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The relationship between the University Wage Premium and the Urban/Rural Divide in Australia

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The Relationship Between the University Wage Premium and the Urban/Rural Divide in Australia

Daniel Boss*

Abstract

This paper extends research conducted on the wage premia in Australia from acquiring tertiary education qualifications, covering the period 2007-08 to 2019-20. This analysis finds that while there is an increase in wages for those that complete tertiary education, the proportional increase in wages from obtaining university qualification declines marginally over the period. Conversely, the proportional increase in wages from obtaining other tertiary qualifications remains constant, with males consistently earning higher proportional increases than females. When accounting for location, there is no consistent significant effect on wages when comparing capital city and regional populations. However, when the mining industry is also accounted for, there is a significant positive effect to wages from living in a capital city in most years assessed, ranging from 2.5 to 6.7 per cent.

JEL classifications: J30, J61

Keywords: Wage Premium, Tertiary Education, Labour Market

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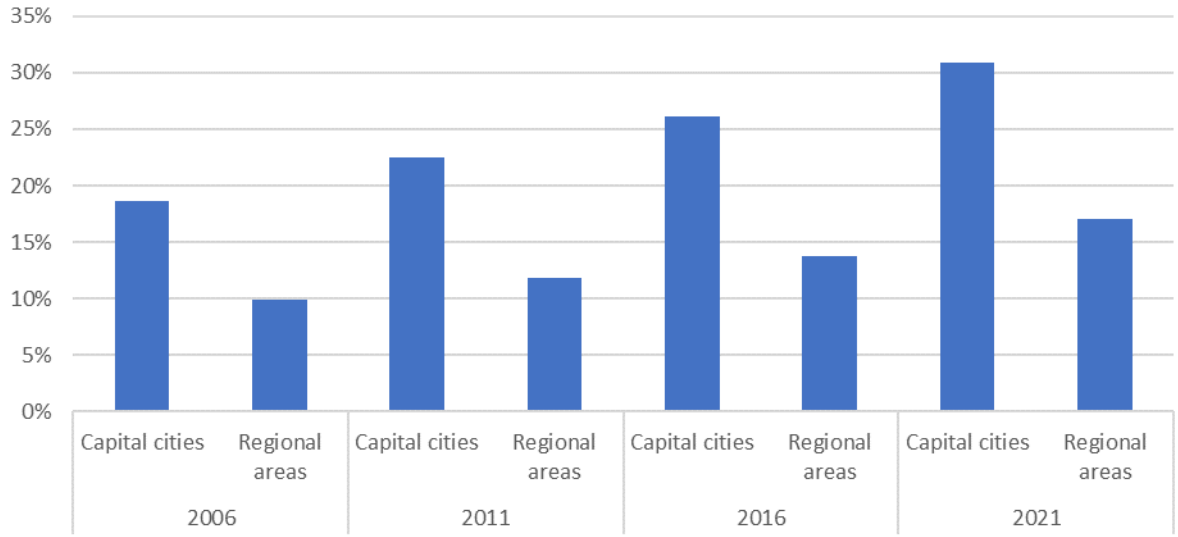
Introduction

Tertiary study has become more prevalent in Australia over the past two decades, especially university education. Figure 1 shows that the proportion of the Australian population aged 15 and above with at least a bachelor's degree from university has increased from 2006 to 2021. This has paralleled a shift in the Australian economy away from lower-skilled manufacturing to higher-skilled services industries (Australian Bureau of Statistics [ABS], 2021a).

Figure 1 – Proportion of people aged 15 and over with an undergraduate degree



The increase in future wages is the key motivator for high school graduates to acquire tertiary education qualifications. These individuals choose to sacrifice higher earnings immediately after school for greater future and lifetime income.

The term 'wage premium' is used in this report to describe the difference in wages based on a specific characteristic. Accordingly, the university wage premium is defined as the difference in wages earned by university graduates to wages earned by individuals that do not pursue tertiary education.

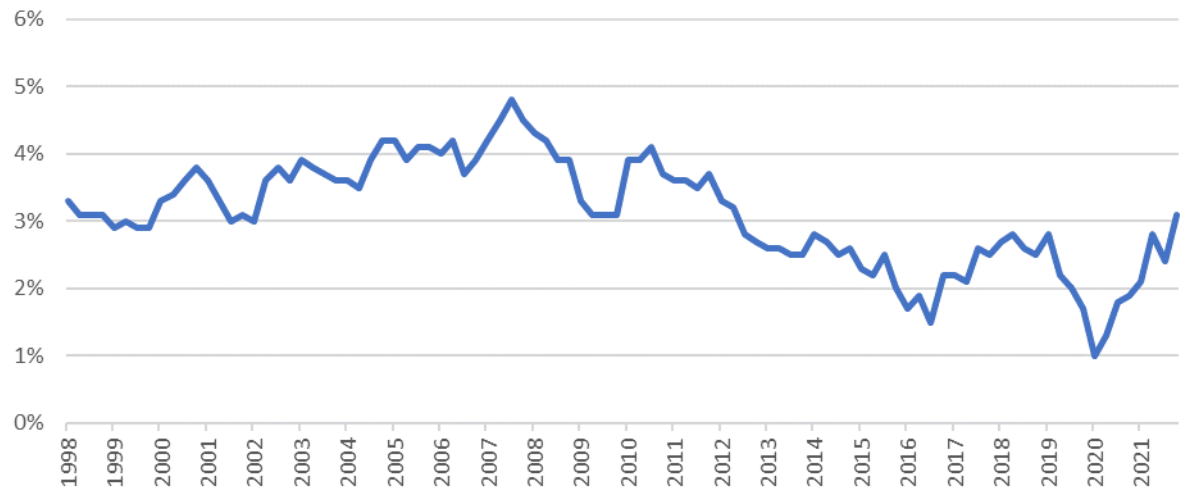
Figure 1 shows that the increase in the proportion of Australia's adult population with university qualifications has been greater in capital cities than in regional areas. This could be due to companies in higher-skilled finance and professional services industries primarily being based in Australia's capital cities. For the purpose of this report, regional areas are defined as areas outside of the greater capital city geographic areas. This divergence has also coincided with a large increase in the significance of the mining industry since the start of the century, which is outlined in Figure 2.

Figure 2 – Proportion of gross value added, selected industries

Industry	2000-01 (%)	2021-22 (%)
Agriculture, forestry and fishing	3.4	2.4
Mining	4.6	11.5
Manufacturing	12.6	6.0
Information media and telecommunications	4.1	2.4
Professional, scientific and technical services	5.2	7.6
Health care and social assistance	5.7	8.1

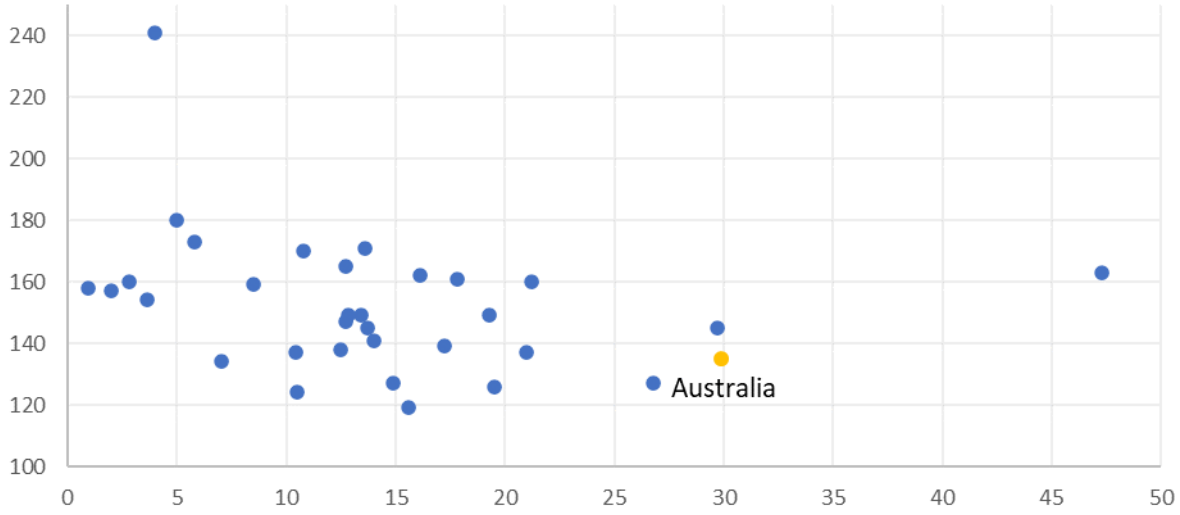
The increased prevalence of services industries, which generally have a greater proportion of workers with university qualifications, would suggest a higher increase in wages for workers in the economy. However, this did not occur in Australia in the 2010s. Annual growth of hourly wages and bonuses in Australia dropped below 3 per cent in 2013 and remained below 3 per cent for almost a decade, specifically until the June quarter 2022 (ABS, 2022b). Figure 3 displays the annual growth in wages and bonuses since the late 1990s and provides context to the weaker wage growth experienced over the past decade.

