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**Has the effect of parents' education on child's
education changed over time?**

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Abstract

This paper examines whether the expansion of higher education has reduced inequality by providing more opportunities for students from less privileged backgrounds to attend university or further entrenched existing inequalities. Drawing on Maximally Maintained Inequality theory and Relative Risk Aversion theory, I use logistic regressions to analyse data collected by three nationally representative, cross-sectional surveys conducted between 1987 and 2005 (N= 4463) to examine the association between parents' education and child's education. Having a university-educated parent is used as a proxy for membership of the privileged class based on the assumption that children of university-educated parents are more likely to take advantage of opportunities to acquire higher education. University-educated parents are also better placed to provide extra tuition and to assist their children negotiate the education system. I find that although the expansion of higher education has had some impact, having a university-educated parent continues to exert a direct effect on an individual's propensity to graduate from university.

JEL Codes: I23, N30, Z13

Keywords: Higher Education, Inequality, Mobility

Introduction

During the latter half of the twentieth century, Australia, like many other OECD countries, expanded its higher education sector. As advanced economies de-industrialised, the need for knowledge workers with high levels of education intensified. Arum, Gamoran and Shavit (2007:1) note that an examination of the association between the expansion of higher education and social stratification is of particular interest given that 'higher education is the gatekeeper of managerial and professional positions in the labour market'. Low skilled workers have become increasingly marginalised in post-industrial economies, therefore, an assessment of intergenerational mobility is timely.

The expansion of higher education in Australia

The expansion of the higher education sector in Australia has resulted in the number of students attending Australian universities more than doubling from 329523 in 1980 to 695485 in 2000 (DEST 2000). In 2008, 771932 Australian students and 294163 international students were studying at Australian universities (DEEWR 2009). Part of this rapid increase in the numbers of university students is due to the structural changes implemented in 1989. Prior to 1989, tertiary education was offered at universities, colleges of advanced education and technical colleges. The reforms instituted in 1989 led to the creation of new universities as colleges of advanced education and technical colleges were amalgamated and rebadged as universities. Due to these changes, entry into two highly feminised occupations, teaching and nursing, required university qualifications, encouraging more women to attend university.

These structural changes were accompanied by the introduction of the Higher Education Contribution Scheme (HECS) which was designed to lessen the financial cost to the government of funding the expansion of the higher education sector (Chapman 1997; Marks & McMillan 2007). Originally, all courses attracted an equal contribution, however, in 1996 substantial changes were implemented whereby different charges were levied for different courses (see Marks 2009a for full review).

Australian researchers investigating the relationship between social class and higher education generally agree that the introduction of HECS in 1989 did not serve as a deterrent to students from low socioeconomic backgrounds (Chapman 1997; Chapman & Ryan 2003; Marks 2009a; Marks & McMillan 2003). However, there is evidence that a disproportionately low proportion of students from low socioeconomic

backgrounds actually participate in higher education (Bradley *et al.* 2008; Chapman & Ryan 2003; James *et al.* 2008; Marks 2009a). In other words, 'the privileged classes manage to maintain their advantage over time' (Arum *et al.* 2007:29).

Marks (2009a: 79) analysed the first six waves of the Household, Income and Labour Dynamics in Australia (HILDA) data concluding that students from higher socioeconomic backgrounds were twice as likely as those from low socioeconomic backgrounds to hold a university qualification. Socioeconomic background was measured using father's occupation and the average of father's education and mother's education. Marks selected respondents born between 1961 and 1985 and divided them into three birth cohorts (pre-HECS, post-HECS and post-1996HECS) to test for the effects of changes to the funding of higher education. His analysis showed that although respondents in the younger cohort were more likely to have a university degree due the expansion of the higher education sector, the effect of socioeconomic background had not diminished.

James *et al.* (2008: 2) also found that students from the lowest socioeconomic quartile (using the postcode of the student's home address as a proxy) continued to be under-represented in the higher education sector accounting for around just 15 percent of university students each year during the period 1989 to 2006. Chapman and Ryan (2003) examined data from the Youth in Transition Survey and the Longitudinal Surveys of Australian Youth to investigate the effect of HECS on participation across socioeconomic strata during the period 1988 to 1999. They found that although there had been little change in the likelihood of males from low wealth backgrounds attending university, 'females across the entire socioeconomic distribution' were more likely to attend university in 1999 than in 1988 (2003: 28). Using various inequality measures, Chapman and Ryan (2003: 22) found that university participation was more unequally distributed in 1993 than in 1988 but that by 1999 the distribution recovered and was similar to that of the pre-HECS era.

