

# The impact of minimum licensing age on youth employment

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## Abstract

In Australia, passenger cars represent the predominant form of transportation. This is especially the case in regional and rural contexts, where public transport infrastructure is sparse and the use of active transport methods can be impractical. The ability to drive a car thus brings with it an increased amount of mobility, potentially opening up employment opportunities for drivers that may not have been possible otherwise. This is particularly relevant to young people, where the minimum driver licensing age directly controls when they can begin driving unsupervised. The minimum driver licensing age varies across Australian states and territories with Victoria having the highest minimum age (18) and a parliamentary inquiry is currently exploring whether or not to reduce this age to 17. This paper examines the association between the minimum driver licensing age and youth employment rates across Australian jurisdictions. Descriptive statistical comparisons and linear regression analysis on data from the 2011 Australian census was used to achieve this aim. Both methods failed to establish a clear association between the minimum licensing age and youth employment, implying that a lower licensing age is unlikely to be associated with economic advantage for young adults. The findings suggest that wider socio-economic forces hold a larger possible impact on the ability of young people to gain employment, compared to licensing policy specifically. This result has crucial implications on how the merits of a younger licensing age should be discussed.

## 1. Introduction

Australia has a strong reliance on the private car; in 2011, 82% of people who travelled to work elected to use one in some form during their commute (Australian Bureau of Statistics, 2011d). Cars represent a flexible form of transportation, not bound by the timetables and set routes of public transit, or the physical limits encountered with walking or cycling. This is particularly relevant in regional and rural contexts, where studies have shown that car users have better access to a wider set of destinations compared to other people (Nutley & Thomas, 1995). The increased mobility afforded by cars has the potential to create opportunities for employment that are otherwise out of reach.

Young people are limited in their access to this mode of transport by the legally set minimum age at which they can obtain an unsupervised driver licence. The earliest opportunity is usually a 'provisional' licence, often the second stage in graduated licensing schemes implemented across Australia. This age is 17 years old across all states and territories, with the exception of two jurisdictions; it is 16 years and 6 months in the Northern Territory, and 18 years in Victoria. It can be seen that under current licensing policy, young Victorians have to wait at least a year longer than other Australians to drive unsupervised. This comes at a time of life where independent mobility is an important component in achieving personal development and freedom (Currie et al., 2005).

A Victorian parliamentary inquiry has been scheduled near the close of 2016 to investigate the possibility of lowering the existing Victorian licensing age to 17, amidst concerns that the high licensing age is contributing to youth unemployment, especially in regional areas (Parliament of Victoria, 2016). It is important to quantify the social and economic benefits that accompany the ability to drive balanced against the reality that young drivers are the most vulnerable group on the road (Elvik, 2010). This paper seeks to examine links between youth employment rates and the minimum driver licensing age in this context, by comparing the travel habits and other attributes of young people between Victoria and other jurisdictions where the minimum licensing age differs. Data from the 2011 Census conducted by the Australian Bureau of Statistics (ABS) is used to achieve this.

Specifically, if the minimum licensing age in Victoria (18) is economically disadvantaging 17-year-olds, the following hypotheses follow:

- H1: Victorian 17-year-olds (who are unable to drive independently) will have a higher unemployment rate than Victorian 18-year-olds (who are able to drive independently)
- H2: Victorian 17-year-olds will have higher unemployment rates than 17-year-olds in the remainder of Australia (where the minimum licensing age is 16.5 or 17)
- H3: Given that the impact of licensing age is likely to be seen more in regional areas, Victorian 17-year-olds in regional locations will have a higher unemployment rate than 17-year-olds in comparable regional areas of Australia

The paper takes the following structure. The current laws and past literature surrounding the licensing age are explored. This is followed by a description of the analysis methodology used to interpret the Census data. The results of the analysis are then shown, as well as discussions highlighting the key findings from this research.

## **2. Research context**

This section outlines the current state of driver licensing policy in Australia. Existing literature on the licensing age is also reviewed. Its effects on the mobility of young people are of focus, as are the safety ramifications that accompany a lower unsupervised driving age.

