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Towards an estimate of Aboriginal and Torres Strait Islander Human Capital and how it is changing over time

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Abstract and acknowledgements

This paper was written for the Australian Bureau of Statistics/Reserve Bank of Australia conference on Human Capital in June 2024. Public policy in Australia has historically failed to provide the supports and infrastructure for the Aboriginal and Torres Strait Islander population to engage in formal education in a way which meets the needs and aspirations of the population. This includes early childhood, school, and postschool education. For this reason, human capital development including but not limited to school completion and post-school attainment has been less than equitable, leading to worse outcomes by standard measures (income, employment, and health) and also by Indigenous-specific measures that Aboriginal and Torres Strait Islander Australians have cause to value (including access to land, language, and culture). Over recent years, there has been substantial improvement in the level of education completion for the Aboriginal and Torres Strait Islander population, although the measurement of this change is complicated by changing patterns of identification and location. The aim of this paper is to use publicly available data to measure the level of Aboriginal and Torres Strait Islander Human Capital and document how it is changing through time. The process of this measurement involves estimating the level of education, calculating the economic returns to that education, and then comparing lifetime income streams for different levels of education.

1 Introduction

The Human Capital Model, or HCM, in more or less its current form was outlined by Becker (1964) and then revised in Becker (1994). At the heart of the model is the assumption that when deciding whether or not to undertake a certain type of education, potential students are rational (in the economic sense) utility maximisers who, above all, see education as an investment.

An investment in education will improve one's performance in the workplace and an individual will invest until the returns to an additional unit of education (measured by increases in discounted future income) just equal the cost. That is, until marginal returns equal marginal cost. According to Becker (1994) 'Schooling, a computer training course, expenditures on medical care, and lectures on the virtues of punctuality and honesty are capital too in the sense that they improve health, raise earnings, or add to a person's appreciation of literature over much of his or her lifetime.'

This traditional definition of human capital is very European-centric (for example the reference to 'literature' as opposed to other forms of cultural expression). However, it need not be interpreted in such a way. A broader definition of human capital would be the 'knowledge, skills, competencies and attributes that allow people to contribute to their personal and social well-being, as well as that of their countries', or more succinctly, a person's 'skills, learning, talents, and attributes' (Brian 2007).

Analyses of the education outcomes of the Aboriginal and Torres Strait Islander population rarely make use of the human capital model as a framing device. This is partly driven by the European-centrism of the traditional model articulated by Gary Becker and utilised within the field of economics, a field that rarely engages with issues of Indigenous peoples (with some notable exceptions).

This reluctance to make use of the human capital model also reflects the view expressed by many if not most Indigenous researchers, community leaders, and families, that education is much more than a means to a comfortable lifetime income stream. Rather, for the Indigenous community, education should ideally be directed towards supporting community development, cultural strength, language maintenance, and broader notions of wellbeing (Hughes et al. 2023).

There is also a legitimate concern that a human capital-style approach to understanding Aboriginal and Torres Strait Islander education participation and attainment can veer into what has become to be known as 'deficit discourse' (Fogarty and Kral 2011; Sarra 2011; Griffin and Trudgett, 2018). This refers to a perceived way of thinking and talking about Aboriginal and Torres Strait Islander students and their communities that emphasizes what they lack compared to the dominant (often non-Indigenous) population. The critique is that such approaches attribute educational underachievement among Indigenous students to deficiencies within the students, their families, or their cultures, rather than systemic issues or structural inequalities.

These concerns are valid. However, as I will attempt to show in this paper, there are insights from utilising a human capital approach to shed some small insights into the education outcomes of Aboriginal and Torres Strait Islander Australians. First, many of the critiques of the human capital approach and its limitations are true for other populations. Even the strongest proponents of the model would concede that lifetime income streams are not the

sole motivator for sending a child to an early education program, a high school student paying attention in class, or a recent high school graduate making a decision as to whether or not to enrol in a degree and, if so, which one. Many other factors, including community development, culture, and wellbeing are also important factors in the education decision for non-Indigenous students.

A second reason why making use of the human capital approach has its benefits is that even though it may not be the primary factor, income and access to economic resources are still important factors in motivating Aboriginal and Torres Strait Islander students and their families (Hughes et al. 2023). Related to this, if we want to understand the development levels, options, and constraints of Indigenous communities, then the human capital of those communities is a key determinant, even if that may not have been what was the main driver of that education decision in the first place.

A third reason why taking a human capital approach to understanding Aboriginal and Torres Strait Islander education may be useful is that it can help shed light on some of the other aspects of the education decision. If we acknowledge that community, culture, language, and wellbeing are important, but there are still many Aboriginal and Torres Strait Islander Australians not engaging in education, then this may be in part because the economic costs are too high, or the returns are too low.

Finally, the human capital approach to education has undoubtedly seeped into the framing of the Closing the Gap policy agenda, including the most recent iteration that was developed in partnership with Indigenous peak organisations. Target 6 of the policy is that 'By 2031, increase the proportion of Aboriginal and Torres Strait Islander people aged 25-34 years who have completed a tertiary qualification (Certificate III and above) to 70 per cent' whereas Target 8 is that 'By 2031, increase the proportion of Aboriginal and Torres Strait Islander people aged 25-64 who are employed to 62 per cent.' There are also targets related to social and emotional wellbeing (Target 14), as well as culture and language (Target 16). However, mainstream education achievement and employment still matters, and it is important to identify the link between the two.

With that in mind then, the aim of this paper is to make use of the latest available data to provide some initial, plausible estimates of the level of Aboriginal and Torres Strait Islander Human Capital in Australia. After introducing the data and methods (in Section 2) the paper steps through the components of the human capital calculation. In Section 3 I outline the level of education attainment, whereas in Section 4 I outline how employment outcomes vary by education and the levels of income for those who are employed. In Section 5, I pull this together to provide an estimate of Indigenous human capital as of mid-2021. Section 6 provides some estimates of how this has changed in the last decade and some reasons for that, with Section 7 providing some concluding comments and outlining how these initial estimates can be built on to provide a more detailed picture of Aboriginal and Torres Strait Islander Human Capital.

2 Data and method

2.1 Census variables

The analysis in this paper is based largely on the 2021 Census. Undertaken in August of that year, the Census includes information from a close to 100 per cent sample of the Australian population of the main variables of relevance for calculating the level of Human Capital for a

relatively small sub-population. Specifically, to calculate the level of Human Capital for the Aboriginal and Torres Strait Islander population we make use of the following variables:

- Aboriginal and Torres Strait Islander status
- Age
- Sex
- High school completion
- Highest post-school qualifications
- Current student status
- Labour force status
- Personal income

2.2 Undercount adjustment

Excluding those that did not respond to the question, there were 812,700 Indigenous Australians counted in the 2021 Census in August. This is around 3.2 per cent of the Australian population who answered the Indigenous status question and 25.2 per cent higher than the count in 2016, which equates to an annual growth rate of 4.6 per cent.

Much of the analysis presented in the next sections involves estimating relationships between key Human Capital measures for individuals. However, one of the ultimate aims of the paper is to estimate the aggregate level of Human Capital for the Aboriginal and Torres Strait Islander population. To do this, it is necessary to adjust for the Indigenous (and non-Indigenous) population missing from the Census.

The main source of 'missingness' in the data is the 1.2 million in-scope census records that don't have an Indigenous status recorded. This could be because the respondent didn't answer that specific question (unit non-response) or because they didn't answer any questions and had a dummy record created for them (unit non-response). The other source of missingness is people who were overseas on the night of the Census, though this was quite small in 2021 due to the impact of the COVID-19 travel restrictions.

After adjusting for undercount using the Post-Enumeration Survey or PES, it is estimated that there were 983,300 Indigenous Australians as of June 30, 2021. The ABS also provides an age/sex specific undercount estimate from the PES, as well as an estimate of the (much smaller) undercount for the non-Indigenous population. We apply this undercount adjustment when we estimate the overall level of Human Capital in Australia for the Aboriginal and Torres Strait Islander population, though it should be noted that it is not possible to estimate the undercount separately by education, employment, or income.

2.3 Estimating identification change

One of the goals of this paper is to estimate how the level of Human Capital for the Aboriginal and Torres Strait Islander population has changed over the decade leading up to the 2021 Census. As described above, this was a period of very rapid growth in the population, with both intercensal periods witnessing a much faster growth of the Aboriginal and Torres Strait Islander population than the growth in the non-Indigenous population (despite the latter impacted by high rates of net inward international migration).

Part of the growth in Human Capital that we estimate is therefore driven by population growth. Although an excess of births over deaths explains some of this growth, a much larger part is due to identification change. We estimate this using the Australian Census Longitudinal

Database (ACLD). This is a linked dataset, whereby approximately 5 per cent of those enumerated in a particular census is linked to subsequent censuses using statistical techniques. We make use of the 2 of the 3 existing ACLD panels – 2011 (linked to 2016 Census) and 2016 (linked to 2021 Census).

2.4 Estimation method

The approach to estimate Aboriginal and Torres Strait Islander Human Capital is based on the estimated income difference between those with a particular level of education and those with a baseline level, calculated separately by Indigenous status, sex, and age (using 5 year age cohorts). For simplicity, and balancing variation within education levels and sample size constraints, we use five levels of education:

- No Year 12 and no post-school qualifications (baseline).
- No Year 12, has post-school qualifications.
- Completed Year 12, but no post-school qualifications.
- Completed Year 12, has non-degree qualifications.
- Has a university degree.

The first step in the estimation of Human Capital is to estimate the per cent and number of Aboriginal and Torres Strait Islander and non-Indigenous Australians with each level of education, by sex, and by age. The percentages are based on Census counts, with the total number of people taking into account the age, sex, and Indigenous-status specific undercount mentioned earlier in this section.

Although it is not used in the final estimation of Human Capital, we calculate the per cent of each age, sex, and Indigenous-status group that were employed at the time of the Census. This is useful as an intermediate step to help understand variation in income across the groups.

Average income for each of the groups is found by attributing a value of $0 for those in the negative and nil income groups, the midpoint for those whose income falls into the remaining income groups up to and including the penultimate income group, and a value of $4,000 per week for those in the last income group (which has a lower bound of $3,500 per week).

We then estimate an expected income stream between the age of 15 and 64 for each of the education categories, separately by age, sex, and Indigenous status. Yearly income is found by multiplying average weekly income from the previous step by 52. We assume the following education and income pathway for the five education groups:

- No Year 12 and no post-school qualifications.
    - Not a student from age 15.
- No Year 12, has post-school qualifications.
    - Student from age 15-16, not a student from age 17.
- Completed Year 12, but no post-school qualifications.
    - Student from aged 15-17, not a student from age 18.
- Completed Year 12, has non-degree qualifications.
    - Student from age 15-19, not a student from age 20.