Marks (2009b: 932) examined change over time in educational attainment for men and women between 1965 and 2005, finding that the gender gap in university attendance had dissipated. In 1984, men were 1.5 times more likely than women to have a university qualification, however, by 2005, gender had no effect. The increase in the participation of women in the higher education sector may be linked to the incorporation of nursing and teaching qualifications into the university sector, however, Chapman and Ryan (2003: 19) found that this transition had little impact on

the growth of female participation (see footnote 32). Therefore, although the expansion of the university sector did lead to an increase in the likelihood of women attending university, it did not diminish inequality due to socioeconomic background.

There is evidence that this is partly due to students from low socioeconomic backgrounds being less likely to complete secondary school. Up until the mid-1980s, Year 12 retention rates were particularly low in Australia. In 1969, around 28 percent of students completed Year 12 (ABS 1979). This percentage increased gradually to around 35 percent in 1980 (ABS 1980). Retention rates increased dramatically during the 1980s and 1990s and by 2006, 75 percent of students completed high school (ABS 2007). In 2006, the completion rate for students from low socioeconomic backgrounds was 59 percent whereas around 78 percent of students from high socioeconomic backgrounds completed high school (Bradley *et al.* 2008: 27). Given that a smaller proportion of children from low socioeconomic backgrounds are eligible to apply for admission into university courses, changes to the funding arrangements for higher education are unlikely to have a great effect on the proportion of university students from low socioeconomic backgrounds.

Another aspect of the association between socioeconomic background and university attendance worth considering is the type of university attended. Australian universities fall into two broad groupings. The Group of Eight (Go8)¹ universities attract the bulk of research funding and offer the most prestigious courses. The other 31 universities include metropolitan and regional universities such as La Trobe University, Macquarie University, Griffith University and Flinders University. According to James *et al.* (2008: 24), students from low socioeconomic backgrounds are more likely to attend regional universities than Go8 universities where just 11 percent of students are from low socioeconomic backgrounds. Students from low socioeconomic backgrounds are particularly under-represented in high status courses such as medicine, law and architecture (James *et al.* 2004: 15).

Overall, these findings suggest that the cost of higher education is not a marked determining factor as to whether or not high ability students from low socioeconomic backgrounds attend university making it difficult for policy makers to

¹ The University of Adelaide, The Australian National University, The University of Melbourne, Monash University, The University of New South Wales, The University of Queensland, The University of Sydney and The University of Western Australia.

provide an environment in which students of high ability, regardless of their family's social position, will see the value in continuing their education.

Theoretical background

There are two theories that may shed light on why the relationship between social class and higher education has not been affected by the expansion of the higher education sector: Relative Risk Aversion (RRA) theory and Maximally Maintained Inequality (MMI) theory. Researchers using Relative Risk Aversion theory to explain the continued association between social class and higher education argue that inequalities in educational attainment persist because students are more concerned with avoiding downward mobility than with achieving upward mobility (Breen & Goldthorpe 1997; Goldthorpe 1996; Goldthorpe 2007; Goldthorpe & Breen 2007; Holm & Jaeger 2008). Breen and Goldthorpe (1997: 283) argue that parents seek to ensure that their children 'acquire a class position at least as advantageous as that from which they originate'. Van de Werfhorst and Hofstede (2007: 403) tested RRA theory finding that children from all social backgrounds were equally concerned with maintaining their social position and avoiding downward mobility. They also found evidence of a strong correlation between having highly educated parents and wanting to achieve university qualifications. Holm and Jaeger (2008: 201) found that Danish students negotiating a rather rigid tracking educational system attempted to minimize their chances of downward social mobility by selecting the type of secondary education that would ensure they reach the same social class position as that of their parents. Consequently, students from higher social class positions attained higher levels of education (Holm & Jaeger 2008: 215). These findings provide support for RRA's argument that middle class children have higher educational aspirations because they require more education than working class children to achieve the same social class position as their parents.