### **2.1 Driver licensing in Australia**

Graduated licensing schemes represent a multi-stage, incremental approach towards building the skills and experience necessary to safely drive a vehicle (Williams, 2006). Following an initial introduction of a rudimentary multi-stage licensing system by New South Wales in 1966, all states and territories in Australia now have in place some form of three- or four-stage process for obtaining a full unrestricted driver licence (Haworth, 1994). In Victoria, individuals are able to apply for a learner's permit at the age of 16. A learner's permit enables young adults to learn to drive under the supervision of a full-licence holder. 120 hours of logged supervised driving are typically required before learners are able to sit a driving test and progress onto a provisional licence. Drivers must also be at least 18 years old to reach this stage as well. Compared to a full licence, a provisional licence generally carries restrictions designed to mitigate risk factors that commonly affect new drivers (Simpson, 2003). The Victorian provisional licence exhibits a number of these restrictions, including limits to the number of 16 to 22-year-old passengers that can be in the car, as well as imposing a zero blood alcohol content limit for example (VicRoads, 2016). Provided that a good driving record is kept, the provisional licensing stage will last for four years, after which a full licence can be obtained at the minimum age of 22 years.

The graduated licensing schemes in other states and territories follow largely the same model as the Victorian system. All contain a distinct learner and provisional phase, but the specifics

of each stage differ by jurisdiction. Of focus in this paper is the minimum age at which a young driver can transition from a learner permit to a provisional licence, henceforth referred to as the minimum driver licensing age. This transition is significant as it represents the first time a new driver is able to operate a car independently without supervision. It is 18 years old in Victoria as previously mentioned; however, it is lower in every other jurisdiction at 17 years, with the exception of the Northern Territory where it is 16 years and 6 months. This does not guarantee that young drivers will be able to drive unsupervised at these ages, as there are usually other requirements to be fulfilled as well. Regardless, the minimum driver licensing age still provides the underlying limit on when an individual can begin driving unsupervised. For this reason, it has profound implications on both the safety and mobility of young drivers – two factors that are often at odds with one another in the setting of policy (Bates et al., 2010).

Occasionally the minimum driver licensing age comes under review. In 2011, the South Australian state government invited discussions on an overhaul of their graduated licensing scheme. One of the proposed changes was an increase in the minimum driver licensing age from 17 to 18 years old to reduce risk for young drivers (Government of South Australia, 2011). While other proposed changes such as peer passenger and night-time driving restrictions passed into law, the minimum licensing age change did not (Government of South Australia, 2014). The reverse issue has now come to focus in Victoria, with an upcoming parliamentary inquiry into the possible impacts of lowering the probationary licensing age from 18 to 17 years old, particularly on the effect it will have on high youth unemployment rates experienced in regional areas (Parliament of Victoria, 2016).

## **2.2 Mobility of young people**

As young people progress through adolescence, the need for mobility and greater independence increases (Currie et al., 2007). The car is often seen as a primary facilitator of this in Australia, representing freedom and convenience, as well as a sign of adulthood (Delbosc & Currie, 2014; Redshaw, 2011). Studies have shown that reduced transport independence is linked to lower levels of autonomy and well-being, a particularly relevant effect when considering the restricted use of cars among young adults (Delbosc & Vella-Brodrick, 2015). It follows that a higher minimum licensing age necessarily means that young people must turn to alternate modes of transport when intending to travel. The effect is exacerbated in rural contexts, where young people heavily rely on catching a lift as a car passenger in lieu of other modes – simultaneously decreasing independence and increasing reliance on other parties, commonly their parents (Currie et al., 2007; White & Wyn, 2008). The lack of public transport infrastructure and the relative distance between destinations in rural and regional contexts contribute towards this heavy reliance on the private car (Currie et al., 2005).

Mobility is clearly an important factor to the livelihoods of young people, however evidence suggests that there is a bias towards mobility at the expense of safety in the discussion of car licensing policy (Bates et al., 2010). The most frequently requested solution to rural Australian transport deficiencies is better public transport, not easier or cheaper access to private vehicles (Currie et al., 2005). Parents also tend to prefer harsher driving restrictions, and are more than willing to compensate for the loss of mobility by providing lifts, despite the added inconvenience (Hirsch, 2003; Williams et al., 1998). While this does not directly address the need to facilitate independence for young people, it does make links between restricted access to a car and economic disadvantage less clear, especially in relation to employment outcomes. Past research into the possible impacts of increasing New Zealand's minimum driver licensing age from 15 to 17 years of age concluded that the safety benefits of such a move outweighed the relatively minimal loss of accessibility to employment and other opportunities (Kingham et al., 2004).