- Has a university degree.
    - Student from age 15-21, not a student from age 22.

Income for students is based on observed data (for full-time students), calculated separately by five year age cohorts, high school completion, and sex/Indigenous status.

Based on these education pathways, our main intermediate calculation is the expected lifetime income for the five education groupings, between the age of 15 and 64, separately by Indigenous status and sex. The ratio between these provides an indicative measure of the returns to different types of education by Indigenous status and sex.

The final estimation given in the paper is the level of Human Capital for the current population. This starts with the age, sex, and Indigenous-specific income premium for that education category as a measure of the individual's Human Capital. It assumes that from an individual's perspective the value of their Human Capital is measured by the additional income that they would expect to receive throughout their life.

We focus on the returns to Human Capital between the age of 25 and 64 under the assumption that before the age of 25 people are still generating Human Capital and that from 65 years onward people's income are mostly from savings over their prime working years (including through compulsory superannuation), as well as the age pension.

For someone in the 25-to-29-year age category, their Human Capital is based on 40 years of income premiums. For those aged 30-to-34, their Human Capital is based on 35 years of remaining income premiums, and so forth until the last age group (60 to 64 years) whose Human Capital is based on five years of remaining income premiums. We multiply these expected income premiums by the estimated number of people in each education category by age, sex and Indigenous-status, and then divide by the total population aged 25 to 64 years to obtain a per person measure.

We recreate the above process for the 2011 and 2016 Censuses. The questions on Aboriginal and Torres Strait Islander Status, education, and employment were the same in those two collections. However, for 2016, there were far fewer income categories, with the highest income category being only $2,000 or more per week (which we apply a value of $2,500 to in order to estimate average income). The 2016 Census has a greater number of income categories, with the lower bound for the last category being $3,000 per week (we apply a value of $3,500 per week when estimating average). We adjust the income and Human Capital estimates for inflation for these previous years using the Consumer Price Index.

3 Education attainment by age, sex and Indigenous status

We begin our presentation of results with the per cent of each five-year age cohort by their level of education of education, by Aboriginal and Torres Strait Islander status and sex. Figure 1a shows that between the ages of 25 and 59, Aboriginal and Torres Strait Islander males are more likely to be in the lowest education category (no Year 12, no qualifications) than Aboriginal and Torres Strait Islander females. For the 60-to-64 year group, percentages are more or less the same, with Aboriginal and Torres Strait Islander females having the highest percentage amongst those 65 years and over.

For both sexes, there is a much higher per cent in this lowest education category for the Aboriginal and Torres Strait Islander population compared to the non-Indigenous population, with the largest relative rate amongst those aged 35-to-34 for males, and 25-to-29 for females.

For the latter group (those aged 25-to29), an Aboriginal and Torres Strait Islander female is 4.4 times as likely to have not completes Year 12 and not have any post-school qualifications as a non-Indigenous female.

Apart from the 65 plus age group, Aboriginal and Torres Strait Iskander males and females are more likely to be in the No Year 12, with post-school qualification cohort than their non-Indigenous counterparts. The ratio is much greater for females compared to males, with a 30-to-34 year old female 2.7 times as likely to have not completed Year 12 but have a post-school qualification as a non-Indigenous female.

There is a cross-over point for the relative percentages that have completed Year 12 but do not have post-school qualifications. Prior to the 45-to-49 year age group, the Aboriginal and Torres Strait Islander population is more likely to be in that group, with males more likely than females (at least for the first two age categories). From the age of 45-to-49 and onwards, males and females have roughly equal percentages as each other, with the non-Indigenous population more likely to be in that category compared to the Aboriginal and Torres Strait Islander population.

There are quite different patterns across the four populations for the per cent of the respective population that has completed Year 12 and have a post-school qualification (Figure 1d). For Aboriginal and Torres Strait Islander males and females, the percentage declines across the age distribution, with a particularly sharp decline between the 45-to-49 age group and the 55-to-59 group. For most of the current age distribution, Aboriginal and Torres Strait Islander females are more likely to be in this education group relative to their male counterparts, though there is convergence and cross-over from the age of 50-to-54 years and beyond. For the non-Indigenous population, on the other hand, percentages are reasonably steady or even increasing between the 25-to-29 year age group and the 45-to-49 year group.

The final education category is those with a degree. There is a small per cent of all four populations that have a degree but report that they have not completed Year 12. This is a little more common at the upper end of the age distribution. However, we combine all those with a degree into a single group. The per cent with a degree is quite stable across the age distribution for the Aboriginal and Torres Strait Islander population. There is a slight decline beyond the age of 45-to-49 years, but not anywhere near as steep a decline as there is for the non-Indigenous population (which starts a bit earlier, from the 40-to-44 year age group and onwards).

Females are much more likely to have a degree than males, and non-Indigenous Australians are much more likely to have a degree than Aboriginal and Torres Strait Islander Australians. This is particularly true amongst the young, with an Aboriginal and Torres Strait Islander male aged from 25-to-44 only one-fifth as likely to have a degree as a non-Indigenous male, and an Aboriginal and Torres Strait Islander female only one-quarter as likely in the first two age groups.

Figure 1 Education attainment by Aboriginal and Torres Strait Islander, age, and sex – 2021

Figure 1a No Year 12 and no post-school qualifications

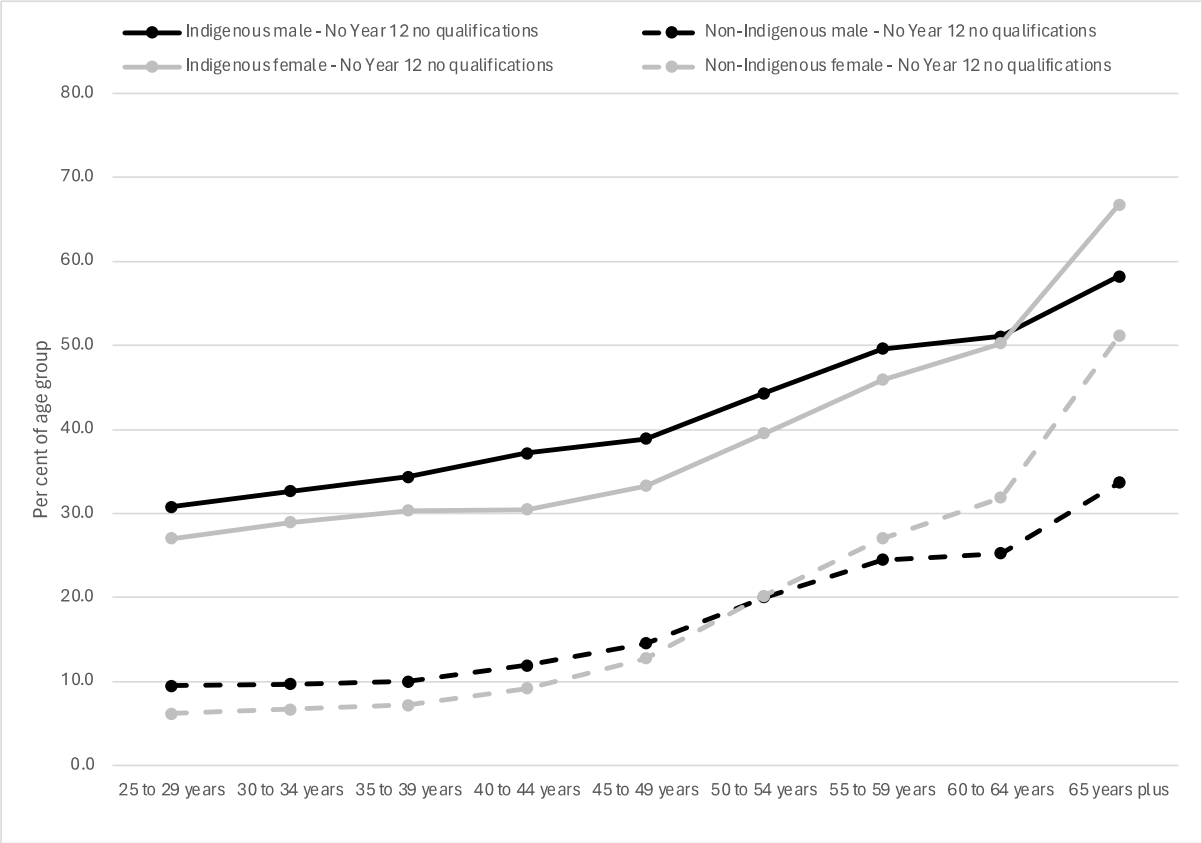


Figure 1b No Year 12, has post-school qualifications.

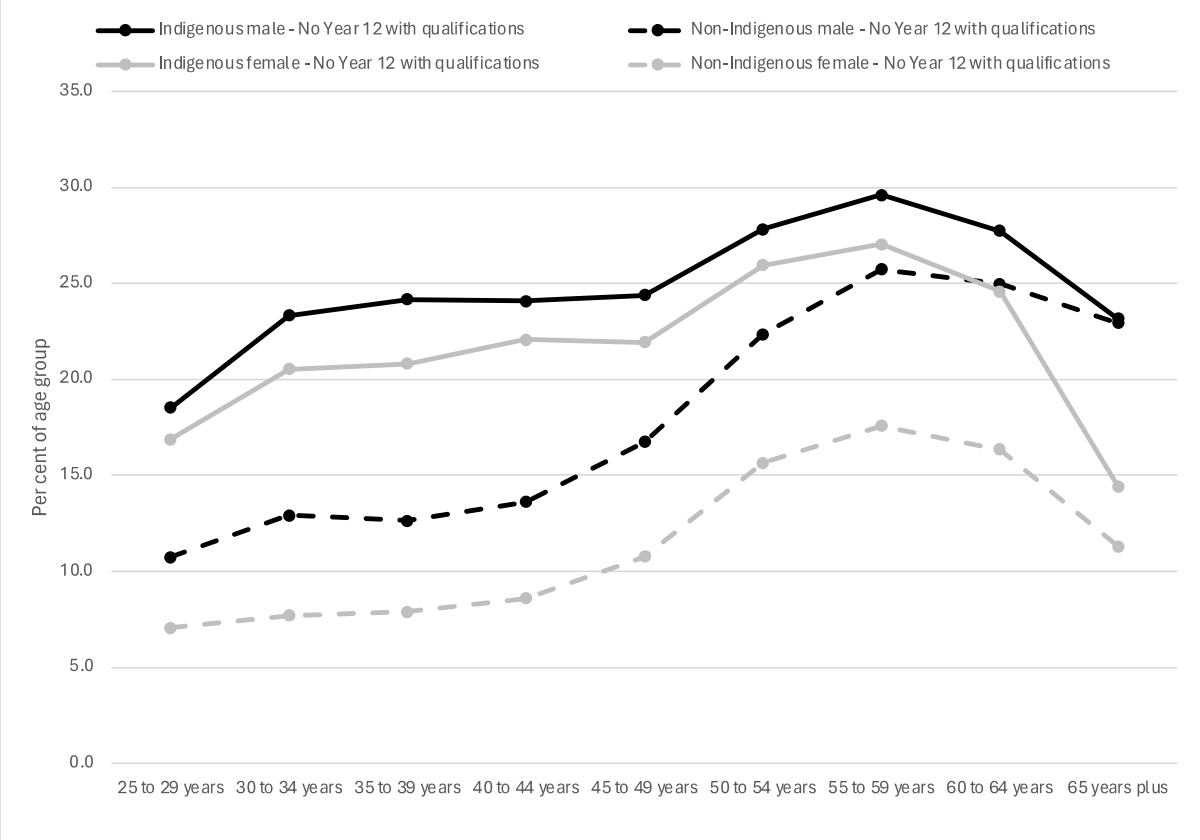


Figure 1c Completed Year 12, but no post-school qualifications.