RRA further argues that if the costs associated with pursuing education at a higher level than that needed to avoid downward mobility outweigh the gains, then class inequalities in educational attainment will persist. That is, if the costs associated with university fees and resources, foregone earnings and the risk of failure, outweigh the benefits of moving into a higher social class there is little incentive for working class students to pursue higher education (Holm & Jaeger 2008: 200).

Maximally Maintained Inequality theory argues that before the impact of social class on educational attainment can be reduced, 'saturation' among the

privileged class needs to be achieved (Raferty & Hout 1993: 57). Therefore, educational expansion will not necessarily reduce educational inequality. If the increase in opportunities only allows more students from the privileged class to enter higher education, there will be no change in the relative proportions of students from the various social class positions (Arum *et al.* 2007: 31). An increase in the number of students from low socioeconomic backgrounds will only occur when all of the students from the privileged class are accommodated and supply of university places continues to exceed demand. That is, when 'saturation' is reached and the expanding sector needs to attract greater numbers of students from low socioeconomic backgrounds to fill universities. The results of a cross national comparison of 13 countries conducted by Arum, Gamoran and Shavit (2007) found support for MMI. Arum *et al.* (2007: 18) concluded that expansion alone does not alleviate inequality; it is only when 'saturation' is reached that inequality is reduced.

Now that an increasing proportion of students complete secondary school and qualify for tertiary education, researchers have found that inequality has shifted upward to the next level of educational attainment perpetuating relative class differences (Alon 2009: 732). According to Alon, the expansion of higher education in America was concentrated in the college sector offering two year courses with little evidence of an expansion in the more selective public or private universities offering four year courses. Analysing three longitudinal surveys of American high school students, Alon found that students from low socioeconomic backgrounds were more likely to enrol in two year college courses, whereas students from high socioeconomic backgrounds were more likely to enrol in four year university courses. Therefore, as an increasing proportion of high school graduates pursued higher education, class differences in access to selective colleges and universities persisted preserving the hierarchy in higher education.

Alon's findings support Arum *et al.*'s (2007: 5) argument that as tertiary education expands and the odds of attaining higher education qualifications decline, there is a widening of between strata differences with respect to the kind of tertiary institution attended. Furthermore, Alon (2009: 736) argues that children from middle and high socioeconomic backgrounds benefit from their parent's greater involvement in their education. These parents understand the 'post-secondary landscape' and are better able to invest in the resources required to ensure progression to higher

education including private tuition and test preparation activities (see also Goldthorpe 2007: 29).

Pfeffer's (2008: 547) examination of OECD data from 20 countries confirms the association between parental education status and that of their offspring. Furthermore, Pfeffer found that the positive effects of parent's 'strategic knowledge' (that is, knowledge derived from their own educational experience) were more pronounced in highly stratified education systems. According Pfeffer (2008: 553), in Finland, the country with the highest mobility, the 'odds of attaining the same education level as one's parents' were 3:1, whereas in Slovenia, the country with the least mobility, the odds were 7:1. Pfeffer also examined change over time within countries finding evidence of persistent inequality with little change in the degree of association between parental education and individual educational attainment in most countries (2008: 552).

In this paper I examine the association between the education of the respondents and that of their parents using data from three Australian surveys conducted between 1987 and 2005 to examine whether the effect of parent's education on child's education has changed over time. In other words, has the expansion of higher education during the last four decades lessened the effect of parents' education on child's education?

Method

Data

The data analysed in this paper are derived from three nationally representative surveys. The 1987-88 NSSS (National Social Science Survey) collected data from 1663 respondents using a self-complete mail-out questionnaire (Kelley *et al.* 2009). The 1994 NSSS collected data from 1378 respondents using a self-complete mail-out questionnaire (Kelley *et al.* 2009). The 2005 Neoliberalism, Inequality and Politics Project collected data from 1623 individuals using computer assisted telephone interviews (Western *et al.* 2005). Each of the three surveys was designed to collect cross-sectional data. Thus, there is no relationship between respondents in each of the datasets. Respondents less than 21 years of age at the time of the survey were dropped from the analytical sample on the basis that it would be unlikely for them to have acquired a university degree. Respondents who were missing on birth year were also dropped from the analytical sample (n= 4463).