In addition, there has been a recently identified trend of decreased licensure among young people across a number of developed nations, including Australia (Delbosc & Currie, 2013). While the exact causes of this decline are potentially numerous and still under investigation,

it is important to keep in mind that young people are becoming less likely to pursue the attainment of a driver's licence in the first place. This trend has been observed both in urban areas where general accessibility to destinations is increasing (McDonald & Trowbridge, 2009; Raimond & Milthorpe, 2010), as well as in regional and rural areas where it is not (Grimal et al., 2013; van der Waard et al., 2013). This acts to further confound the relationship between the ability to drive and youth employment outcomes.

## **2.3 Safety of young drivers**

While a lower minimum driver licensing age potentially increases the mobility for young people, it is important to consider the safety context surrounding youth driving. It is a well-known and documented phenomenon that worldwide, young drivers are more prone to injury on the road compared to other age groups (Elvik, 2010). In 2015, young driver fatalities per distance travelled were more than three times higher than that of other age groups in the USA (National Safety Council, 2015). Australia is not unique in this respect, with those between 17-21 years of age contributing 13% towards the road toll between 2010 and 2015, the largest proportion out of every 5-year age group (Bureau of Infrastructure, Transport and Regional Economics, 2016). A number of factors have been attributed to this trend. It is inevitable that all new drivers are inexperienced in the mechanics of operating a vehicle and safely navigating the road environment. Research has also shown that younger drivers tend to partake in more 'risky' driving behaviours, such as speeding, accepting narrower gaps in traffic and following other vehicles too closely (Jonah, 1986). Both inexperience and younger age contribute towards higher crash risk, with evidence that experience may be a stronger influence (Catchpole et al., 1994; McCartt et al., 2009). However, those who start driving at a later age have been shown to have a much lower accident risk per distance travelled (Twisk & Stacey, 2007).

Crash rates are particularly high for young drivers just as they obtain their provisional licence (Williams, 2003), coinciding with the transition away from supervised driving. One of the rationales behind a higher driver licensing age is that learner drivers will be forced to accumulate more experience within a supervised environment. Adult supervision greatly decreases driver risk, whilst still allowing young people to develop necessary driving skills (Gregersen et al., 2003). In 1993, Sweden reduced their learner licensing age to 16 while leaving their minimum licensing age at 18 for this express purpose, resulting in a reduction in accident risk of 40% (Gregersen et al., 2000). There are clear precedents validating Victoria's minimum driver licensing age of 18 years. However, this can impede independent mobility in places where alternatives to the car are not sufficient.

## **2.4 Summary**

Overall, it can be seen from the existing literature that licensing policy necessarily requires a careful balancing act between facilitating mobility or safety for young drivers. The exact nature of the relationship between the ability to drive and youth employment outcomes remains unclear however. Given the potential safety ramifications of lowering the minimum licensing age, this paper explores whether a lower minimum licensing age is associated with economic advantage for young people, particularly in regional and rural areas.

# **3. Analysis methodology**

## **3.1 Overview**

In order to examine the relationship between the minimum driver licensing age in Australia and youth employment outcomes, data from the 2011 Australian Census conducted by the ABS was analysed. The Census is conducted every five years, with the 2011 Census having taken place on the 9th of August 2011. Participation in the Census is compulsory for everyone in Australia, to ensure that Census-derived data accurately reflects reality (Australian Bureau of Statistics, 2015). The Census form itself was completed either on a physical questionnaire or online through the eCensus platform.

Analysis was completed in two stages:

1. First, the attributes of 16 to 19-year-olds including method of travel to work, employment status and labour force participation were examined. These were compared across jurisdictions and levels of remoteness using a series of descriptive statistical analyses.
2. Secondly, linear regression analysis was performed to observe the level of association between a number of explanatory and control variables and the unemployment rate of 17-year-olds in different areas of Australia.