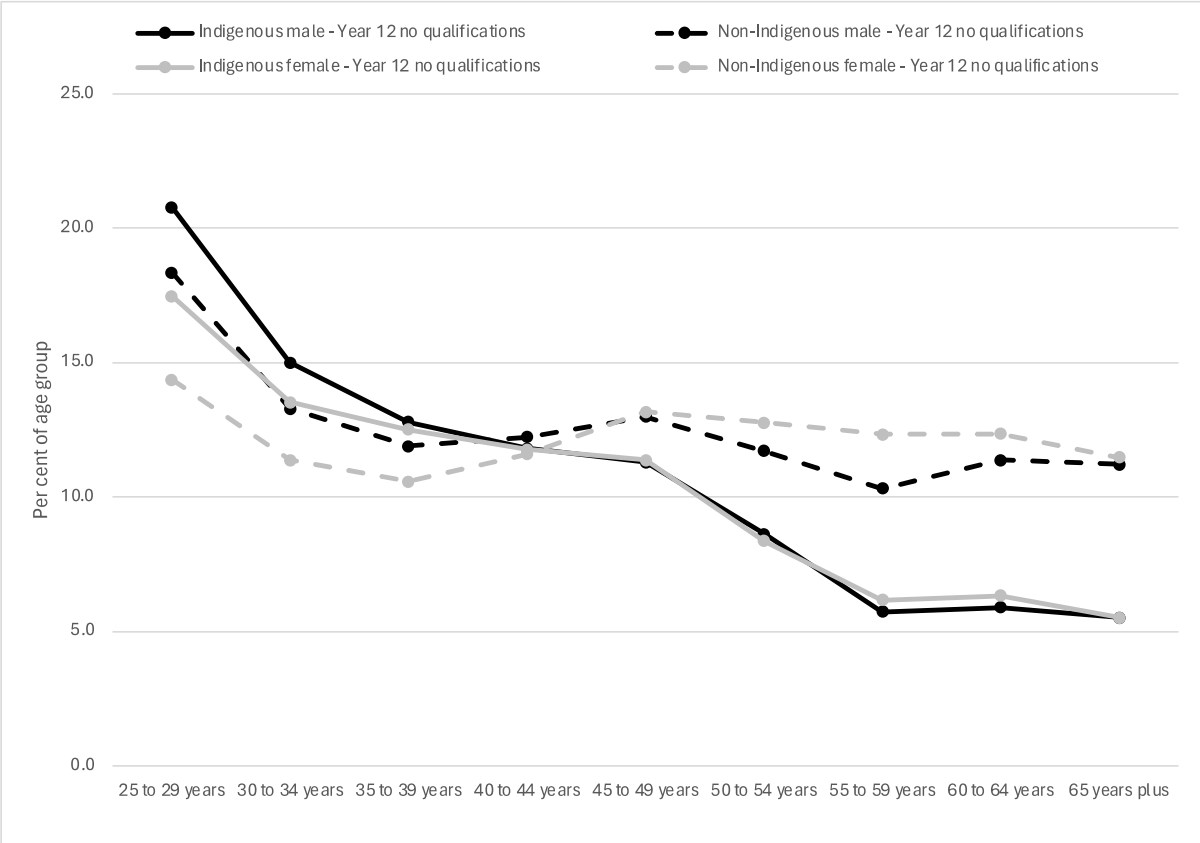


Figure 1d Completed Year 12, has non-degree qualifications.

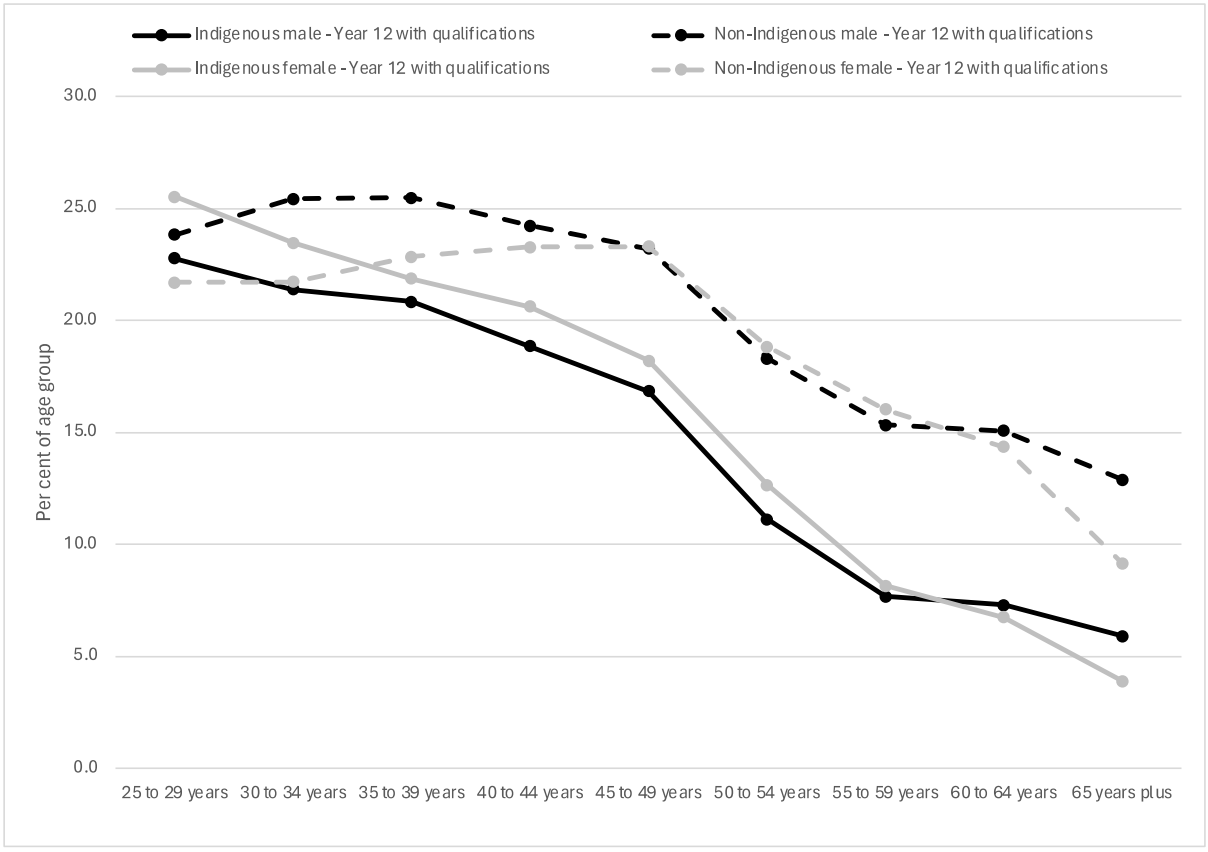
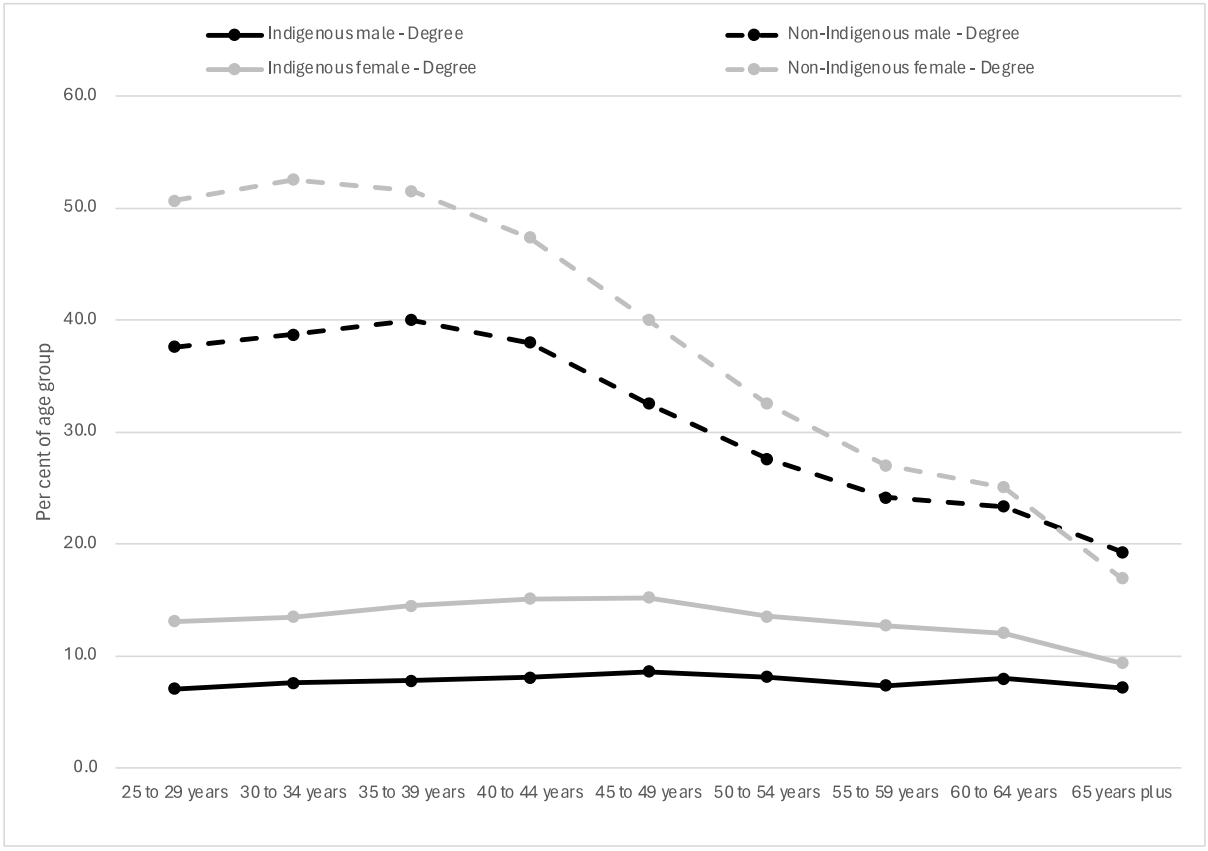