Dependent variables

The dependent variable, respondent's education, divides respondents on the basis of whether or not they have completed a university degree and is included in the analysis using a dummy variable coded 1= university degree.

Independent variables

The predictor variables relate to the education of the respondent's parents. Father's education measures whether or not the respondent's father has a university degree and is coded 1= yes, has university degree. Mother's education measures whether or not the respondent's mother has a university degree and is coded 1= yes, has university degree. Pfeffer (2008: 545) used a similar approach arguing that 'parental education exerted the strongest direct effect on an individual's educational attainment'. This may be due to highly educated parents being more able to assist their children with their homework and to navigate the education system.

Three control variables are also included in the analysis: gender, type of school attended and birth cohort. For the purposes of the logistic regression analyses they are all presented in dummy variable format. Gender is coded 1= female. School type is coded 1= attended non-government school. Four dummy variables define birth cohort: born before 1940, born between 1940 and 1954, born between 1955 and 1969, and born after 1969. The four birth cohorts divide respondents into groups that reflect the changes that have taken place during the latter half of the twentieth century. The higher education rate for the first cohort was particularly low. The second cohort finished secondary school during the era when up-front fees were payable. The third cohort finished secondary school after the Whitlam government abolished up-front fees in 1974. The final cohort started their university studies after the introduction of HECS in 1989 (Chapman 1997). The reference category is 'born before 1940'.

Descriptive statistics

The descriptive statistics for the variables are reported in Table 1. Although the overall sample has equal proportions of men and women, men are slightly over-represented in 1994 and women are slightly over-represented in 2005. In 1987, the sample is relatively evenly spread across the first three birth cohorts. In 1994, a small proportion of respondents were born after 1969 (0.6) with the remainder evenly spread across the first three cohorts. In 2005, one fifth of respondents were born before 1940, one third were born between 1940 and 1954, one third were born between 1955 and 1969 and the remainder (0.17) were born after 1969. There is a

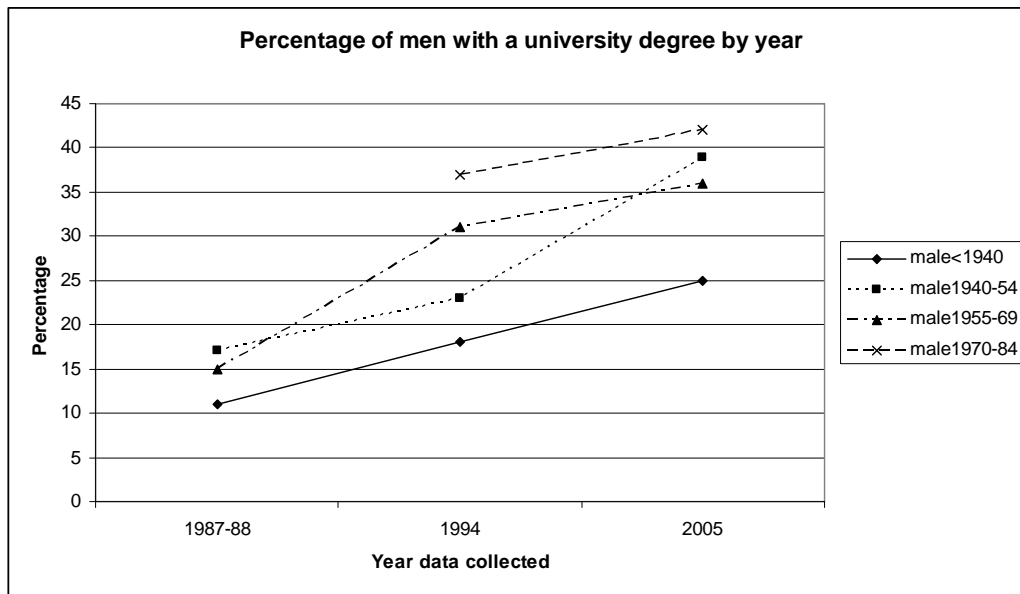
gradual increase in the proportion of respondents with a university degree. The proportion of respondents with a university degree increased from 0.11 in 1987 to 0.32 in 2005. The proportion of respondents with a university-educated father increased from 0.07 in 1987 to 0.12 in 2005 and the proportion of respondents with a university-educated mother increased from 0.03 in 1987 to 0.07 in 2005. The proportion of respondents who attended a non-government school remained relatively stable.