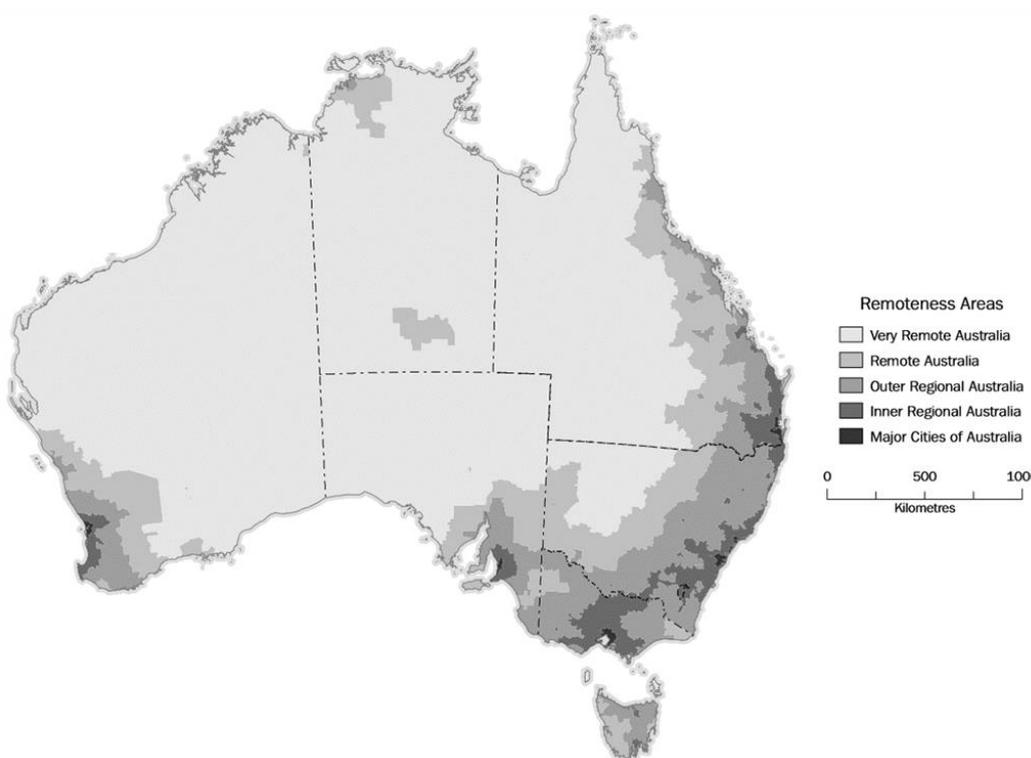
These two analyses aimed to test the three hypotheses presented in section 1.

### 3.2 Descriptive statistical analyses

The unemployment rates of 16 to 19-year-olds were scrutinised at a state level to compare Victoria to other jurisdictions. The unemployment rate was calculated as the proportion of a given age group that were unemployed, compared to the total number of that age group partaking in the labour force. This utilised the ABS definition of employment as working one or more hours in the week preceding the census day (Australian Bureau of Statistics, 2014). The age-specific labour force was calculated as the population of a certain age group in the jurisdiction of question, less those that nominated themselves as not part of the labour force and those that did not state their labour force status. An age-specific participation rate was also calculated from this, defined as the size of the age-specific labour force as a proportion of the total population of that age in a specific state or territory.

**Figure 1. The Australian Bureau of Statistics' remoteness area classifications**

Source: Australian Bureau of Statistics (2011c).



Distinction between those residing in urban, regional and remote areas was also made. This was facilitated through use of the ABS's remoteness area criterion, based on the Accessibility/Remoteness Index of Australia (ARIA+). This index is calculated for locations based on their road-distance to the nearest urban centres (Australian Bureau of Statistics, 2011b). Figure 1 shows how these areas are distributed across Australia. Those residing in

what was designated as a major city were classified as ‘urban’ for the purposes of this study. Similarly, those in inner or outer regional areas were designated as ‘regional’, while remote and very remote areas were classified as ‘remote’. This allowed comparison of youth employment outcomes while controlling for different levels of remoteness<sup>1</sup>.

### 3.3 Linear regression

Multiple linear regression models were created using the unemployment rate of 17-year-olds in defined regions as the dependent variable. The regions used were Statistical Area Level 3 (SA3s), defined under the Australian Statistical Geography Standard (Australian Bureau of Statistics, 2011a). In total, there are 351 SA3s covering the entirety of Australia, each representing an area with common regional characteristics. They each generally contain a population between 30,000 and 130,000, however in certain instances they hold populations outside of this range. For example, certain SA3s cover vast parts of rural Australia with no usual residents. For the purposes of the regression analyses, SA3s with less than 50 individuals aged in each of the 16, 17, 18 and 19-year age groups were not included. This ensured that the excessive variation associated with small populations did not adversely affect the models. Other SA3s capture parts of the population who were living offshore during the census or did not state a usual address of residence. These SA3s were also not included in analysis, as they did not represent a defined physical geographical area. Ultimately, data from 324 SA3s was used to populate the regression models.