Figure 3 – Annual growth, total Australian hourly wages and bonuses



Another key demographic shift in the past two decades has been the greater centralisation of the population in capital cities. In 2006, 65.2 per cent of the Australian population lived in capital cities. This increased to 67.1 per cent in 2021. One contributing factor to this increase is the relatively high immigration level in Australia. This could also explain the greater divergence in the proportion of adults with university qualifications, as migration programs target higher-skilled migrants. In 2019, 29.9 per cent of the population was born overseas (Organisation for Economic Cooperation and Development [OECD], 2022a), the second highest compared with a group of similar countries, which contains 33 of the 38 countries in the Organisation for Economic Cooperation and Development (OECD).

Figure 4 – Tertiary education premium vs Foreign-born population



The OECD also measures a tertiary education premium for most member countries, with 100 indicating no higher average wages for individuals with tertiary qualifications. Of these countries, Australia has the seventh lowest tertiary education premium, and only has a higher premium than Scandinavian nations Norway, Sweden, Finland and Denmark, and New Zealand and Estonia (OECD, 2022b). Figure 4 shows that there may be a slight negative relationship between the tertiary education premium and the proportion of the population born overseas. This indicates that a higher supply of labour could potentially be a contributing factor in constraining earnings growth for university-educated individuals in Australia, particularly in the context of weaker wage growth over the past decade.

Literature Review

Trends in the university wage premium have been assessed in recent studies. Doepke and Gaetani (2020) compared premia in the United States and Germany from 1980 to 2010 and found that the US had greater premium growth, with the level of employment protection theorised as a potential contributing factor. Blundell et al. (2022) studied the premium in the United Kingdom, finding that it remained steady from 1993 to 2016 and that the later adoption of technology was a potential factor for this outcome.

The relationship between earnings from employment and education levels are typically estimated using the human capital model. This model is attributed to Mincer (1974) and the wage equation under this model is specified as:

$$ln(wage_i) = \beta_0 + \beta_1 educ_i + \beta_2 exper_i + \beta_3 exper_i^2 + \beta_n \gamma_i + \varepsilon_i.$$

The university wage premium and wage premium from other tertiary education compare the effect on wages from different amounts of education. Therefore, in terms of Mincer's model, β_1 is the coefficient of interest.

The university wage premium has been the subject of multiple overseas studies. Fortin (2006) compared US states California, Florida and Texas over the 1980s and 1990s and found that states that experienced lower university enrolment, and in turn less supply of university educated workers, observed greater premium increases. Altonji and Zhong (2021) studied individuals with postgraduate degrees, using US data from 1993 to 2015, and found that the increase in wages from completing a postgraduate degree depended on the undergraduate degree completed. Conzelmann et al. (2022) analysed LinkedIn data for US university graduates and observed that a graduate was more likely to live and work near their university if the local labour market was strong.

Preston (1997) reviewed the human capital theory using census microdata from the 1981 and 1991 censuses, conducted the Australian Bureau of Statistics, and confirmed the existence of a wage premium for university graduates in Australia. Wei (2010) reviewed the private rate of return to tertiary education using census data from 1981 to 2006, finding that the rate of return increased for males from 1981 to 2001, before falling from 2001 to 2006, as well as relatively flat rates of return for females. Daly and Lewis (2010) used census data for economics, law and business university degree graduates to find a slight decline in the rate of return to tertiary education for men from 2001 to 2006.

Corliss et al. (2020) used census data from 2006 and 2016 to determine that the private rate of return declined over the decade for most disciplines. This result was expected, due to the increase in supply of university graduates, as displayed in Figure 1, and lower demand for graduates following the Global Financial Crisis. The census data from 2006 to 2016 also shows that the university wage premium fell for recent graduates over the period, but increased for older graduates, partly because some recent graduates were employed in jobs that only required high school qualifications (Norton & Cherastidtham, 2018).

Some studies have investigated other factors and trends in the university wage premium in Australia using Household, Income and Labour Dynamics in Australia (HILDA) survey data. Koshy et al. (2016) examined the impact of a university's reputation on wages earned by master's degree graduates compared to bachelor's degree graduates but found no significant impact of university reputation on wages. HILDA data was also used to estimate the lifetime

earnings of men and women. Sinning (2014) found a greater divergence in lifetime earnings for men who had completed postgraduate degrees compared to those with no university education, than for women with postgraduate degrees. The study also observed similar divergences in lifetime earnings for female university graduates with postgraduate degrees and without postgraduate degrees, when both are compared to women with no university education.

Figure 1 showed the increasing divergence between capital cities and regional areas of the proportion of adults with university qualifications. There is evidence of a greater divergence in political views in urban and rural areas over the same time period. This is especially prevalent in the United States, where voting patterns have diverged over the last two decades (Mettler & Brown, 2022). Gallup survey data was used to determine that Democratic party voters are more prevalent in urban areas and Republican party voters are more prevalent in rural areas, for voters of all education levels (Gimpel et al, 2020). In the 2022 Australian federal election, the Labor party won government, with all changes in House of Representatives seats occurring in capital cities (Beaumont, 2022). Polling conducted by the Australian National University also found that voters with tertiary education were more likely to vote for the Labor party and voters with no tertiary education were more likely to vote for the Liberal-National coalition (Biddle & McAllister, 2022).

There are two previous studies that this paper is based on. The first section of this paper will extend analysis conducted on the impact of university qualifications on wages in Australia from 1981 to 2002. Coelli and Wilkins (2009) conducted the study, with one main finding being that over the two-decade period, the increase in wages from possessing university qualifications remained steady, despite a slight decline observed for females. Compared to individuals with no tertiary education in the late 1990s and early 2000s, the study found that wages were around 49 per cent higher for individuals with at least a bachelor's university degree and around 11 per cent higher for individuals with other tertiary education.

The second section of this paper will estimate the premium for capital city residents, which is very similar to a study conducted on the urban wage premium in Australia. Meekes (2022) used HILDA data and combined it with population per square kilometre data to determine whether the density of a geographic area affected wages. The analysis determined that the urban wage premium ranges from 0.5 to 2.7 per cent, which is lower than the international average. This range provides a point of comparison for the analysis in this report. The study

theorises that tax incentives and a large mining industry, which Figure 2 shows has become even more prevalent over the past two decades, are factors for the lower-than-average urban wage premium.

Methodology and Data

The model used in the first section is very similar to Mincer's wage equation from the human capital model. This model aligns with the model used by Coelli and Wilkins (2009), which did not include any other explanatory variables other than level of education and age, which is used a proxy for experience. The second section will include an indicator variable for individuals that reside in capital cities. A mining industry indicator will also be added to determine whether accounting for mining industry employees changes the capital city wage premium.

The data analysed in this report is microdata from the Income and Housing and Household Expenditure, Income and Housing surveys collected by the Australian Bureau of Statistics (ABS). The Income and Housing survey was conducted in 2007-08, 2011-12, 2013-14, 2017-18 and 2019-20, while the Household Expenditure, Income and Housing survey was conducted in 2009-10 and 2015-16. Data from each survey was collected separately, so it is unknown whether respondents in one survey respond in other surveys. Therefore, the results in this report compare 7 cross-sectional analyses for each specified model.

As the name suggests, the Household Expenditure, Income and Housing survey collects the same information as the Income and Housing survey. However, the Household Expenditure, Income and Housing survey microdata has lower sample sizes than the Income and Housing survey, aside from the 2007-08 survey. When analysing the results over time, it is noted that the results in 2007-08, 2009-10 and 2015-16 have greater uncertainty than other years.

Consistent with Coelli and Wilkins (2009), only individuals that work full-time and are aged within the range of 25 to 59 years are included in the analysis. This is an appropriate age group as this analysis looks to measure the impact of tertiary education, as most people complete university study before the age of 25, accounting for individuals that choose to pursue postgraduate university education before entering the workforce. Less than half of the individuals captured in the surveys are therefore included in this analysis. Figure 5 provides the exact numbers.

Figure 5 – Survey respondents

Year	Included in analysis	Total surveyed
2007-08	5,916	18,304
2009-10	4,294	17,919
2011-12	8,801	28,213
2013-14	8,414	27,265
2015-16	5,367	19,218
2017-18	8,202	26,865
2019-20	8,865	29,094

The main variables of interest in the data are whether an individual lives in a capital city or regional area, their highest level of education and whether they work in the mining industry. This information is provided in Figure 6.