Table 1. Proportion of respondents in each category of the variables

| Variable | 1987 | 1994 | 2005 |
|-------------------------------------|-------------|-------------|-------------|
| | n=1537 | n=1375 | n=1551 |
| Sex: | | | |
| Male | 0.50 | 0.53 | 0.46 |
| Female | 0.50 | 0.47 | 0.54 |
| Birth Cohort: | | | |
| <1940 | 0.35 | 0.28 | 0.22 |
| 1940 - 1954 | 0.35 | 0.35 | 0.31 |
| 1955 - 1969 | 0.30 | 0.31 | 0.30 |
| 1970 - 1987 | .. | 0.06 | 0.17 |
| Education: | | | |
| University degree 1=yes | 0.11 | 0.21 | 0.32 |
| Father with university degree 1=yes | 0.07 | 0.07 | 0.12 |
| Mother with university degree 1=yes | 0.03 | 0.03 | 0.07 |
| Type of school 1= non-government | 0.27 | 0.25 | 0.28 |

The consequences of the rapid expansion of the higher education sector are clearly evident in Figure 1 and Figure 2. Figure 1 shows the percentage of men in each birth cohort who had a university degree by year data were collected. As expected, men in each birth cohort were more likely to have a university degree than men in the preceding birth cohort. For example, in 2005, 42 percent of men born after 1970 had a university degree compared to 25 percent of men born before 1940. Interestingly, Figure 1 shows that the percentage of men with a university degree in each birth cohort increased dramatically during the period 1987 to 2005. For example, the percentage of men born before 1940 who had a university degree increased from 11 percent in 1987 to 25 percent in 2005.

Figure 1. Proportion of men with a university degree by year



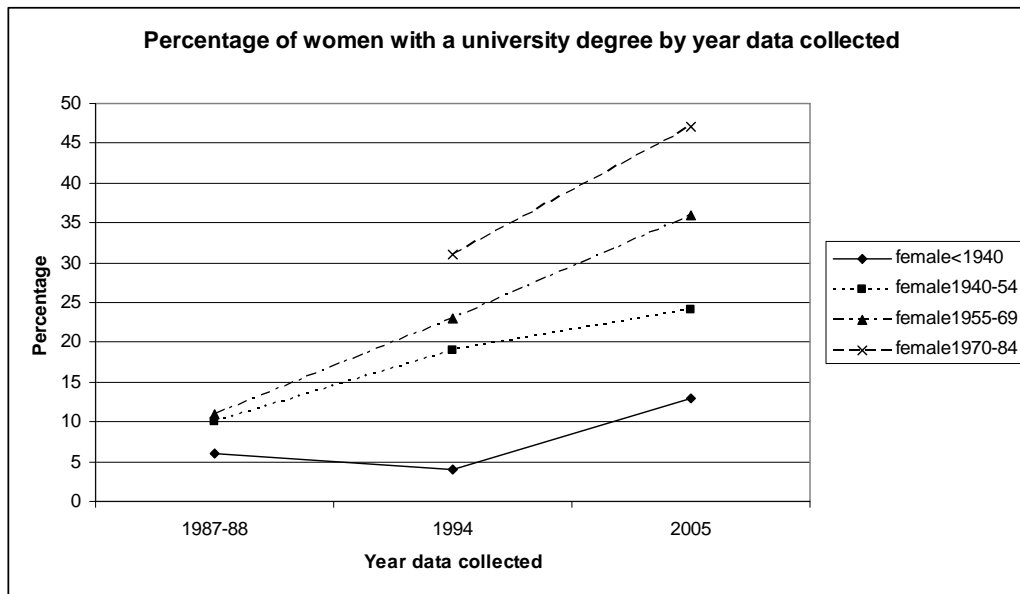
Note: There were no respondents born between 1970 and 1984 in the 1987 survey.

Figure 2 shows the percentage of women in each birth cohort who had a university degree by year data were collected. There has been a dramatic increase in the percentage of women with university qualifications. In 1987, 6 percent of women born before 1940 had a university degree and by 2005 this percentage increased to 13 percent in 2005. In 2005, 47 percent of women born after 1970 had a university degree².