The key explanatory variables of interest were minimum licensing age and urban, regional or rural status (capturing a measure of ‘accessibility’). Regression analysis also enabled a range of control variables to be considered, including background unemployment rates, employment density and higher degree attainment. These variables were chosen as proxies for the economic conditions of the location where young people are living.

The explanatory variables derived from each SA3 included in the model were:

- *Minimum licensing age* – either 16.5, 17 or 18 years old. A minimum licensing age of 17 was selected as the baseline in the models.
- *Urban, regional or rural status* – an SA3 was classified as urban, regional or rural if a majority of its population fall into that classification under the ABS remoteness area criteria. ‘Urban status’ was selected as the baseline in the models.
- *Background unemployment rate* – the unemployment rate of the entire SA3 population.
- *Peer unemployment rates* – unemployment rates of 16, 18 and 19-year-olds (included as separate variables).
- An interaction between those living in Victoria (18-year minimum licensing age) and a regional area. This variable was created to assess H3, combining the influence of living in regional Victoria. An interaction between living in Victoria as well as a remote area was not included as Victoria is not considered to have any remote SA3s.
- *Employment density* – the number of people working in the SA3 per square kilometre. This variable was log-transformed in the regression to accommodate its heavily skewed distribution.
- *Higher degree attainment* – the proportion of people in the SA3 who hold a level 7 or higher qualification under the Australian Qualifications Framework (2016); for example,

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<sup>1</sup> Note that these areas are not in concordance with the ABS designation of SA3s used in the regression analysis. For the purpose of the regression, SA3s were assigned a remoteness classification based on where the majority of the population resided.

a bachelor, graduate diploma, graduate certificate or other more advanced post-graduate qualification.

The aim of the regressions was to determine the level of association between the explanatory variables and the 17-year-old unemployment rate. Of particular interest was whether those who are living in regional Victoria experience higher 17-year-old unemployment. It is important to understand association and correlation are being established using this method – not necessarily causality.

## 4. Results

### 4.1 General statistical analysis results

Figure 2 details the breakdown of how young people travelled to work in 2011 by private car. The minimum driver licensing age has a clear influence on the method young individuals use to travel to work. It has been mentioned that the Northern Territory has the youngest provisional licensing age across Australia at 16 years and 6 months. Correspondingly, 14.8% of 16-year-old Northern Territorians drove to work – about three times higher compared to other jurisdictions (5.3%). They were also 17.1% less likely to receive a lift from other drivers. The high minimum licensing age of 18 in Victoria had a similar but opposite effect. At 17, 63.8% of young Victorians caught a lift to work as a car passenger, almost double compared to other states (33.7%). It is evident however, that by the ages of 18 and 19, the patterns of private car use among all jurisdictions reach largely similar levels. Following this finding, the unemployment and labour participation rates of 17-year-olds across Australia were more closely examined.

**Figure 2. Proportion of young people that either drive or catch a lift to work by age.**

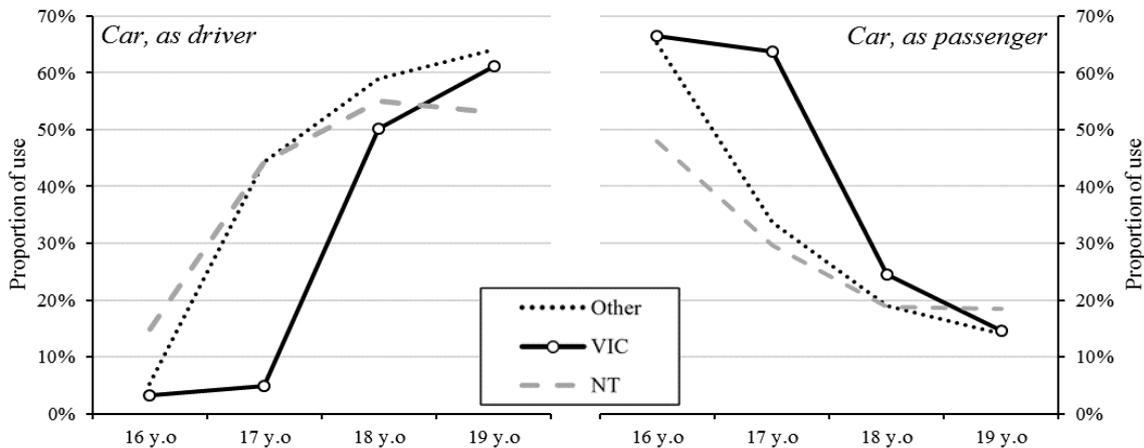


Figure 3 shows the unemployment and participation rates of 16 to 19-year-olds across jurisdictions in 2011. If the minimum licensing age is a key instigator of employment, then it would be expected that unemployment rates should drop between 17 and 18 in Victoria (H1). **H1 was not supported in the descriptive results**, as in fact, the 18-year-old unemployment rate is 2.6% higher than the 17-year-old rate.