Figure 6 – Data observations for main variables

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
Capital city	**3703**	**2781**	**4437**	**4301**	**3909**	**4117**	**5116**
of which:							
University study	*1350*	*1048*	*1677*	*1785*	*1726*	*1986*	*2484*
Other tertiary education	*1283*	*961*	*1628*	*1508*	*1391*	*1415*	*1543*
No tertiary education	*1070*	*772*	*1132*	*1008*	*792*	*716*	*1089*
Mining industry worker	*67*	*53*	*96*	*121*	*69*	*97*	*88*
Regional areas	**2213**	**1513**	**4364**	**4113**	**1458**	**4085**	**3749**
of which:							
University study	*552*	*418*	*1138*	*1176*	*469*	*1297*	*1346*
Other tertiary education	*838*	*579*	*1816*	*1792*	*658*	*1800*	*1455*
No tertiary education	*823*	*516*	*1410*	*1145*	*331*	*988*	*948*
Mining industry worker	*82*	*53*	*224*	*235*	*55*	*213*	*174*

Survey respondents from capital cities included in the analysis are more likely to have acquired university qualifications than respondents from regional areas. This aligns with the difference in university qualifications in Figure 1. It is important to note that in most years, individuals included in the analysis that work in the mining industry are more likely to reside in regional areas. The higher proportion of mining industry workers that reside in regional areas is covered in more detail in Section 2 of the empirical analysis.

There are two other major limitations to these results. The first is that there is no variable for an individual's work experience, so an individual's age is used as a proxy. Age variables for surveys prior to 2015-16 group adult survey respondents into 5-year clusters. Therefore, the variables in the wage equation are replaced by indicator variables for each age cluster, with those aged between 55 and 59 being the reference group. The model is now specified as:

$$ln(wage_i) = \beta_0 + \beta_1 educ_i + \beta_2 age25to29_i + \beta_3 age30to34_i + \beta_4 age35to39_i + \beta_5 age40to44_i + \beta_6 age45to49_i + \beta_7 age50to54_i + \varepsilon_i.$$

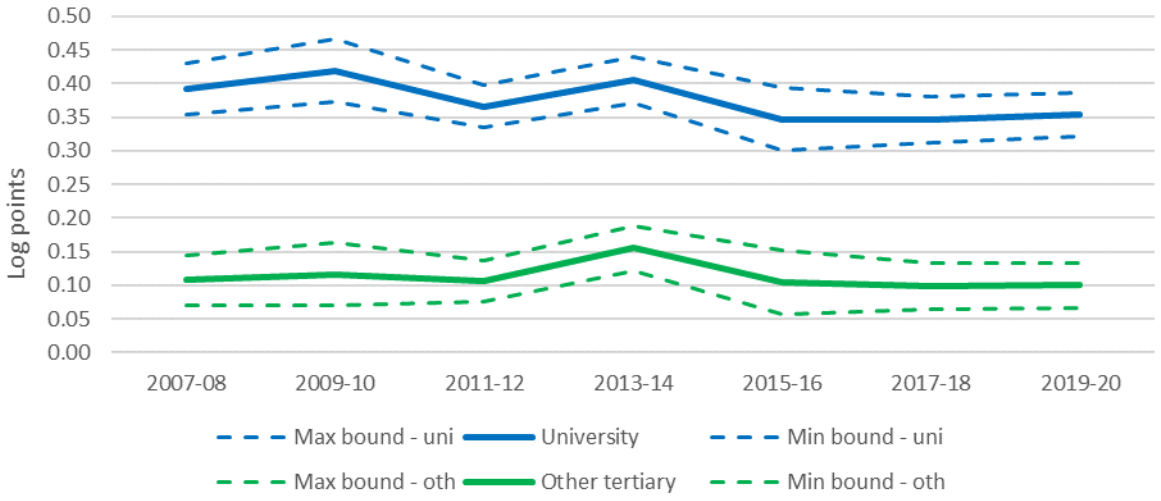
The other major limitation is that the study may not account for changes to working arrangements that have come about since the onset of the COVID-19 pandemic. Population growth declined sharply from March 2020 onwards, as Australia implemented border restrictions aimed at reducing the circulation of the virus (ABS, 2022d). There was also a shift away from capital cities to regional areas, as in 2020-21, the population of capital cities fell by 26,000 people but the population in regional areas increased by 76,900 (ABS, 2022a). The biggest fall was in Melbourne, which experienced a lockdown in the second half of 2020, while all other capital cities had much less stringent restrictions. As a result, this shift to regional areas could affect the results in years after this study.

Empirical Analysis

Section 1 – Tertiary education wage premiums, 2007-08 to 2019-20

The formulae previously presented in this report, based on Mincer's wage equation, only have one variable for the level of education. However, this analysis uses two indicator variables to measure the impact of tertiary education, which is consistent with Coelli and Wilkins (2009). These two indicator variables are based on the level of highest education level attained. One indicator variable is for at least an undergraduate university degree and the other is for other tertiary education, including vocational education diplomas and certificates. This leaves individuals with no tertiary education as the reference group. This means that the coefficient for both indicator variables aim to measure the difference between either completing a university degree or completing other tertiary education, to completing no further education after high school.

Figure 7 – Tertiary education premium estimates



There is a slight fall in the estimates of the university wage premium over the time period analysed. The premium hovered around 0.4 log points from 2007-08 to 2013-14, which is equal to around 49 per cent using the standard calculation $percentage\ difference = 100 \times \left(e^{log\ difference} - 1\right)$. The premium then fell to around 0.35 log points, or around 42 per cent, from 2015-16 to 2019-20. The fall in the university wage premium coincides with weaker growth in wages, which was presented in Figure 3. The premium for other tertiary education is around 0.1 log points, around 10.5 per cent, for the entire time assessed. The one exception is in 2013-14, which appears to be an outlier. Estimates of all premia in each year for all analyses in this report, as well as coefficients for the five age groups, are provided at Appendix A. It is noted that all bounds in figures are 95% confidence intervals.

Figure 8 – Premium estimates by gender

The university wage premium estimate gradually declines for males from 2007-08 to 2019-20. However, the premium shifts downwards in 2015-16 for females, in line with the result in the aggregate premium. Premia under 0.4 log points, or around 49 per cent, are lower than the estimates from 1982 to 2004 in Coelli and Wilkins (2009).

The general trend of a higher wage premium for males after completing other tertiary education has sustained. The decline in the premium after completing other tertiary education for females observed in the 1990s by Coelli and Wilkins (2009) did not continue into the 2000s and 2010s.

It is important to note that a decline in the premium is not necessarily a result of weaker growth in wages for individuals that have completed tertiary education. The decline could be a result of stronger increases in wages for individuals without tertiary education. One possible

explanation is an increase in wages for employees in the mining industry, who have a greater proportion of workers that have not completed any further study after school. However, this may not be relevant for all years as a greater number of university educated workers, typically engineers, are required by companies in the mining industry prior to large construction periods.

Section 2 – Addition of capital city indicator variable, 2007-08 to 2019-20

Figure 9 – Regional employment and average earnings by industry

Industry	Average proportion of employees in regional areas, 2006-2022	Average weekly earnings ($), tertiary education, August 2021	Average weekly earnings ($), no tertiary education, August 2021
Agriculture, forestry and fishing	83%	1,186.7	1,000.0
Mining	55%	2,601.4	1,878.6
Manufacturing	31%	1,446.5	1,096.7
Electricity, gas, water and waste services	37%	1,851.4	1,452.5
Construction	34%	1,480.0	1,049.3
Wholesale trade	25%	1,369.3	1,192.2
Retail trade	34%	920.0	640.0
Accommodation and food services	36%	700.0	363.2
Transport, postal and warehousing	28%	1,358.1	1,148.8
Information media and telecommunications	18%	1,556.9	1,038.3
Financial and insurance services	15%	1,813.3	1,250.0
Rental, hiring and real estate services	28%	1,477.4	1,024.6
Professional, scientific and technical services	19%	1,541.0	1,100.0
Administrative and support services	29%	1,200.0	900.0
Public administration and safety	33%	1,684.9	1,345.1
Education and training	32%	1,350.0	612.4
Health care and social assistance	33%	1,140.0	800.0
Arts and recreation services	28%	1,055.5	500.0
Other services	33%	1,080.0	824.8