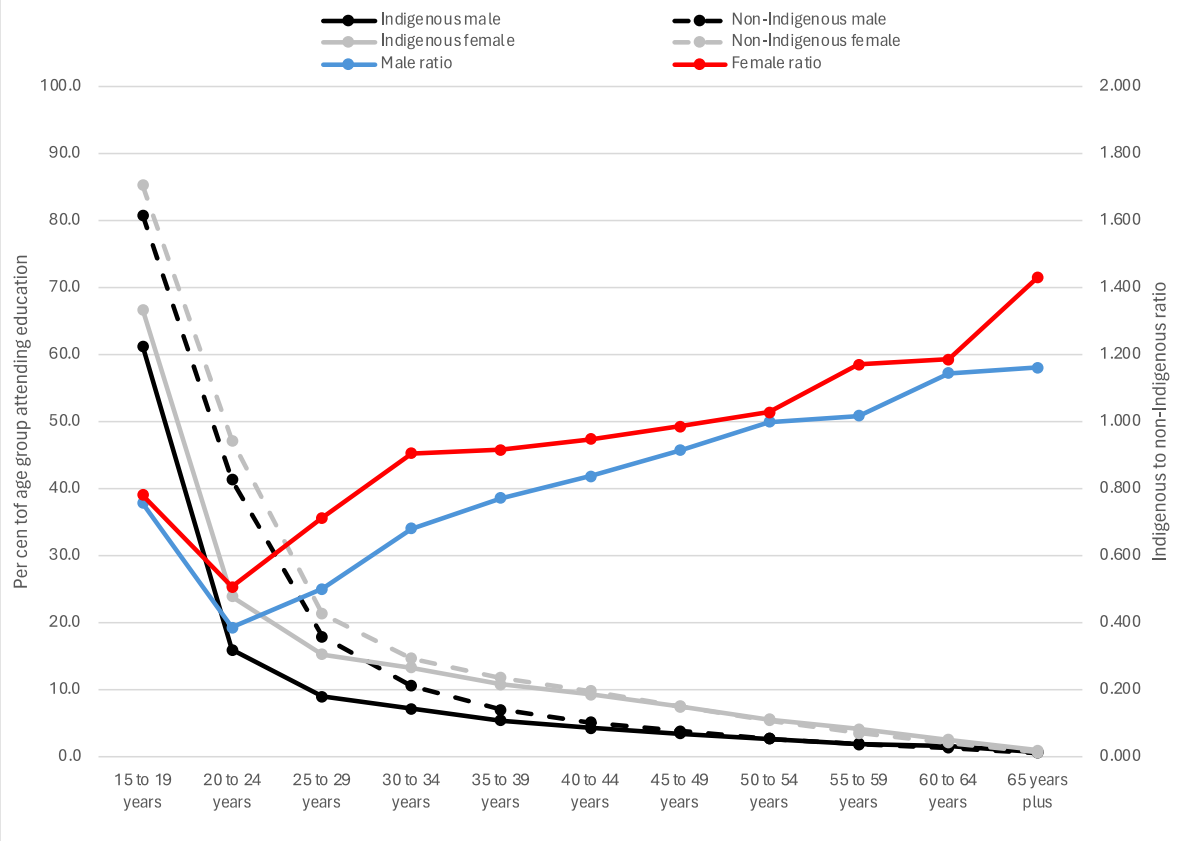
Figure 1e Has a university degree.



There is some converge between Aboriginal and Torres Strait Islander Australians and the rest of the population across the age distribution in terms of education attainment. As shown in Figure 2, this is partly because education participation is so much greater for the non-Indigenous population at the lower end of the age distribution, but also because at the upper end of the age distribution Aboriginal and Torres Strait Islander Australians are as likely to participate as non-Indigenous Australians, and for some of the age groups more likely to.

This is shown by the blue line (for males) and the red line (for females) in the figure, which gives the ratio of Aboriginal and Torres Strait Islander education participation to non-Indigenous participation by age. The cross-over point where the Indigenous population has equal and then higher levels of participation is around 45 years for females, and 50 years for males. While this participation later in life is likely to benefit the individuals undertaking that education, it is not only not at a high enough level to overcome the education disadvantage earlier in the lifecourse, but also gives far fewer years for that education to lead to positive economic returns.

Figure 2 Education participation by Aboriginal and Torres Strait Islander, age, and sex – 2021



4 Employment and income by education

The previous section showed clearly that Aboriginal and Torres Strait Islander Australians have lower levels of education attainment than non-Indigenous Australians. In this section, we look at the likely impact of this on economic outcomes by first considering the level of employment by education (and age, sex, and Indigenous status), and then turning to the level of income for those who are employed.

4.1 Employment

Figure 3 gives the per cent of each age group that were employed in the week preceding the Census, by Aboriginal and Torres Strait Islander status and sex. Results are presented separately by each of the five education categories. Before looking at the within-education differences, it is important to note that across the education groups, those with higher levels of education tend to have higher levels of employment.

Apart from those age 65 years and over (an age group with a very low employment percentage), the first four figures show substantially higher levels of employment for males compared to females, and for the non-Indigenous population relative to the Aboriginal and Torres Strait Islander population.

The gap between the Aboriginal and Torres Strait Islander and non-Indigenous populations narrow across the lower and middle part of the education distribution, but do not completely disappear. There is a smaller gap for those who have completed Year 12 compared to those without, and a narrower gap for those with a non-degree qualification compared to those without one. Interestingly, there is a wider gap for females for lower levels of education, but a wider gap for males for intermediate levels of education.

The most complex relationship is demonstrated in Figure 3e. For this education category, Aboriginal and Torres Strait Islander females have roughly equivalent levels of employment as Aboriginal and Torres Strait Islander males. Furthermore, at least up until the 40-to-44 year age group, Aboriginal and Torres Strait Islander females were more likely to be employed than their non-Indigenous counterparts.

Figure 3 Employment percentage by Aboriginal and Torres Strait Islander, age, and sex – 2021

Figure 3a No Year 12 and no post-school qualifications

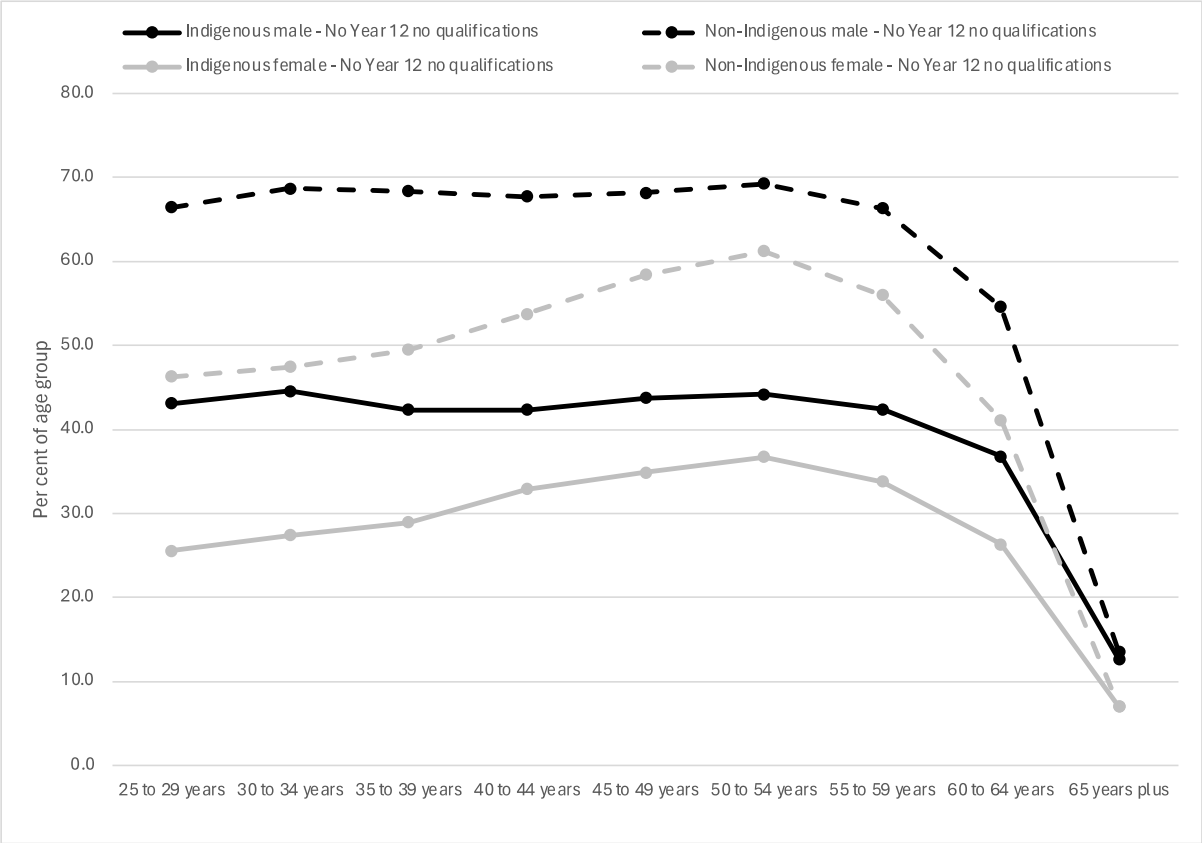


Figure 3b No Year 12, has post-school qualifications.