Furthermore H2 predicts that Victorian 17-year-olds should have a higher unemployment rate than 17-year-olds in the remainder of Australia. Yet **H2 was not supported in the descriptive results**; only WA and the ACT showed lower unemployment rates amongst 17-year-olds. It is possible that fewer youth are entering the workforce in the first place due to the inability to drive unsupervised, however in Figure 3 it can be seen that the participation rates of young Victorians are very similar to that of other jurisdictions.



Figure 3. Unemployment and participation rates of 16 to 19-year-olds across jurisdictions.

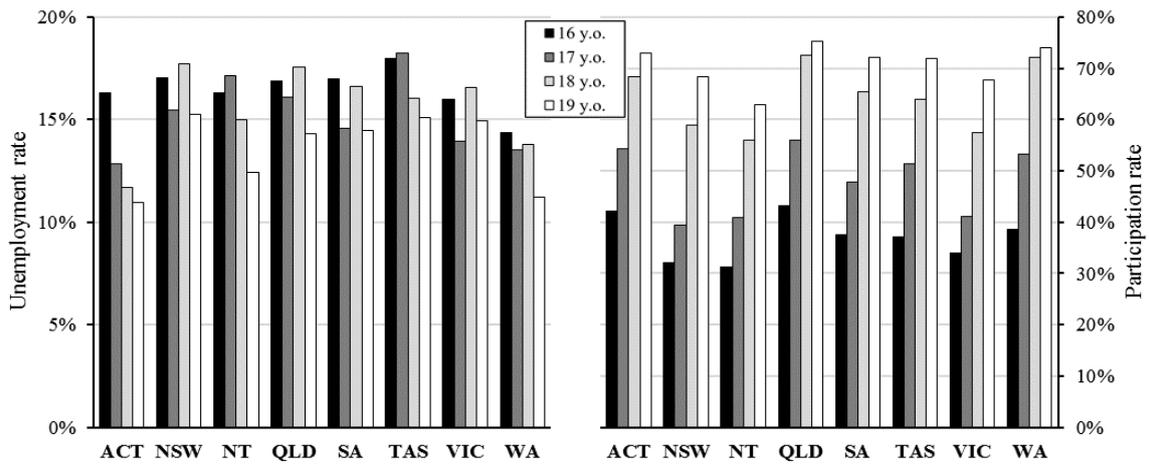
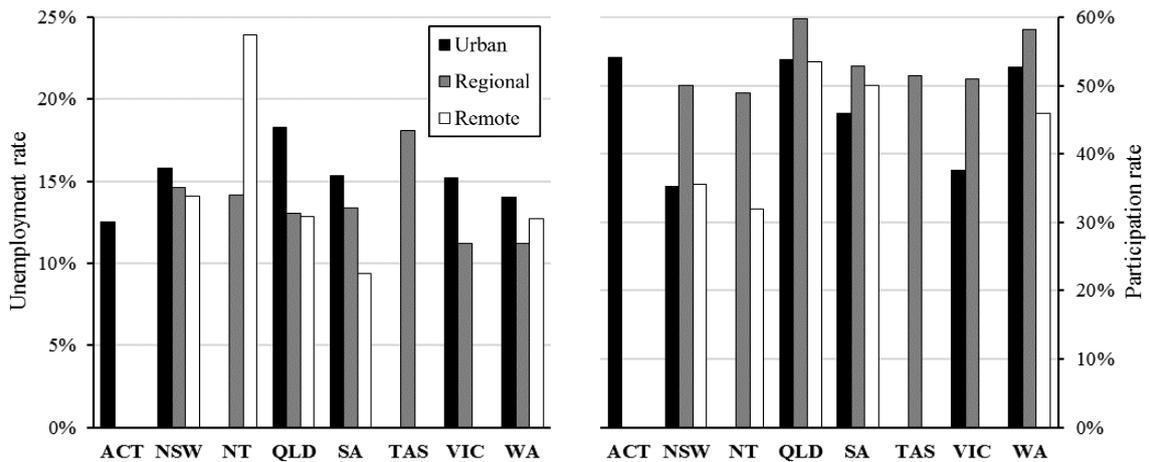