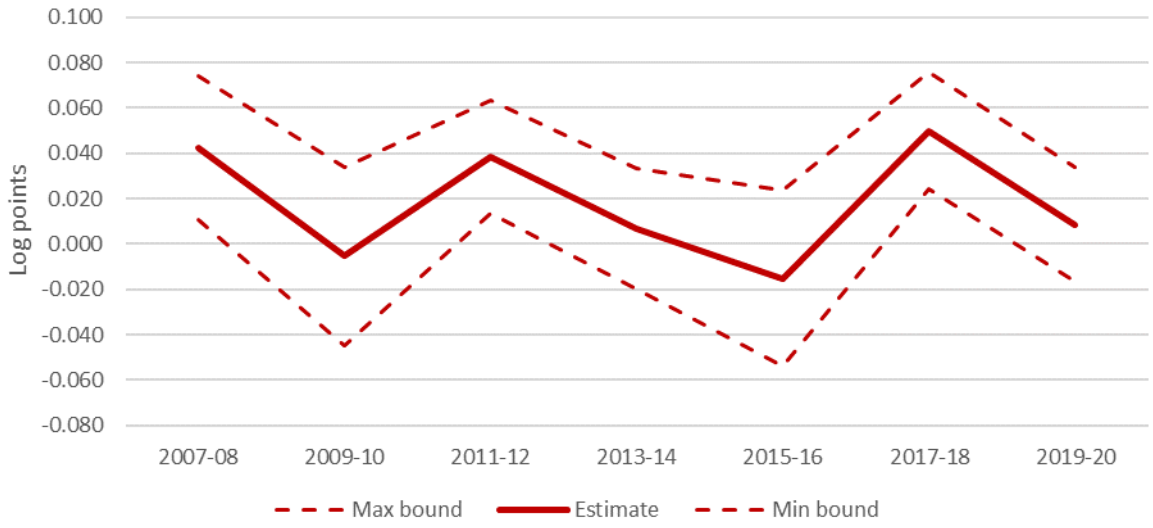
Note: The average proportion of regional employees is only estimated based on the states of Australia and excludes the Northern Territory and Australian Capital Territory.

The agriculture, forestry and fishing, and mining industries are the only two industries in Australia where most employees reside in regional areas (ABS, 2022c). Individuals that work in the mining industry earn the highest of all industries on average (ABS, 2021b). The substantially higher average industry wage for the mining industry suggests that individuals

that live in regional areas could possibly earn more on average than those in capital cities. However, as stated in Figure 1, a greater proportion of adults in capital cities have obtained university education and Figure 8 shows that average earnings are higher in all industries for those with tertiary education, especially those with university education.

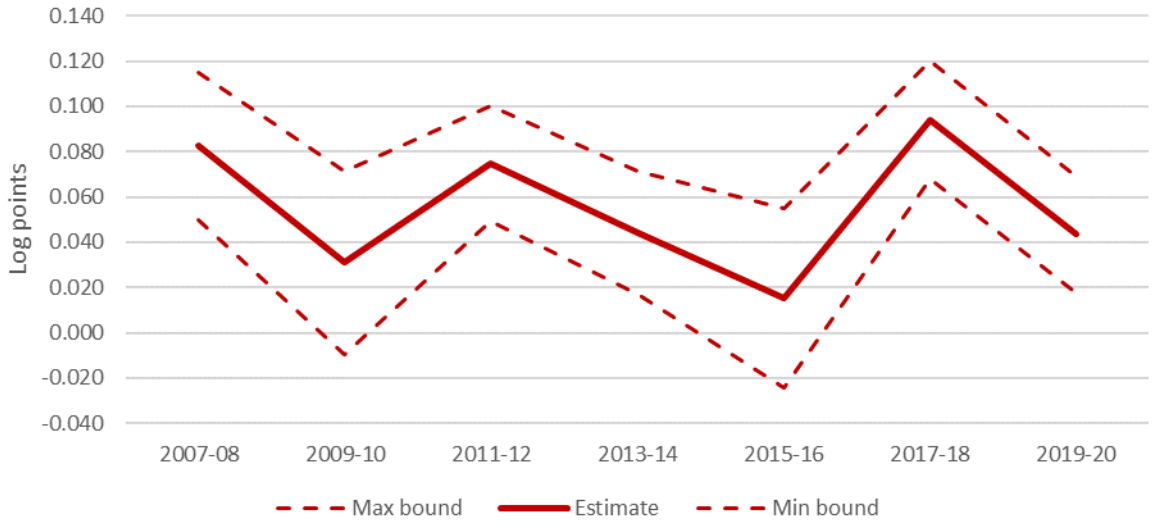
Meekes (2022) estimated that residents in urban areas earn from 0.5 to 2.7 per cent more, after accounting for a range of factors. The analysis in this section builds upon the model developed in Section 1 by adding an indicator variable for place of residence. The surveys used contain information on whether an individual's household is in a capital city or not. Firstly, the indicator variable is added to the model from Section 1.

Figure 10 – Capital city wage premium



The coefficient to the capital city indicator variable is only significantly different from 0 in three years, 2007-08, 2011-12 and 2017-18. The coefficient estimate is negative in two years, 2009-10 and 2015-16, which indicates that there is considerable volatility in these estimates and no significant results can be derived. There are significant results once the education indicator variables are removed from the model, as shown in Figure 11.

Figure 11 – Capital city wage premium after removing education variables

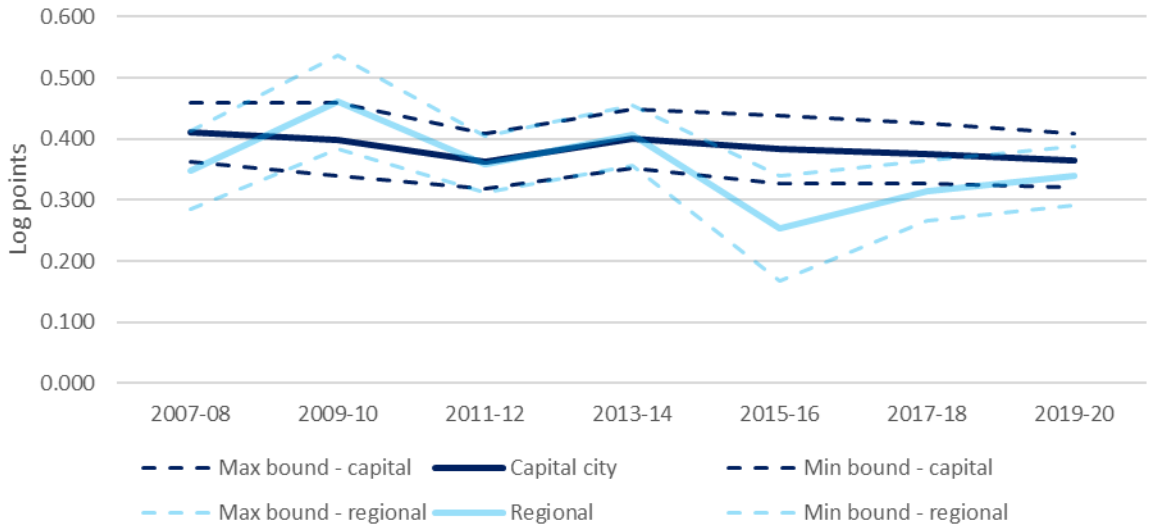


The pattern of the wage premium is very similar when the education status is either accounted for or not accounted for. When education status is not accounted for, the coefficient to the capital city indicator variable is significantly different from 0 in all years aside from 2009-10 and 2015-16. These are the years when the Household Expenditure, Income and Housing survey was conducted and have lower sample sizes than more recent Income and Housing surveys. The difference in these two years could also be affected by sample bias.

Regardless, when education levels are removed from the model, the coefficient of the capital city indicator variable increases by around 0.4 log points, approximately 49 per cent. This provides two insights. Firstly, on the aggregate level, average wage earnings are higher for those living in capital cities than those living in regional areas. Secondly, the higher proportion of workers with university and other tertiary education is a significant contributor to this discrepancy. This result is consistent with Conzelmann et al. (2022), as capital city labour markets appear to be stronger for university graduates.