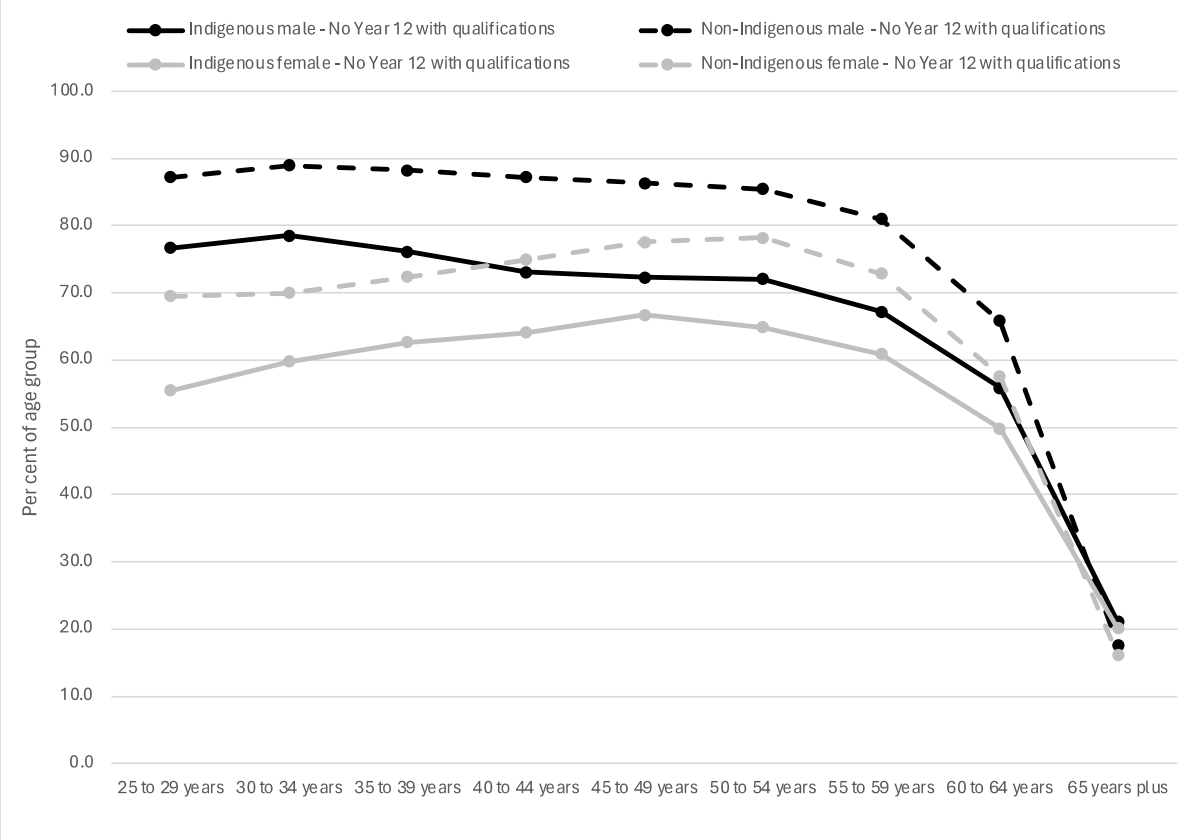


Figure 3c Completed Year 12, but no post-school qualifications.

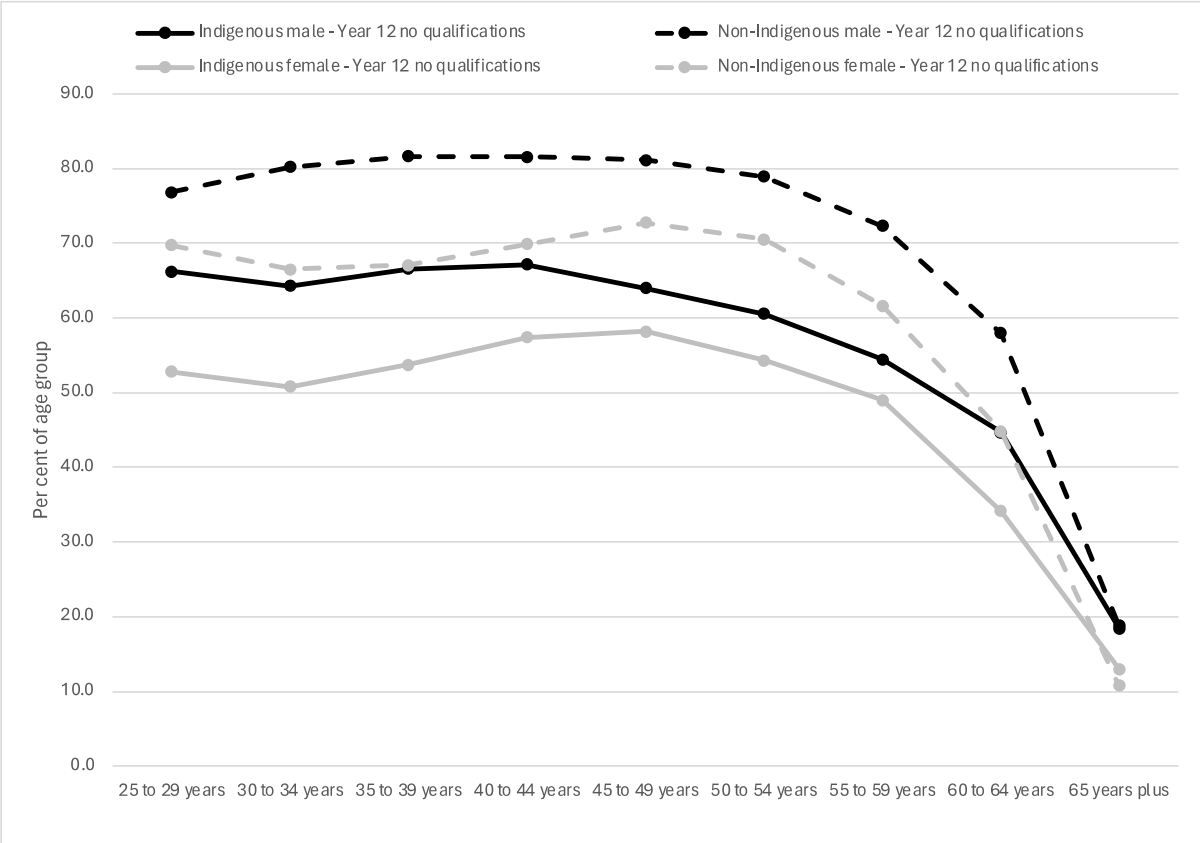


Figure 3d Completed Year 12, has non-degree qualifications.

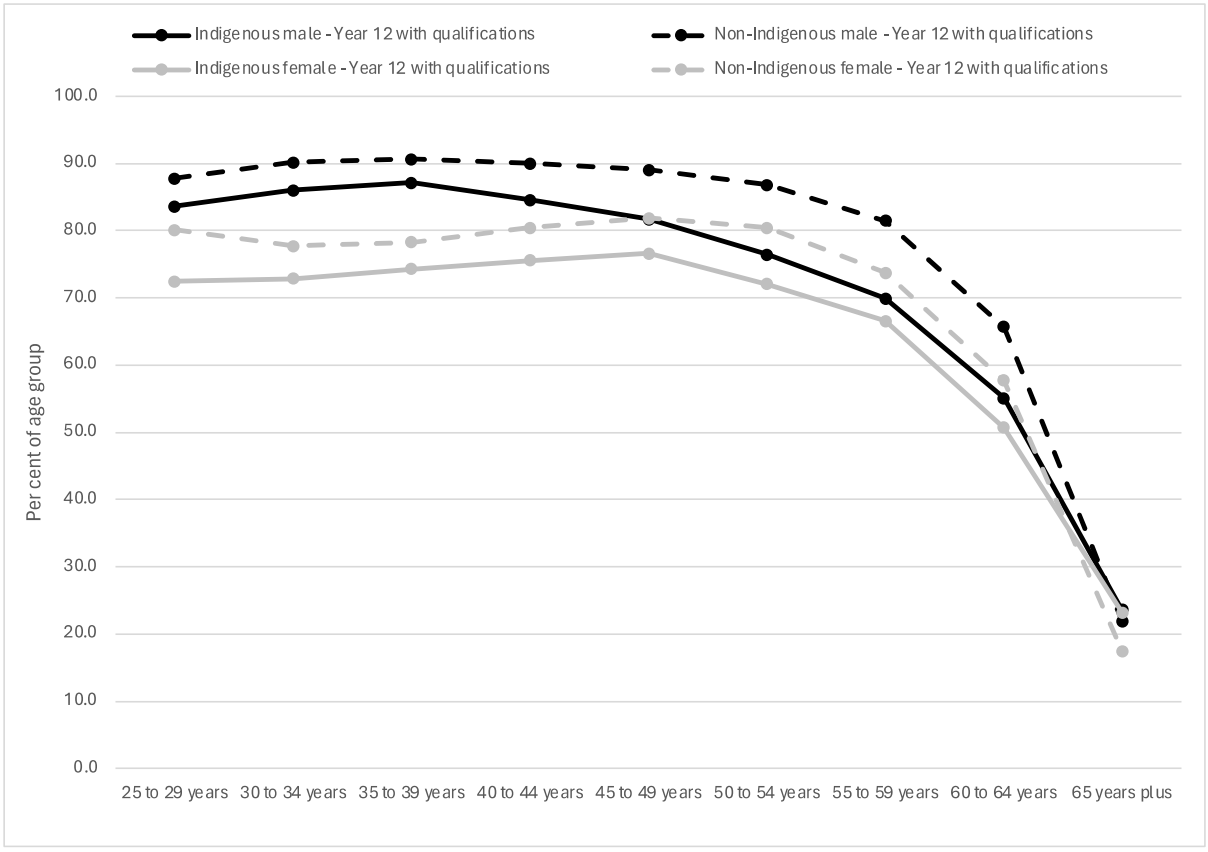
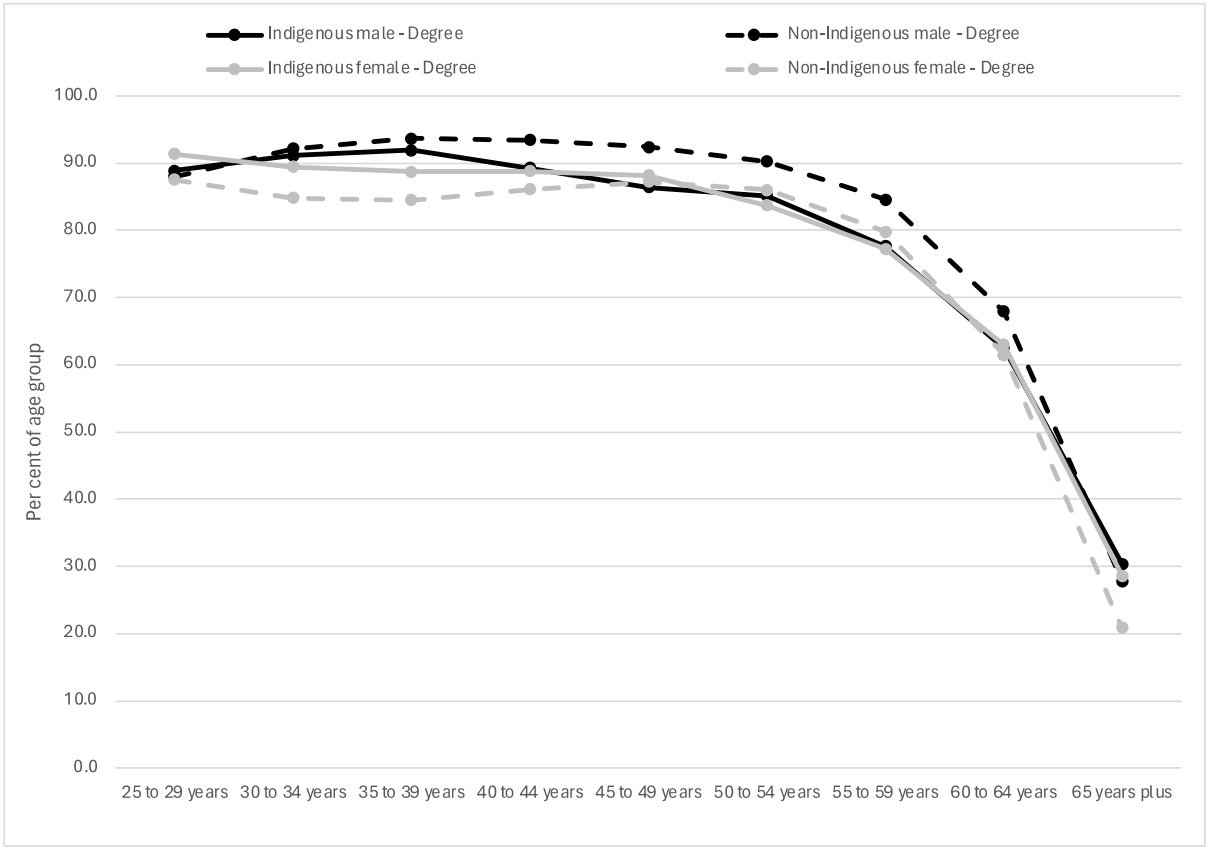