Figure 4 outlines the unemployment and participation rates of 17-year-olds depending on jurisdiction and level of remoteness. Missing bars indicate that a jurisdiction did not have a significant population of 17-year-olds (more than a hundred) in that remoteness designation. H3 argues that given that given the impact of licensing age is likely to be seen more in regional areas, Victorian 17-year-olds in regional locations will have a higher unemployment rate than 17-year-olds in comparable regional areas of Australia. **H3 was not supported by descriptive results** as Victoria's 17-year-old regional unemployment rate is the lowest across Australia at 11.2%.

The participation rate of Victorians in urban areas is low at 37.6%, which could conceivably lead to a lower unemployment rate as less people would be seeking work in the first place. However, at the same time, New South Wales has the lowest urban participation rate at 35.2% while still exhibiting an unemployment rate for 17-year-olds higher than Victoria's. Victoria's regional participation matches that of the national average, meaning that young regional Victorians are equally likely to seek work compared to those in other jurisdictions, despite the higher licensing age.

Figure 4. Unemployment and participation rates of 17-year-olds separated by remoteness.



## 4.2 Linear regression results

Two multiple linear regressions were performed to test if a number of variables were associated with the unemployment rate of 17-year-olds within an SA3. The first regression included all the variables outlined in the analysis methodology. In the second regression, variables unrelated to the licensing age and level of remoteness that were not statistically

significant in the initial model were removed. The outputs of the regression models are shown in Table 1. For both regressions, multicollinearity was shown not to be a concern, with all collinearity tolerances above 0.1. Approximately normal distributed errors were verified through inspection of standardised residual histograms. Additionally, the scatterplots of standardised residuals showed that the errors exhibited homoskedasticity and linearity in both cases.

Both regression models explain a significant amount of variance in the 17-year-old unemployment rate (Model 1 adjusted  $R^2 = 0.549$ ,  $F(11, 312) = 36.78$ ,  $p < 0.05$ ; Model 2 adjusted  $R^2 = 0.537$ ,  $F(7, 316) = 54.59$ ,  $p < 0.05$ ). The overall most significant predictor of 17-year-old unemployment across both models is the overall unemployment rate (Model 1  $\beta = 0.40$ ,  $p < 0.05$ ; Model 2  $\beta = 0.61$ ,  $p < 0.05$ ). In Model 1, a range of control variables were non-significant (18- and 19-year-old unemployment rate, higher degree attainment and employment density). For the purpose of parsimony these variables were removed in Model 2, which will be interpreted in the rest of these results.

Living in a jurisdiction with a minimum licensing age of 18 (Victoria) was not associated with significant differences in the 17-year-old unemployment rate compared to jurisdictions with a licensing age of 17 ( $\beta = 0.03$ ,  $p = 0.476$ ), **which provides no support for H1**. On the other hand, living in a jurisdiction with a minimum licensing age of 16.5 (Northern Territory) was associated with a *higher* unemployment rate ( $\beta = 0.12$ ,  $p < 0.05$ ). This is likely due to background factors surrounding the socio-economic environment in the Northern Territory, rather than anything related to the driver licensing age.

The effect of living in a regional area as opposed to an urban one according to the Australian remoteness criteria was significant ( $\beta = -0.16$ ,  $p < 0.05$ ), associated with a *lower* unemployment rate compared to urban areas. However, living in a remote area was not significantly associated with any effect on 17-year-old unemployment ( $\beta = -0.06$ ,  $p = 0.165$ ).