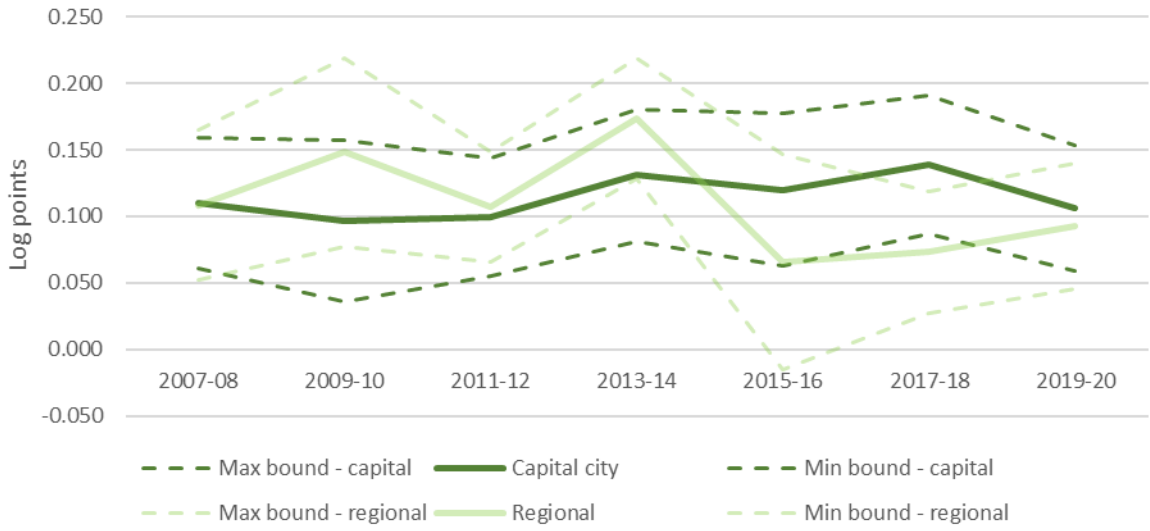
These findings provide insight into the earnings at the aggregate level, but it does not explain whether the increase in earnings from university or other tertiary education differs when comparing capital cities to regional areas. One method to estimate the difference is to use the model from Section 1 and only apply it to individuals in either capital cities or regional areas.

Figure 12 – University wage premium comparison



There is a general downward trend in the estimates of the university wage premium over the time period for individuals in capital cities and regional areas. However, there is greater volatility in the premium estimates for individuals in regional areas. This may reflect a greater volatility in the nature of work for individuals in regional areas, which increases the difficulty in accurately capturing all aspects of regional labour markets. The premium was also consistently lower for individuals in regional areas from 2015-16 onwards.

Figure 13 – Other tertiary education wage premium comparison



The estimates of the wage premium from other tertiary education by geographic area have similar patterns to the estimates of the university wage premium. The estimates for individuals in regional areas are again more volatile and lower from 2015-16 onwards. The discrepancy between capital cities and regional areas is on average slightly greater for the

university wage premium estimates when compared to other tertiary education wage premium estimates. However, given the uncertainty around all these estimates, no significant findings can be concluded.

Another method to estimate the difference in wage premia comparing capital cities to regional areas is to add interaction variables to the model used in Section 1. The model is now specified as:

$$ln(wage_i) = \beta_0 + \beta_1 capcity_i + \beta_2 uniedu_i + \beta_3 otherter_i + \beta_4(capcity_i * uniedu_i) + \beta_5(capcity_i * otherter_i) + \beta_6 age25to29_i + \beta_7 age30to34_i + \beta_8 age35to39_i + \beta_9 age40to44_i + \beta_{10} age45to49_i + \beta_{11} age50to54_i + \varepsilon_i.$$

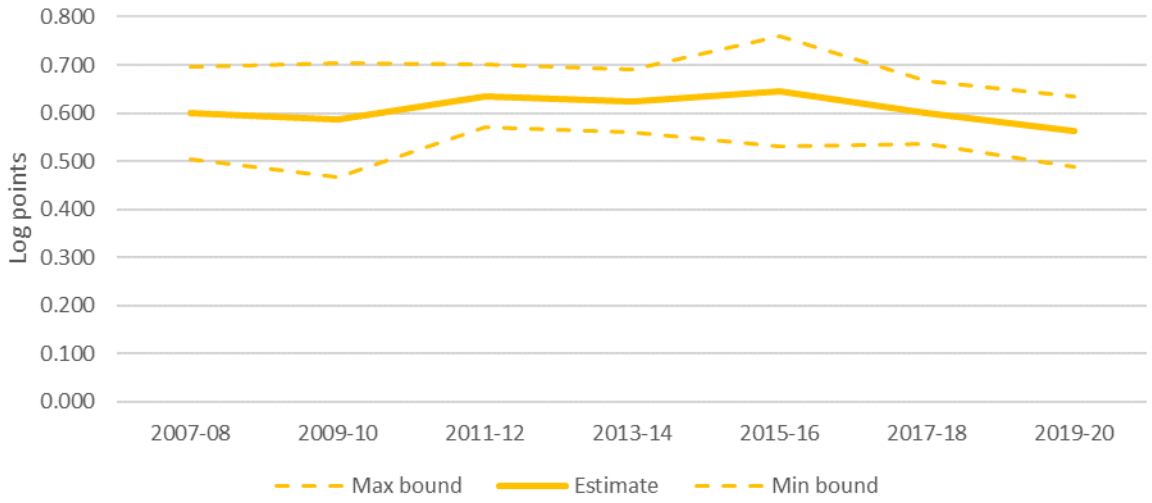
In this model, $capcity_i$ is the indicator variable for whether an individual lived in a capital city, $uniedu_i$ is the indicator variable for those with at least a university bachelor's degree and $otherter_i$ is the indicator variable for those with other tertiary education.

The coefficients of interest are β_4 and β_5. The only time when one coefficient is significantly different from zero is for the combined effect of residing in a capital city and university education in 2015-16. As a result, this confirms the findings from Figures 11 and 12 of no significant results when comparing the premia in capital cities and regional areas. The coefficients in the specified model are provided at Table A.8 in Appendix A.

Meekes (2022) identifies the prevalence of the mining industry in the Australian economy as one reason for a lower-than-average urban wage premium. Figure 9 shows that the mining industry has the second highest proportion of workers that live in regional areas across all industries, as well as the highest average weekly earnings for individuals with and without tertiary education. Therefore, it is possible that individuals who work in the mining industry are significantly impacting all results from the previous analysis.

To test the influence of the mining industry, another indicator variable is added to the wage equation model for individuals employed in the mining industry. The capital city indicator variable is retained but the interaction variables are not, due to their lack of significance in the previous model.

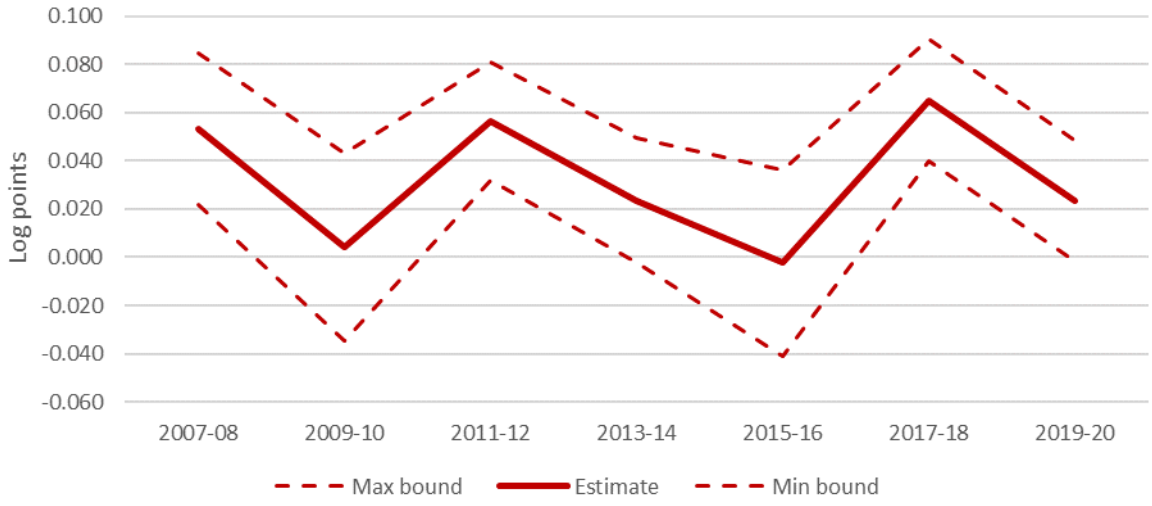
Figure 14 – Mining industry wage premium



An individual who works in the mining industry is estimated to have had consistently higher earnings of around 0.6 log points, approximately 82 per cent, compared with average earnings for workers in all other industries. This result was expected, given the statistics reported in Figure 9. An interesting but not surprising aspect of the results after the inclusion of the mining industry indicator variable is that the coefficients estimating the university wage premium and the other tertiary education premium remain relatively unchanged, in comparison to the estimates in Section 1.

In the context of this report, the most interesting result is the impact to the coefficient for the capital city indicator variable. As previously mentioned, the mining industry is one of only two industries to have most workers located in regional areas.