Figure 3e Has a university degree.



4.2 Income

Figure 4 gives average weekly income for those who are employed, presented again by education grouping, age, sex, and Aboriginal and Torres Strait Islander status. Average income is higher amongst those with higher levels of education. However, for these figures, there are much larger differences by sex, than there are by Aboriginal and Torres Strait Islander status or even age. Specifically, for all ages, education levels, and for both Aboriginal and Torres Strait Islanders and the non-Indigenous population, estimated average income is higher for males than females.

For males, income is consistently higher for non-Indigenous Australians compared to their Aboriginal and Torres Strait Islander counterparts. This is true for almost all ages for the first three education groups and for those aged 40 years and over for the last two education categories (those that have completed Year 12 and with either a degree or non-degree qualification). What is interesting is that for the younger cohorts (those aged 25-to-29) Aboriginal and Torres Strait Islander males that are employed have very similar incomes as their non-Indigenous counterparts.

The findings are slightly different for females compared to males. Within the education categories, and looking across the age distribution, there is very little difference in average income for Aboriginal and Torres Strait Islander females compared to their non-Indigenous counterparts. For the lowest education category, non-Indigenous females have a slightly higher income. However, for those that have completed Year 12 and have no qualification and for those with a degree, income levels are close to identical. Furthermore, amongst those that have a non-degree qualification, Aboriginal and Torres Strait Islander females actually have a higher average income than their non-Indigenous counterparts.

Figure 4 Average weekly income for those employed by Aboriginal and Torres Strait Islander, age, and sex – 2021

Figure 4a No Year 12 and no post-school qualifications

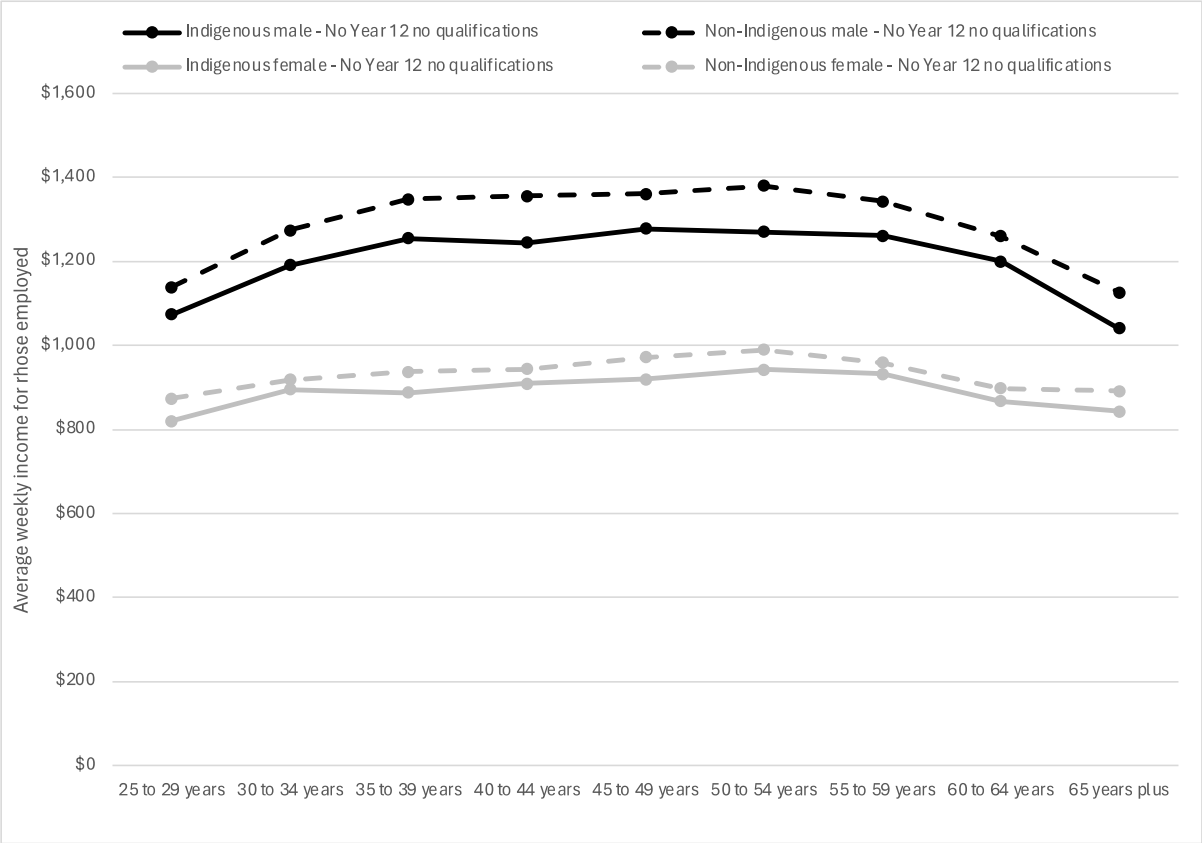


Figure 4b No Year 12, has post-school qualifications.

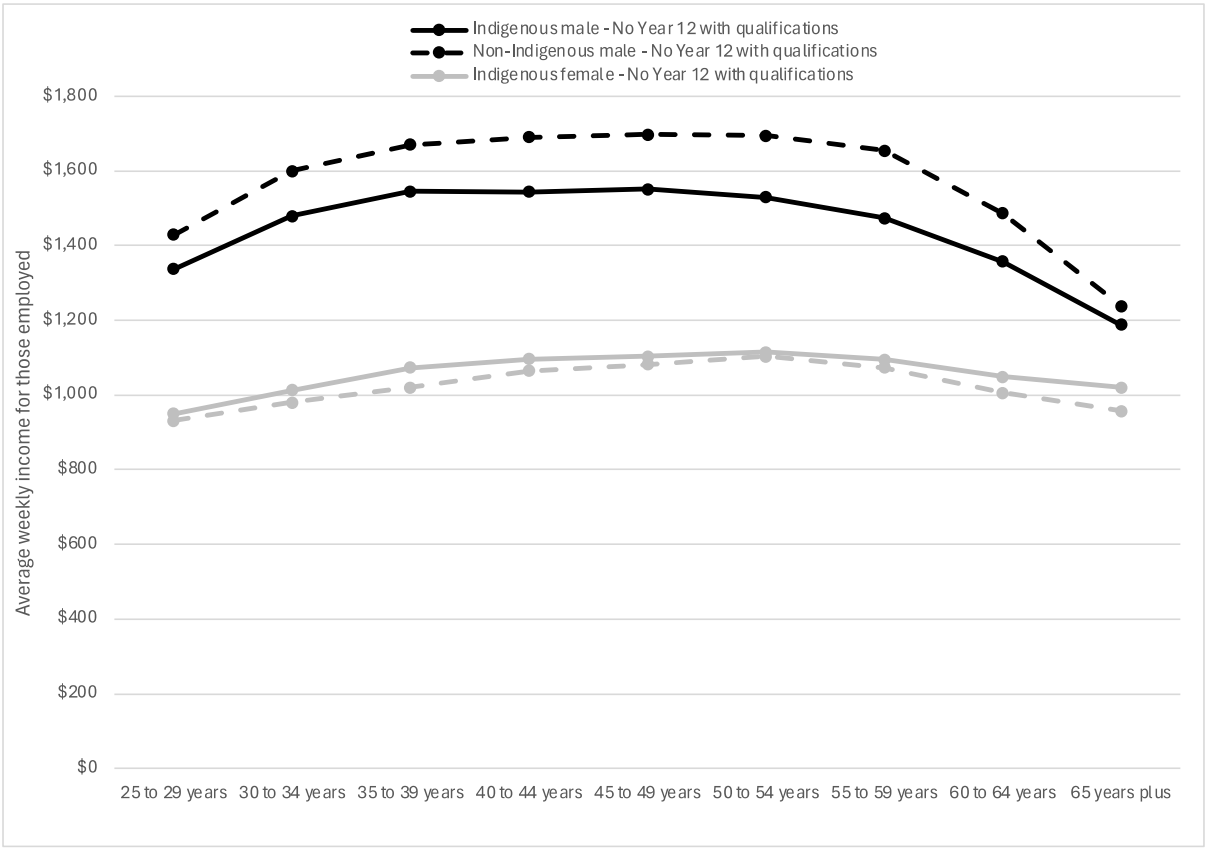


Figure 4c Completed Year 12, but no post-school qualifications.

