018), which may prompt consideration of adopting an identity that achieves a more positive distinctiveness (Brown, 2000). This may be even more important at life-course transition points which can be proxied by changes in household circumstances.

Aligning with our expectations, adults living in unrelated group households were susceptible to no-longer-Indigenous transitions coinciding with this same young adult life-course transition. In combination, our regression results showed that living in family households provides a level of identification stabilisation. Why this is particularly so for lone parents could be associated with them seeking the support of an extended family network which reinforces cultural pride and identity attachment. Additionally, they may also have a greater need to be connected with Indigenous run social services requiring them to identify as Indigenous.

In contrast, living away from family in a non-private dwelling appears to disrupt the consistency of a person's Indigenous status, by choice (agency) or by process (an unrelated person completes the SIQ on their behalf and decides they are non-Indigenous or leaves the question blank). These results provide evidence that who completes the SIQ can be associated with identification changes, but particularly impacts adults in situations of homelessness, those in prison and those at the end of the

life-course. Older people appeared to be especially vulnerable to identification transitions associated with census collection processes in hospital, age-care, and nursing accommodation. This generation of Indigenous Australians are also more likely to be personally impacted by the periods of harsh assimilation policy. The trauma from this systematically applied racial discrimination could have increased identity concealment in government processes and may continue to influence personal decisions on when they identify or not. With the rapid ageing of the Indigenous population in Australia (Temple et al., 2020) these changing identification patterns have the potential to greatly influence future population estimates.

Our results show that men are significantly more likely than women to make a no-longer-Indigenous transition. This could be explained by differences in the lived experience of Indigenous men and women, including higher rates of male mobility and employment (Biddle & Hunter, 2006; Gray et al., 2014), and significantly higher rates of incarceration (ABS, 2021). Indeed, no-longer-Indigenous transition probabilities were notable for people in corrective services. In Australia, loss of cultural connection and limited support networks have also been found to disproportionately affect Indigenous men (AHCSA, 2019), and removing men from their communities has been shown to undermine their traditional roles (Adams, 1998). This potentially leads to a greater “loss of place” in the community for men compared to women (AHCSA, 2019). Furthermore, when people move or enter the workforce, they can experience new interpersonal relations that will impact their understanding of their own identities and provide freedoms in how they choose to be defined (Easthope, 2009). How these explanations relate to decisions to identify Indigeneity in the census are unclear. Some will be an active choice but there remains very little research on identity attachment across the life-course in Indigenous Australia (see the 2019 Watt and Kowal study on those who identify as Indigenous later in life).

Evidence of the Spatial Footprint of Colonisation and Ethnic Mixing

People characterised as living in the south-eastern corner of Australia, and in more densely populated places, were more likely to make a no-longer-Indigenous transition. The strong overlap between these areas and those where the Indigenous population is growing strongly seems counter-intuitive. The spatial legacy of early colonisation in these same regions, however, has relevance to this result. Early frontier wars had devastating population impacts on Aboriginal people but also provided more opportunity for mixing through consensual and non-consensual relationships. Impacts of this mixing have generational legacy including the experience of attempted cultural genocide and the birth of more contemporary activism around rights and reconciliation. An individual’s relationship to their Indigenous identity will be complex when physical presentation and phenotypical expectations allow more choice in how they identify (Carlson, 2016; Khanna & Johnson, 2010), as well as how they may be identified by others (AIHW, 2013; Saperstein & Penner, 2012). Indeed, our results show that the characteristics of having mixed or no Indigenous ancestry was one of the clearest risks for a no-longer-Indigenous transition. The increasing complexity associated with choosing an ethnicity based on competing

ancestries needs attention in Australia, including how the suite of census proxy ethnicity identifiers interrelate with the identification of Indigenous status and on a more personal level, a more complete understanding of Indigenous identity.