Figure 15 – Capital city wage premium, with mining industry accounted for



The pattern of the capital city wage premium estimates is similar to the pattern for the model without the mining industry indicator variable. However, the estimates are all higher compared to the estimates in the original model in Figure 10. For all years when the Income and Housing survey was collected, the capital city wage premium was significantly greater than 0.

In those years, the capital city wage premium ranges from 0.025 to 0.065, or 2.5 to 6.7 per cent. This is closer to the average urban wage premium mentioned by Meekes (2022) and supports the theory that the mining industry is a factor for Australia's lower-than-average urban or capital city premium.

The estimates in 2009-10 and 2015-16, the years where the Household Expenditure, Income and Housing survey was conducted, are not significantly different from 0. The sample sizes are lower for this survey than for more recent Income and Housing surveys and there may be evidence of sample bias.

An interaction variable multiplying the capital city indicator with the mining industry indicator was added to the model. However, there was no significant relationship between this interaction variable and wage income in all years studied. The coefficients of that model are provided at Table A.10 in Appendix A.

Conclusions

From 2007-08 to 2019-20, the period that covers the onset of the Global Financial Crisis to the start of the COVID-19 pandemic, the university wage premium in Australia is estimated to have slightly trended downward. This is consistent with other literature that has examined the return to university study over a similar period. From the analysis in this report, there are two potential factors for this result. The first is the higher proportion of adults with university education, which may have led to a greater increase in the supply of university-educated workers than the increase in demand for these workers. The second potential factor is the higher levels of skilled migration in Australia from the mid-2000s onward. Figure 4 captures the slight negative relationship between the tertiary education premium and the proportion of the population that is foreign-born.

The wage premium for other tertiary study remained relatively constant over that time period. The decline in this premium for females observed in a previous analysis did not continue, however the premium for males exceeded the premium for females in all but one year in this

analysis, 2009-10. This indicates that other tertiary study, such as vocational education and training, is more beneficial on average for males than for females.

When accounting for an individual's location, the analysis at the aggregate level found no consistent wage premium for those living in a capital city. In most years, the capital city wage premium was positive, but it was only significantly positive in 3 of the 7 years studied. However, there is a significantly positive wage premium in most years for capital city residents if education levels are not factored into the analysis. This indicates that the higher proportion of individuals with tertiary education is a significant factor in the discrepancy in average wages between capital city and regional populations.

The mining industry has both the highest average weekly earnings for workers in Australia and the second highest proportion of workers that live in regional areas. This is an outlier compared to other industries. After accounting for the mining industry, the capital city wage premium was significantly positive in most years, ranging from 2.5 to 6.7 per cent. This is higher than estimates in Meekes (2022), a related study, which indicates that the prevalence of the mining industry in the economy is contributing to a lower-than-average university wage premium in Australia.

These findings are to an extent unsurprising, but they provide an insight into the magnitude of these aspects of the Australian labour market. In relation to the slight decline in the university wage premium, it is debatable whether this is a positive or negative result. If the slight decline is driven by skilled migration, then this may increase wages for all people, due to a higher proportion of skilled workers in the labour force. However, a lower premium may disincentivise individuals from pursuing university study, which could lead to a less educated population. Any policies that aim to change the university wage premium would likely be aimed at impacting the supply of university-educated workers. Two areas where the government could impact university-educated worker supply are in government subsidies for university degrees and skilled migration levels.

For the difference in the wage premium between males and females who complete other tertiary education but decide not to study at university, the difference could be limited by encouraging females to gain skills and work in higher-paying industries or increase wages in industries where females are more likely to work. The COVID-19 pandemic has brought the work of aged care workers and nurses to the fore, which could be argued are two occupations where strong wage increases would be justified.

The pursuit to reduce the impact of climate change has put major polluters and the use of fossil fuels under a large microscope. There is considerable pressure to move away from the use of fossil fuels and replace them with renewable resources. If this occurs, the mining industry in Australia would likely be less prevalent. This in turn would likely result in a greater divergence in wages between capital city and regional populations, which is already prevalent at the aggregate level.

A greater divergence in wages could increase the risk of further political polarisation, which exists in the United States and is growing in prominence in Australia based on the 2022 federal election, where climate change was a major issue. Some policies that could be considered to reduce this risk include providing more incentive for higher paying industries to have a greater presence in regional areas and to continue to embrace working from home arrangements. The latter would be more easily achieved in services industries, which are higher paying than most other industries. In addition to a potential reduction in the risk of political polarisation, a greater proportion of workers in higher paying industries living in regional areas could potentially increase the overall economic well-being of regional populations.

It is noted that the analysis in this report concludes in 2019-20, prior to a shift in Australia's population away from capital cities to regional areas during the COVID-19 pandemic. Future analysis of the urban or capital city wage premium could determine if there was a change in the capital city wage premium as a result of this population shift.

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Appendix A – Full modelling outputs

Table A.1 – Return to log of weekly employee income, Figure 7

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.917*** (0.027)	6.969*** (0.033)	7.037*** (0.021)	7.051*** (0.022)	7.104*** (0.029)	7.186*** (0.029)	7.249*** (0.021)
University study	0.393*** (0.019)	0.420*** (0.024)	0.366*** (0.016)	0.405*** (0.018)	0.347*** (0.024)	0.347*** (0.018)	0.354*** (0.016)
Other tertiary education	0.108*** (0.019)	0.117*** (0.024)	0.106*** (0.016)	0.155*** (0.018)	0.105*** (0.024)	0.099*** (0.018)	0.100*** (0.017)
Aged 25-29	-0.190*** (0.031)	-0.265*** (0.038)	-0.183*** (0.025)	-0.222*** (0.026)	-0.265*** (0.034)	-0.240*** (0.025)	-0.301*** (0.025)
Aged 30-34	-0.100** (0.032)	-0.142*** (0.038)	-0.051* (0.025)	-0.082** (0.026)	-0.099** (0.033)	-0.094*** (0.025)	-0.108*** (0.024)
Aged 35-39	0.007 (0.032)	-0.008 (0.039)	0.031 (0.025)	0.008 (0.027)	0.008 (0.034)	-0.018 (0.025)	-0.064** (0.024)
Aged 40-44	0.010 (0.031)	-0.046 (0.039)	0.028 (0.025)	0.039 (0.026)	0.038 (0.034)	0.004 (0.025)	0.014 (0.025)
Aged 45-49	0.001 (0.031)	-0.004 (0.039)	0.000 (0.025)	0.042 (0.026)	0.074* (0.034)	0.019 (0.025)	0.018 (0.024)
Aged 50-54	-0.024 (0.032)	-0.016 (0.039)	-0.019 (0.025)	0.009 (0.026)	0.018 (0.034)	0.016 (0.025)	0.009 (0.025)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.2 – Return to log of weekly employee income, males, Figure 8

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	7.025*** (0.033)	7.084*** (0.042)	7.104*** (0.027)	7.129*** (0.029)	7.187*** (0.038)	7.263*** (0.028)	7.356*** (0.026)
University study	0.427*** (0.025)	0.406*** (0.032)	0.381*** (0.021)	0.421*** (0.023)	0.372*** (0.032)	0.380*** (0.023)	0.369*** (0.021)
Other tertiary education	0.122*** (0.023)	0.101*** (0.030)	0.123*** (0.019)	0.185*** (0.021)	0.105*** (0.031)	0.117*** (0.021)	0.097*** (0.021)
Aged 25-29	-0.223*** (0.040)	-0.321*** (0.050)	-0.182*** (0.032)	-0.223*** (0.035)	-0.270*** (0.047)	-0.244*** (0.033)	-0.365*** (0.032)
Aged 30-34	-0.162*** (0.040)	-0.182*** (0.049)	-0.047 (0.032)	-0.108** (0.034)	-0.124** (0.044)	-0.111*** (0.032)	-0.160*** (0.031)
Aged 35-39	-0.017 (0.039)	-0.032 (0.049)	0.039 (0.032)	0.009 (0.034)	0.017 (0.044)	-0.027 (0.032)	-0.086** (0.030)
Aged 40-44	0.006 (0.039)	-0.045 (0.050)	0.033 (0.031)	0.050 (0.033)	0.050 (0.044)	-0.009 (0.032)	-0.004 (0.031)
Aged 45-49	-0.015 (0.039)	-0.017 (0.050)	0.031 (0.032)	0.049 (0.034)	0.082+ (0.044)	0.043 (0.032)	0.016 (0.031)
Aged 50-54	-0.014 (0.041)	0.004 (0.051)	0.017 (0.032)	-0.011 (0.034)	0.021 (0.045)	0.028 (0.032)	0.018 (0.031)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.3 – Return to log of weekly employee income, females, Figure 8