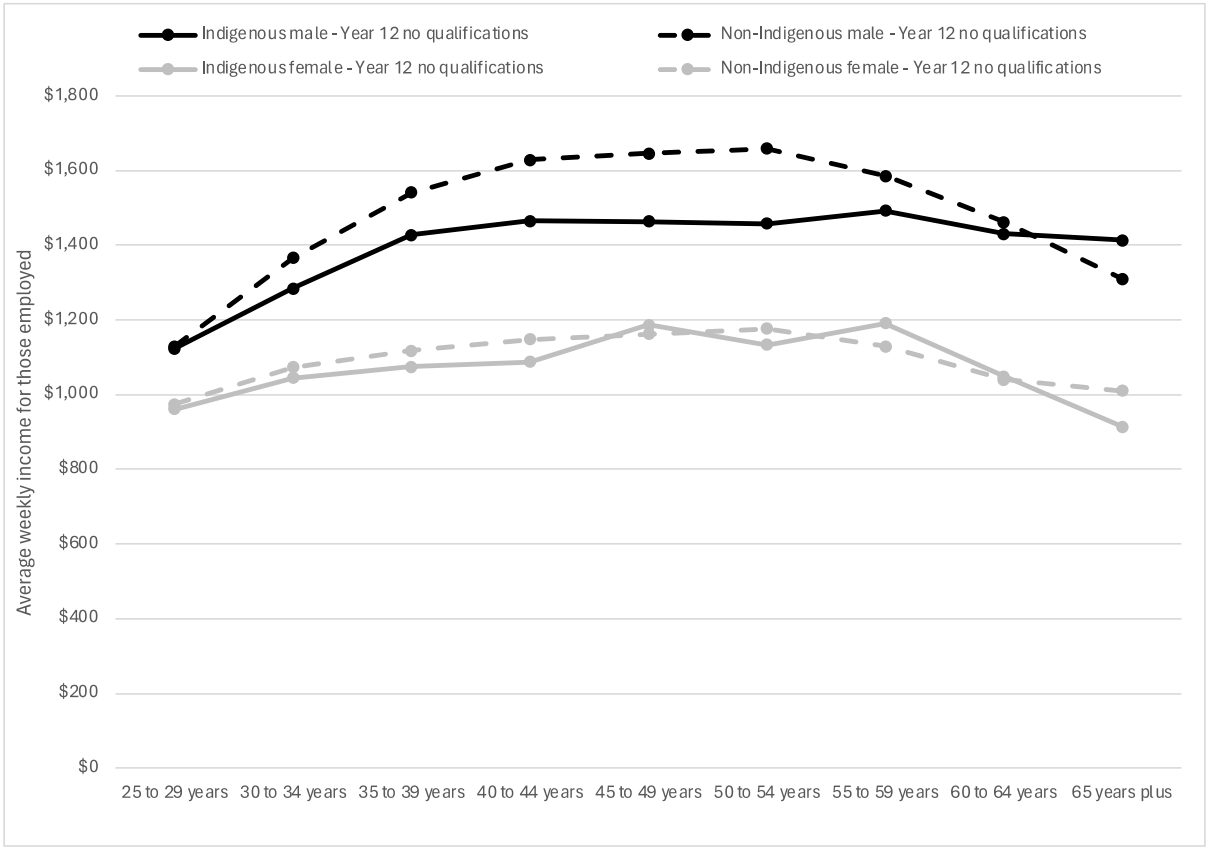


Figure 4d Completed Year 12, has non-degree qualifications.

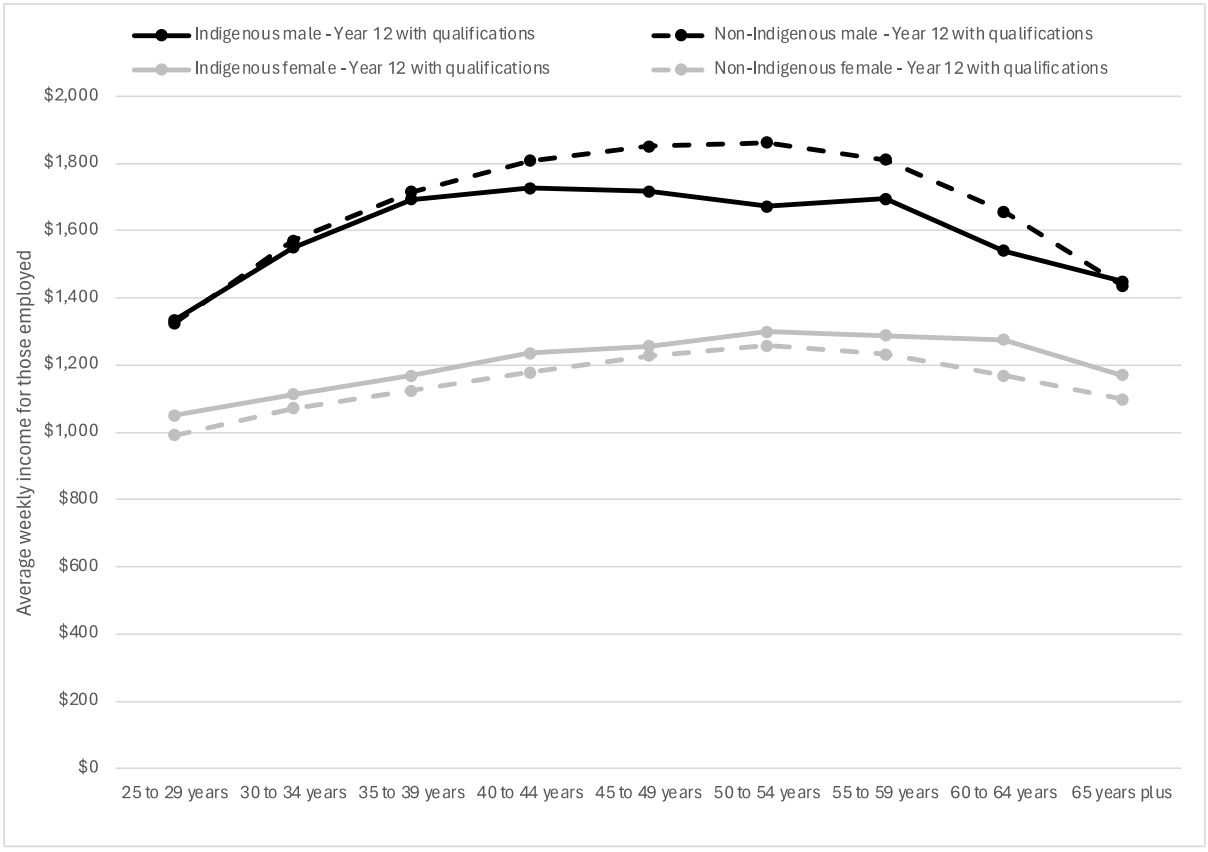
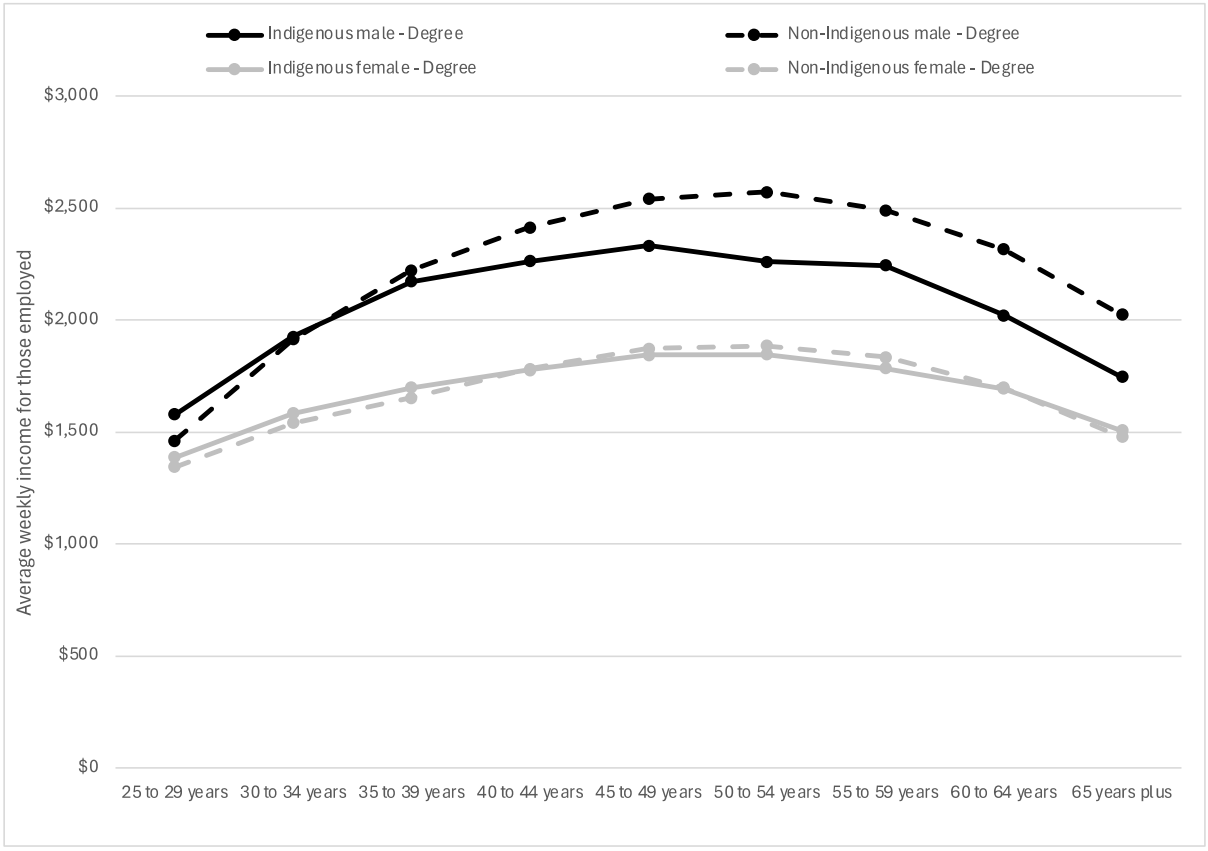


Figure 4e Has a university degree.



5 Income benefits of education and measuring Human Capital

The information summarised in Figures 1, 3, and 4 provide the key building blocks for our estimate of Aboriginal and Torres Strait Islander Human Capital. We are able to create an estimated lifetime income stream for different levels of education, as well as what that implies for the level of Human Capital for the population.

Table 1 provides the 2021-based lifetime income streams, implied by the figures presented above, and taking into account the opportunity cost of studying (the difference between income for students and what the person's income would be if they were not studying). We also provide the ratio of lifetime income for each of the education categories, relative to its comparison.