**Table 1. Multiple regressions modelling 17-year-old unemployment.**

	Model 1			Model 2		
Dependent variable	17 y.o. unemployment rate (%)					
Sample N	324			324		
R <sup>2</sup>	0.751			0.740		
Adjusted R <sup>2</sup>	0.549			0.537		
Standard error of estimate	2.962			3.000		
	B	$\beta$	Sig.	B	$\beta$	Sig.
Constant	5.21		0.000**	4.86		0.000**
Overall unemployment rate (%)	1.08	0.40	0.000**	1.64	0.61	0.000**
16.5 y.o. licensing age? [yes]	3.33	0.12	0.004**	3.20	0.12	0.006**
18 y.o. licensing age? [yes]	0.05	0.00	0.925	0.38	0.03	0.476
Regional? [yes]	-1.31	-0.14	0.006**	-1.46	-0.16	0.001**
Remote? [yes]	-1.58	-0.07	0.103	-1.31	-0.06	0.165
Regional : 18 y.o. licensing interaction	-1.95	-0.12	0.025**	-2.10	-0.13	0.015**
16 y.o. unemployment rate (%)	0.08	0.10	0.056*	0.09	0.10	0.042**
18 y.o. unemployment rate (%)	0.11	0.12	0.121			
19 y.o. unemployment rate (%)	0.11	0.11	0.127			
Higher degree attainment (%)	0.00	0.07	0.126			
Log(employment density)	-0.04	-0.08	0.151			

\*Statistically significant at the 95% confidence level

\*\* Statistically significant at the 99% confidence level

Most relevant to H3, the interaction between living in Victoria (18-year-old licensing age) and a regional area was significant at the 95% confidence level ( $\beta = -0.12$ ), showing that regional

Victorian 17-year-olds were associated with a *lower* unemployment rate when compared to other groups. **This finding was directly the opposite of what was predicted in H3.**

## 5. Discussions

This paper explored the association between minimum driver licensing age and employment outcomes for 17-year-olds in Australia. Specifically, the following three hypotheses were tested using descriptive and regression analyses:

- H1: Victorian 17-year-olds (who are unable to drive independently) will have a higher unemployment rate than Victorian 18-year-olds (who are able to drive independently)
- H2: Victorian 17-year-olds will have higher unemployment rates than 17-year-olds in the remainder of Australia (where the minimum licensing age is 16.5 or 17)
- H3: Given that the impact of licensing age is likely to be seen more in regional areas, Victorian 17-year-olds in regional locations will have a higher unemployment rate than 17-year-olds in comparable regional areas of Australia

**None of these hypotheses were supported in the descriptive or regression analyses;** in fact it was found that 17-year-olds in regional Victoria had *lower* unemployment rates than their regional counterparts, *ceteris paribus*. Research conducted in New Zealand revealed similar insights, showing that proposed increases of the minimum licensing age from 15 to 17 years were unlikely to disadvantage youth, even in rural sectors (Begg & Langley, 2009; Kingham et al., 2004).

The main explanatory variable associated with the 17-year-old unemployment rate was, unsurprisingly, the overall unemployment rate of an area, with higher overall unemployment strongly associated with higher 17-year-old unemployment. This suggests that wider social and economic forces may have larger possible impacts on youth employment outcomes than the driver licensing age specifically. This may still include transport-related factors such as the affordability of a car, but it may also encompass things like the proper provision of job placement and employment training schemes within communities (Currie et al., 2005; Kenyon et al., 2001). Some rural areas also have to contend with an increasing centralisation of work towards regional and urban centres, resulting in a decrease in local employment opportunities for all ages (Kenyon et al., 2001). It was shown in this paper that youth in the Northern Territory are among the least employed in Australia (see Fig. 4), despite having the lowest minimum licensing age.

This study faced a number of significant limitations. Most notably, Australian states and territories vary in a number of additional ways not captured in this model, such as the types of work youth tend to enter into (service sector, trade sector etc.), minimum school leaving age and the availability of job training. Similarly, it should also be noted that Victoria differs from other states and territories in that it has a very low proportion of remote areas according to the ARIA+ classification. The relatively lower amount of 'remoteness' may in itself be associated with a lower unemployment rate of the population, and correspondingly lower 17-year-old unemployment. These effects are likely explained through these broader socio-economic issues, and it goes to show that all of these converging forces must be properly considered when investigating youth employment outcomes and its likely causes.

Finally it is important to note that this study was conducted at an aggregate level, whereas the interactions between driver licensing and employment play out at the individual level. It is recommended that future research on this topic should explore these interactions at the disaggregate level using purpose-designed surveys or qualitative research methods.

From both the examination of existing literature and the statistical analysis of Census data, there is little basis in promoting the mobility of young Australians over the safety benefits of a

delayed licensing age. The likely effect of lowering the minimum licensing age to achieve this would be an almost certain increase in risk to young drivers, for a potentially negligible amount of economic benefit. Whether this research outcome applies to other countries as well remains an important question for the future in fully understanding the economic implications of varying licensing policies.

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