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.723***	6.756***	6.909***	6.907***	6.958***	7.041***	7.078***
	(0.041)	(0.048)	(0.032)	(0.033)	(0.042)	(0.033)	(0.033)
University study	0.373***	0.483***	0.420***	0.443***	0.365***	0.377***	0.392***
	(0.029)	(0.034)	(0.025)	(0.026)	(0.034)	(0.027)	(0.026)
Other tertiary education	0.046	0.116**	0.049+	0.079**	0.074*	0.030	0.072*
	(0.030)	(0.036)	(0.025)	(0.027)	(0.036)	(0.029)	(0.029)
Aged 25-29	-0.086+	-0.146**	-0.190***	-0.200***	-0.226***	-0.212***	-0.197***
	(0.047)	(0.054)	(0.038)	(0.038)	(0.049)	(0.038)	(0.038)
Aged 30-34	0.011	-0.089	-0.071+	-0.055	-0.064	-0.077*	-0.046
	(0.049)	(0.057)	(0.039)	(0.039)	(0.048)	(0.039)	(0.038)
Aged 35-39	0.030	-0.009	-0.014	-0.057	-0.039	-0.042	-0.069+
	(0.050)	(0.059)	(0.039)	(0.042)	(0.050)	(0.040)	(0.039)
Aged 40-44	0.007	-0.029	-0.032	0.003	0.009	0.021	0.011
	(0.049)	(0.056)	(0.039)	(0.039)	(0.049)	(0.038)	(0.039)
Aged 45-49	0.045	0.021	-0.034	0.034	0.047	-0.010	0.019
	(0.048)	(0.057)	(0.037)	(0.039)	(0.050)	(0.038)	(0.038)
Aged 50-54	0.008	-0.011	-0.061	0.048	0.040	-0.009	-0.007
	(0.049)	(0.056)	(0.037)	(0.039)	(0.048)	(0.039)	(0.039)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.4 – Return to log of weekly employee income, Figure 10

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.894***	6.972***	7.020***	7.047***	7.115***	7.167***	7.244***
	(0.028)	(0.035)	(0.022)	(0.023)	(0.033)	(0.022)	(0.022)
Capital city	0.042**	-0.005	0.039**	0.007	-0.015	0.050***	0.009
	(0.016)	(0.020)	(0.013)	(0.014)	(0.020)	(0.013)	(0.013)
University study	0.387***	0.420***	0.361***	0.404***	0.348***	0.338***	0.353***
	(0.020)	(0.024)	(0.016)	(0.018)	(0.024)	(0.018)	(0.017)
Other tertiary education	0.106***	0.117***	0.105***	0.155***	0.104***	0.099***	0.100***
	(0.019)	(0.024)	(0.016)	(0.017)	(0.024)	(0.018)	(0.017)
Aged 25-29	-0.192***	-0.264***	-0.184***	-0.222***	-0.265***	-0.242***	-0.301***
	(0.031)	(0.038)	(0.025)	(0.026)	(0.034)	(0.025)	(0.025)
Aged 30-34	-0.100**	-0.141***	-0.053*	-0.083**	-0.099**	-0.097***	-0.109***
	(0.032)	(0.038)	(0.025)	(0.026)	(0.033)	(0.025)	(0.024)
Aged 35-39	0.007	-0.008	0.030	0.008	0.008	-0.022	-0.065**
	(0.032)	(0.039)	(0.025)	(0.027)	(0.034)	(0.025)	(0.024)
Aged 40-44	0.009	-0.046	0.027	0.039	0.037	0.002	0.014
	(0.031)	(0.039)	(0.025)	(0.026)	(0.034)	(0.025)	(0.025)
Aged 45-49	0.002	-0.004	0.000	0.042	0.073*	0.018	0.018
	(0.031)	(0.039)	(0.025)	(0.026)	(0.034)	(0.025)	(0.024)
Aged 50-54	-0.024	-0.016	-0.020	0.009	0.017	0.014	0.009
	(0.032)	(0.039)	(0.025)	(0.026)	(0.034)	(0.025)	(0.025)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.5 – Return to log of weekly employee income, Figure 11

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	7.019***	7.123***	7.141***	7.217***	7.245***	7.288***	7.373***
	(0.027)	(0.033)	(0.020)	(0.021)	(0.029)	(0.020)	(0.020)
Capital city	0.082***	0.031	0.075***	0.044**	0.015	0.094***	0.043***
	(0.017)	(0.021)	(0.013)	(0.014)	(0.020)	(0.013)	(0.013)
Aged 25-29	-0.155***	-0.234***	-0.155***	-0.193***	-0.230***	-0.208***	-0.250***
	(0.032)	(0.040)	(0.025)	(0.027)	(0.035)	(0.026)	(0.026)
Aged 30-34	-0.069*	-0.109**	-0.010	-0.043	-0.041	-0.044+	-0.050*
	(0.033)	(0.040)	(0.026)	(0.027)	(0.034)	(0.026)	(0.025)
Aged 35-39	0.014	0.013	0.055*	0.034	0.062+	0.026	-0.001
	(0.033)	(0.040)	(0.026)	(0.028)	(0.034)	(0.026)	(0.025)
Aged 40-44	0.004	-0.048	0.043+	0.059*	0.072*	0.039	0.055*
	(0.032)	(0.040)	(0.025)	(0.027)	(0.034)	(0.026)	(0.025)
Aged 45-49	0.006	-0.007	0.005	0.040	0.089*	0.047+	0.047+
	(0.032)	(0.040)	(0.025)	(0.027)	(0.035)	(0.026)	(0.025)
Aged 50-54	-0.018	-0.021	-0.019	-0.001	0.020	0.025	0.021
	(0.033)	(0.041)	(0.026)	(0.027)	(0.035)	(0.026)	(0.026)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.6 – Return to log of weekly employee income, capital cities, Figures 12 and 13

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.296***	6.970***	7.099***	7.051***	7.093***	7.211***	7.265***
	(0.035)	(0.044)	(0.030)	(0.033)	(0.035)	(0.033)	(0.029)
University study	0.412***	0.399***	0.364***	0.400***	0.383***	0.376***	0.365***
	(0.025)	(0.030)	(0.023)	(0.025)	(0.029)	(0.025)	(0.022)
Other tertiary education	0.110***	0.097**	0.099***	0.131***	0.120***	0.139***	0.106***
	(0.025)	(0.031)	(0.023)	(0.025)	(0.029)	(0.026)	(0.024)
Aged 25-29	-0.259***	-0.276***	-0.282***	-0.256***	-0.299***	-0.341***	-0.358***
	(0.040)	(0.050)	(0.035)	(0.038)	(0.041)	(0.036)	(0.034)
Aged 30-34	-0.108**	-0.135**	-0.124***	-0.070+	-0.126**	-0.188***	-0.151***
	(0.041)	(0.049)	(0.036)	(0.037)	(0.039)	(0.036)	(0.033)
Aged 35-39	0.025	0.044	-0.023	0.018	-0.008	-0.036	-0.099**
	(0.040)	(0.050)	(0.035)	(0.038)	(0.040)	(0.036)	(0.033)
Aged 40-44	0.036	-0.035	0.017	0.064+	0.032	0.001	0.012
	(0.040)	(0.051)	(0.035)	(0.037)	(0.040)	(0.036)	(0.034)
Aged 45-49	0.030	-0.008	-0.006	0.084*	0.049	0.067+	0.014
	(0.040)	(0.051)	(0.035)	(0.038)	(0.041)	(0.036)	(0.033)
Aged 50-54	-0.021	0.009	-0.044	0.054	0.025	0.000	0.019
	(0.041)	(0.051)	(0.035)	(0.038)	(0.041)	(0.036)	(0.034)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.7 – Return to log of weekly employee income, regional areas, Figures 12 and 13