For those who have no Year 12 and post-school qualifications, as well as those who have completed Year 12 but have no post-school qualifications, the comparison education category is those that have not completed Year 12 and have no post-school qualifications. For those that have completed Year 12 and have a non-degree qualifications and for those that have a university degree, the comparison education category is those who have completed Year 12 but have no post-school qualifications.

Th first section of the table confirms the results from the previous figures. However, when we sum across the lifecourse, and take into account the opportunity cost of studying, some very interesting patterns emerge. First, the income premium for non-degree qualifications appear a little higher for Aboriginal and Torres Strait Islander males compared to females, but the income premium for a degree qualification appears higher for females. This is interesting because it reflects the attainment patterns in Section 2, implying that within the Aboriginal and Torres Strait Islander population there is some response to Human Capital incentives.

The other interesting finding though is that the income premium for all education categories is higher for the Aboriginal and Torres Strait Islander population compared to the non-Indigenous population. This is true for both males and females. However, the attainment data shows that the Aboriginal and Torres Strait Islander population has much lower levels of education than the non-Indigenous population. Given the returns are as high or even higher, this strongly implies that there are non-economic costs for the Aboriginal and Torres Strait Islander population above and beyond those experienced by the non-Indigenous population.

Table 1 Estimated lifetime income by education, Aboriginal and Torres Strait Islander, and sex – 2021

	Indigenous male	Non-Indigenous male	Indigenous female	Non-Indigenous female
Lifetime income				
No Year 12 and no post-school qualifications (baseline).	$1,720,886	$2,325,484	$1,355,430	$1,537,237
No Year 12, has post-school qualifications.	$2,766,350	$3,341,084	$1,940,440	$2,008,629
Completed Year 12, but no post-school qualifications.	$2,329,423	$2,835,763	$1,784,251	$1,927,620
Completed Year 12, has non-degree qualifications.	$3,101,380	$3,439,186	$2,253,581	$2,225,277
Has a university degree.	$4,054,060	$4,438,566	$3,304,807	$3,244,667
Income ratio relative to baseline education				
No Year 12, has post-school qualifications.	1.61	1.44	1.43	1.31
Completed Year 12, but no post-school qualifications.	1.35	1.22	1.32	1.25
Completed Year 12, has non-degree qualifications.	1.33	1.21	1.26	1.15
Has a university degree.	1.74	1.57	1.85	1.68

Using the data summarised in Table 1, and the distribution of the education attainment of the relevant populations, we can now create an estimate of the level of Human Capital as of 2021. For Aboriginal and Torres Strait Islander males, this equates to around $80.8 billion. For females, we estimate a total level of Human Capital of $76.0 billion. The way to interpret this is that the level of education held by the current Aboriginal and Torres Strait Islander population relates to an additional $156.8 billion in future income before that population reaches retirement age.

Per adult aged 25-to-64, the level of Aboriginal and Torres Strait Islander Human Capital is around 59.3 per cent of the non-Indigenous Human Capital for males ($458,645 per person compared to $773,792) and 63.1 per cent of the level for females ($392,715 compared to $622,650).

6 Comparisons through time

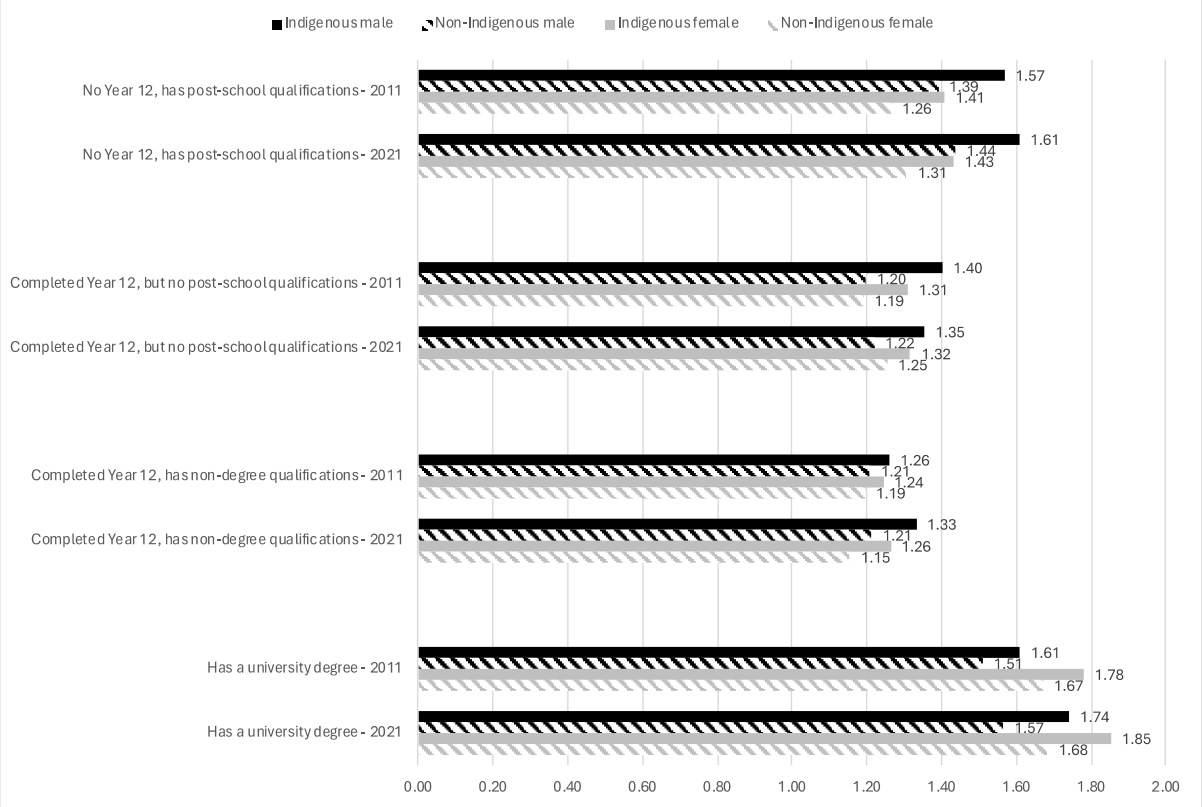
After adjusting for inflation using the CPI, the estimated level of Human Capital held by the Aboriginal and Torres Strait Islander population in 2011 was around $30.7 billion for males and $28.8billion for females. Comparing this with the 2021 estimates in the previous section, this suggests a more than doubling in the level of Aboriginal and Torres Strait Islander Human Capital between 2011 and 2021. In this section, I look at what explains this very rapid growth.

The first component is the growth in the overall size of the Indigenous population aged 25 to 64. The growth in Human Capital per person is therefore slightly less than the overall growth in Human Capital – from $293,582 to $458,645 for males, and from $245,437 to $392,715 for females. This still represents a 56 and 60 per cent increase (respectively) though, so population growth is only one of the explanations.

Indeed, there has been some convergence in the level of Aboriginal and Torres Strait Islander Human Capital per person relative to the non-Indigenous population over the period. In 2011, Indigenous males had 52.5 per cent of the level of human capital (per in-scope person), rising to 59.3 per cent in 2021. For females, the increase was a little less, rising from 59.2 to 63.1 per cent.

A second part of the explanation is that the estimated income premium by education increased for the Aboriginal and Torres Strait Islander population over the decade, at least at the upper end of the education distribution. We can see this in Figure 5, with the income premium for a degree increased from 1.61 to 1.74 for males, and from 1.78 to 1.85 for females.

Figure 5 Estimated lifetime income premiums by education, Aboriginal and Torres Strait Islander, and sex – 2011 and 2021



The final reason for an increase in Aboriginal and Torres Strait Islander Human Capital is the increase in education levels for the population. In 2011, the estimated per cent of Aboriginal and Torres Strait Islander males aged 25 to 29 with a degree was 4.0 per cent. By 2021, this had increased to 7.1 per cent. For females, the increase was from 7.8 to 13.1 per cent. There was a growth in education for the non-Indigenous population as well, but it was not as rapid.

The growth in education for the Aboriginal and Torres Strait Islander population between 2011 and 2021 was in part due to more Aboriginal and Torres Strait Islander Australians obtaining an education over the period. However, it is also due in part to patterns of identification change. Using the Australian Census Longitudinal Database, it is estimated that there was a net inflow into the Aboriginal and Torres Strait Islander population of 16.4 per cent between 2016 and 2021, on top of a similar growth between 2011 and 2016 (Campbell et al. 2018).

When we look at the most recent period of identification change, we can see that a relatively high proportion of those people that changed their status from non-Indigenous to Indigenous

between 2016 and 2021 had high levels of education at baseline. Focusing on those aged 15 years and over in 2016, there was a net identification change observed in the ACLD of 19.4 per cent for those with a degree in 2016, compared to 15.1 per cent for those without a degree. Putting this another way, part but not all of the growth in Aboriginal and Torres Strait Islander Human Capital between 2011 and 2021 was due to those with relatively high levels of Human Capital to start with changing their Indigenous status (or having it changed on their behalf across subsequent censuses), rather than just a growth in the level of Human Capital for those that always identified as being Indigenous.

7 Concluding comments

This draft paper, written for the 2024 joint ABS/RBA conference on Human Capital provides an initial estimate of Aboriginal and Torres Strait Islander human capital and examines how it has changed over time. The analysis is based on data from the 2011 and 2021 Censuses and estimates the level of Indigenous human capital by calculating and comparing the lifetime income streams associated with different levels of education. It finds that while Aboriginal and Torres Strait Islander Australians generally have lower levels of education than non-Indigenous Australians, the returns to education, in terms of income, appear to be higher for Indigenous Australians.

The paper also explores changes in human capital over the past decade, highlighting significant growth due to both population increase and improved educational attainment. The results show a convergence in the level of human capital between Indigenous and non-Indigenous populations, although substantial gaps remain. Part, though not all of this growth is due to changes in identification patterns, with estimates from the Australians Census Longitudinal Database showing that those who changed their status from non-Indigenous to Indigenous had a higher level of education to start with than those who were always identified as Indigenous.

The paper consciously takes an economic approach to understanding Indigenous education outcomes. However, it is recognised right up front that the Aboriginal and Torres Strait Islander community sees education as much more than a means to a higher income or to improved employment prospects. These are no doubt important, but a complete model of Aboriginal and Torres Strait Islander Human Capital would recognise the need for education to improve wellbeing, community development, culture, and language. Without this, the costs of education are too high, and the potential economic returns identified in this paper will not be realised by anywhere enough of Australia's First Nations community.

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