Indigeneity and the SIQ

Various studies have pointed to the Standard Indigenous Question (SIQ) as problematic (Griffiths et al., 2019; Walter, 2008; Williamson et al., 2021). The ABS's own review of the question suggested that most Indigenous stakeholders involved in the consultation process preferred a question more directly linked to whether a person identifies with their Indigeneity (ABS, 2014). Other studies agreed with the premise that being Indigenous is more than having an Indigenous ancestor (e.g., Crooks et al., 2019) and is supported by evidence in the 2016 Census showing a small number of people who identified an Indigenous ancestry did not identify as Indigenous ($n=2177$). Both Indigenous origin and ancestry are presented by the ABS as objective measures of descent. The rejection of "race" and its associated negative biological attributions grew with the social activism of mixed-race Indigenous Australians asserting their rights to be identified as Indigenous without qualification (Rowse, 2013). The strong position by many in the Indigenous community that the process of identifying themselves as well as being accepted by their community are integral to the scope of their identity suggests that the origin-based SIQ discussion should be revisited. Properly identifying the population of Indigenous peoples has primacy in current discussion on providing a representative body to advise the Australian parliament. Use of data that are more strongly linked to people's cultural, language and/or tribal groups, connections to traditional lands and seas, and stronger markers of community acceptance could become important to how this representation is enacted, as well as on-going relevance to the needs of individual communities to lead their own futures (Williamson et al., 2021).

Additionally, the ABS could consider presenting different statistical series depending on the mixing of Indigenous people with other dominant ethnicities, similar to the approach taken by Statistics New Zealand for Maori (see Callister et al., 2007; Cormack, 2010). This may assist in resolving how the gap in wellbeing outcomes is influenced by the formerly and newly identifying populations. But the ancestry variable is problematic when read with the SIQ. High proportions of people did not identify both Indigenous ancestry and origin regardless of the consistency of their Indigenous status.

Limitations

Indigenous people were under-enumerated in each census, by an estimated 17.2% in 2011 and 17.5% in 2016 (ABS, 2018). Those not included in either census do not appear in the ACLD 2011–2016 file leading to incomplete representation of longitudinal identification change. Trust in government processes remains an issue in the complete count of the population (Williamson et al., 2021) and was further complicated in the 2016 census because of a system failure on census night. This

significantly disrupted the opportunity to participate (Harding et al., 2017), and may have differentially impacted populations who had lower trust initially. Further caution should be exercised when record linkages involved people in more marginal living circumstances such as homelessness and institutional care where false links are likely to be higher. These subgroups are of focus in our research conclusions. Finally, while estimates of the number of no-longer-Indigenous transition are significant, the underlying data are for a sampled population and subject to sample error. This is particularly the case for the even smaller proportion who moved from Indigenous to 'not stated'.

Conclusions

The number of people who were identified as Indigenous in 2011 but not in 2016 was smaller than the total transitioning in the opposite direction, i.e., those who newly identified. But it is still of consequence to the overall size and shape of the Indigenous population in Australia. Although investigation of those moving to a 'not stated' identity implicates agency in the reporting of Indigenous status, the change to non-Indigenous could also result from misidentification. For some Indigenous people, assumptions based on phenotypical cues have broken down completely because of the history of ethnic mixing but they remain relevant to contemporary discussion about who is Indigenous in Australia. Strong evidence of stereotyping remains (Dodson, 1994; Pearson, 2009). The possibility of an Indigenous person being misidentified appears to increase later in the life-course but has the potential to impact each life-stage depending on people's living arrangements. However, the highest no-longer-Indigenous transition probabilities are at either end of the adult life-course and the associated reasons for moving away from an Indigenous identity are likely to be very different and should be further explored.

Our results point to the complexities of an origin-based identity question to the increased ethnic mixing of Australia's population. The current collection of ancestry as a proxy for ethnic diversity needs significant attention by the ABS and improved data collection may present opportunities for better quality information about the evolving circumstances of Indigenous people. For demographers, understanding how to account for transitions in identification strengthens their ability to provide population predictions that account for different (and potentially very valid) characterisations of the Indigenous community (Taylor et al., 2021). Increased understanding of why people actively choose not to identify themselves or to change their identification is fundamental to progress in both the improved definition and enumeration of Indigenous Australians. These issues go to the heart of current political and community conversations about actions towards treaty with, and constitutional recognition of the Indigenous people of Australia.

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Data Availability ACLD 2011–2016 <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2080.0-ACLD-Main%20Features-ACLD%202011-2016-30>

Declarations

Conflicts of interest The authors declare that they have no conflict of interest.

Ethical Approval Approval for this study was received from the Charles Darwin University Human Research Ethics Committee (H20049). Contact: ethics@cdu.edu.au.

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