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.902***	6.968***	6.985***	7.051***	7.127***	7.165***	7.228***
	(0.042)	(0.049)	(0.029)	(0.031)	(0.054)	(0.029)	(0.030)
University study	0.349***	0.461***	0.358***	0.406***	0.254***	0.315***	0.340***
	(0.032)	(0.039)	(0.024)	(0.025)	(0.044)	(0.025)	(0.025)
Other tertiary education	0.108***	0.148***	0.107***	0.173***	0.066	0.073**	0.093***
	(0.029)	(0.036)	(0.021)	(0.023)	(0.041)	(0.024)	(0.024)
Aged 25-29	-0.064	-0.237***	-0.086*	-0.180***	-0.183**	-0.145***	-0.228***
	(0.051)	(0.060)	(0.035)	(0.037)	(0.063)	(0.036)	(0.036)
Aged 30-34	-0.090+	-0.148*	0.019	-0.093*	-0.029	-0.003	-0.051
	(0.051)	(0.061)	(0.036)	(0.037)	(0.063)	(0.035)	(0.036)
Aged 35-39	-0.025	-0.111+	0.080*	0.001	0.043	-0.018	-0.019
	(0.051)	(0.061)	(0.036)	(0.038)	(0.062)	(0.036)	(0.036)
Aged 40-44	-0.035	-0.064	0.033	0.016	0.053	-0.000	0.013
	(0.050)	(0.060)	(0.035)	(0.036)	(0.062)	(0.035)	(0.036)
Aged 45-49	-0.039	0.004	0.005	0.003	0.134*	-0.027	0.024
	(0.049)	(0.058)	(0.034)	(0.037)	(0.062)	(0.034)	(0.035)
Aged 50-54	-0.026	-0.059	0.002	-0.030	0.004	0.024	-0.008
	(0.051)	(0.060)	(0.035)	(0.036)	(0.061)	(0.035)	(0.037)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.8 – Return to log of weekly employee income, not included in any figures

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.901***	6.950***	7.017***	7.036***	7.160***	7.184***	7.248***
	(0.031)	(0.039)	(0.023)	(0.026)	(0.042)	(0.025)	(0.025)
Capital city	0.029	0.032	0.047*	0.031	-0.078+	0.009	0.003
	(0.028)	(0.035)	(0.024)	(0.027)	(0.042)	(0.029)	(0.026)
University study	0.353***	0.459***	0.365***	0.410***	0.258***	0.317***	0.347***
	(0.033)	(0.041)	(0.024)	(0.026)	(0.046)	(0.025)	(0.025)
Other tertiary education	0.108***	0.147***	0.111***	0.178***	0.070	0.075**	0.097***
	(0.029)	(0.038)	(0.021)	(0.023)	(0.043)	(0.023)	(0.025)
Capital city * university study	0.050	-0.061	-0.009	-0.015	0.121*	0.046	0.010
	(0.041)	(0.051)	(0.033)	(0.035)	(0.054)	(0.036)	(0.033)
Capital city * other tertiary education	-0.002	-0.050	-0.013	-0.048	0.048	0.056	0.006
	(0.038)	(0.048)	(0.031)	(0.034)	(0.052)	(0.035)	(0.034)
Aged 25-29	-0.192***	-0.264***	-0.184***	-0.222***	-0.268***	-0.242***	-0.301***
	(0.031)	(0.038)	(0.025)	(0.026)	(0.035)	(0.025)	(0.025)
Aged 30-34	-0.101**	-0.141***	-0.052*	-0.082**	-0.101**	-0.097***	-0.109***
	(0.032)	(0.038)	(0.025)	(0.026)	(0.033)	(0.025)	(0.024)
Aged 35-39	0.007	-0.008	0.030	0.009	0.006	-0.022	-0.065**
	(0.032)	(0.039)	(0.025)	(0.027)	(0.034)	(0.025)	(0.024)
Aged 40-44	0.009	-0.046	0.027	0.040	0.037	0.003	0.014
	(0.031)	(0.039)	(0.025)	(0.026)	(0.034)	(0.025)	(0.025)
Aged 45-49	0.003	-0.004	0.000	0.043	0.072*	0.019	0.018
	(0.031)	(0.039)	(0.025)	(0.026)	(0.034)	(0.025)	(0.024)
Aged 50-54	-0.023	-0.017	-0.020	0.010	0.017	0.014	0.009
	(0.032)	(0.039)	(0.025)	(0.026)	(0.034)	(0.025)	(0.025)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.9 – Return to log of weekly employee income, Figures 14 and 15

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.863***	6.954***	6.990***	7.019***	7.094***	7.136***	7.218***
	(0.028)	(0.034)	(0.021)	(0.023)	(0.032)	(0.022)	(0.022)
Capital city	0.053***	0.004	0.057***	0.024+	-0.002	0.065***	0.024+
	(0.016)	(0.020)	(0.013)	(0.013)	(0.020)	(0.013)	(0.013)
Mining	0.599***	0.586***	0.635***	0.625***	0.646***	0.601***	0.562***
	(0.049)	(0.061)	(0.033)	(0.033)	(0.058)	(0.033)	(0.037)
University study	0.391***	0.424***	0.368***	0.413***	0.349***	0.349***	0.362***
	(0.019)	(0.024)	(0.016)	(0.017)	(0.024)	(0.017)	(0.016)
Other tertiary education	0.107***	0.116***	0.101***	0.148***	0.103***	0.096***	0.094***
	(0.019)	(0.023)	(0.015)	(0.017)	(0.024)	(0.017)	(0.017)
Aged 25-29	-0.184***	-0.260***	-0.192***	-0.232***	-0.260***	-0.241***	-0.296***
	(0.031)	(0.038)	(0.024)	(0.026)	(0.034)	(0.025)	(0.025)
Aged 30-34	-0.091**	-0.148***	-0.053*	-0.090***	-0.105**	-0.103***	-0.112***
	(0.031)	(0.038)	(0.025)	(0.026)	(0.033)	(0.025)	(0.024)
Aged 35-39	0.006	-0.017	0.025	-0.005	-0.001	-0.030	-0.069**
	(0.031)	(0.038)	(0.025)	(0.026)	(0.033)	(0.025)	(0.024)
Aged 40-44	0.012	-0.053	0.013	0.029	0.031	0.002	0.015
	(0.031)	(0.038)	(0.024)	(0.025)	(0.033)	(0.025)	(0.024)
Aged 45-49	0.014	-0.002	-0.001	0.042	0.069*	0.012	0.018
	(0.031)	(0.038)	(0.024)	(0.026)	(0.034)	(0.024)	(0.024)
Aged 50-54	-0.008	-0.020	-0.012	0.009	0.014	0.014	0.008
	(0.032)	(0.039)	(0.024)	(0.026)	(0.034)	(0.025)	(0.025)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A.10 – Return to log of weekly employee income, not included in any figures

Variable	2007-08	2009-10	2011-12	2013-14	2015-16	2017-18	2019-20
(intercept)	6.862***	6.954***	6.989***	7.021***	7.096***	7.135***	7.219***
	(0.028)	(0.034)	(0.021)	(0.023)	(0.032)	(0.022)	(0.022)
Capital city	0.055***	0.004	0.060***	0.020	-0.005	0.067***	0.023+
	(0.016)	(0.020)	(0.013)	(0.014)	(0.020)	(0.013)	(0.013)
Mining	0.635***	0.579***	0.667***	0.588***	0.598***	0.618***	0.549***
	(0.066)	(0.086)	(0.040)	(0.040)	(0.088)	(0.040)	(0.046)
Capital city * Mining	-0.079	0.012	-0.103	0.107	0.084	-0.052	0.037
	(0.099)	(0.121)	(0.072)	(0.069)	(0.117)	(0.071)	(0.078)
University study	0.391***	0.424***	0.369***	0.411***	0.349***	0.350***	0.362***
	(0.019)	(0.024)	(0.016)	(0.017)	(0.024)	(0.017)	(0.016)
Other tertiary education	0.107***	0.116***	0.101***	0.147***	0.103***	0.097***	0.094***
	(0.019)	(0.023)	(0.015)	(0.017)	(0.024)	(0.017)	(0.017)
Aged 25-29	-0.185***	-0.260***	-0.191***	-0.232***	-0.260***	-0.241***	-0.297***
	(0.031)	(0.038)	(0.024)	(0.026)	(0.034)	(0.025)	(0.025)
Aged 30-34	-0.092**	-0.148***	-0.054*	-0.090***	-0.105**	-0.103***	-0.112***
	(0.031)	(0.038)	(0.025)	(0.026)	(0.033)	(0.025)	(0.024)
Aged 35-39	0.006	-0.017	0.025	-0.005	-0.001	-0.031	-0.069**
	(0.031)	(0.038)	(0.025)	(0.026)	(0.033)	(0.025)	(0.024)
Aged 40-44	0.012	-0.053	0.013	0.028	0.031	0.002	0.015
	(0.031)	(0.038)	(0.024)	(0.025)	(0.033)	(0.025)	(0.024)
Aged 45-49	0.014	-0.002	-0.001	0.042	0.069*	0.012	0.017
	(0.031)	(0.038)	(0.024)	(0.026)	(0.034)	(0.024)	(0.024)
Aged 50-54	-0.009	-0.020	-0.012	0.008	0.014	0.014	0.008
	(0.032)	(0.039)	(0.024)	(0.026)	(0.034)	(0.025)	(0.025)

Notes: The baseline education levels are for no tertiary education and the base age group is those aged 55 to 59 years.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1.