These results suggest that by 2005 men and women in the third cohort were equally as likely to have a university degree and that the youngest cohort of women were more likely to have a university degree than the youngest cohort of men.

² The dramatic increase in the proportion of respondents with a university degree was somewhat unexpected so I conducted some analysis on the Australian Survey of Social Attitudes 2005 dataset (Wilson et al 2006) and achieved similar results- see Table A.1 in the Appendix).

Figure 2. Proportion of women with a university degree by year



Note: There were no respondents born between 1970 and 1984 in the 1987 survey.

To examine the relationship between university education and the predictor and control variables, I conduct logistic regression analysis using a series of models separately for each year data were collected. I then combine the three years of data to examine whether the effects of the independent variables change over time by including interaction terms for each of the independent variables and the year data were collected. In the Results section, I refer to odds ratios (relative risk ratios) rather than coefficients.

Results

Table 2 shows the odds ratios for the association between the predictor and control variables with the likelihood of a respondent having a university degree versus not having a university degree in 1987, 1994 and 2005. Model 1 shows that women were less likely to have a university degree than men. In each year respondents with a university-educated father were more likely to have a university degree themselves. The effect of father's education lessened somewhat over time with the odds ratio declining from 5.9 in 1987 to 2.7 in 1994 and 2005. This suggests that although there continued to be a statistically significant association between father's education and respondent's education, the magnitude of this association declined over time.

Table 2. Odds ratios from logistic regression for university degree versus no university degree: 1987, 1994 and 2005

| | Model 1 | | | Model 2 | | |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | 1987 odds ratio | 1994 odds ratio | 2005 odds ratio | 1987 odds ratio | 1994 odds ratio | 2005 odds ratio |
| Male- reference | | | | | | |
| Female | 0.54*** | 0.64*** | 0.72** | 0.44* | 0.19*** | 0.41** |
| University-educated father | 5.90*** | 2.67*** | 2.73*** | 5.98*** | 2.72*** | 2.79*** |
| University-educated mother | 0.79 | 1.83 | 2.43*** | 0.80 | 1.82 | 2.46*** |
| Attended non-government school | 3.00*** | 2.00*** | 1.84*** | 3.03*** | 2.04*** | 1.86*** |
| Birth Cohort | | | | | | |
| <1940 -reference | | | | | | |
| 1940-1954 | 1.54* | 2.04*** | 2.05*** | 1.52 | 1.35 | 1.98* |
| 1955-1969 | 1.62* | 2.74*** | 2.40*** | 1.31 | 1.85* | 1.59 |
| 1970- 1984 | .. | 2.81*** | 2.91*** | .. | 1.65 | 1.57 |
| Interactions | | | | | | |
| Female 1940-1954 | | | | 1.05 | 4.14** | 1.14 |
| Female 1955-1969 | | | | 1.70 | 3.86** | 2.42* |
| Female 1970-1984 | | | | .. | 5.24* | 3.27** |
| n= | 1537 | 1375 | 1551 | 1537 | 1375 | 1551 |
| Pseudo R2 | 0.1097 | 0.0761 | 0.0835 | 0.1114 | 0.0844 | 0.0916 |

*p<0.05 ** p<0.01 *** p<0.001

Mother's education is not significant in 1987 or 1994 but is highly significant in 2005 when having a university-educated mother increased the respondent's odds of having a university degree by 2.4, net of other factors. Attending a non-government school is also significant in each year. The association between birth cohort and university education shown in Figures 1 and 2 is confirmed with those born in the later cohorts being more likely to have a university degree.

The results for sex, parent's education and attendance at a non-government school hold in Model 2 when the interaction terms for sex and birth cohort are included. Model 2 shows that the association between birth cohort and university education varies by sex. Men born between 1940 and 1954 interviewed in 2005 were more likely to have a university degree than men born before 1940 as were men born between 1955 and 1969 interviewed in 1994. The association for women is more consistent. Women interviewed in 1994 who were born after 1940 were more likely to have a university degree than women born before 1940 as were women born after 1954 who were interviewed in 2005.

The Pseudo R2 indicates that these variables account for around 11 percent of the variation in 1987, 8 percent in 1994 and 9 percent in 2005. Therefore, these

independent variables are predicting less of the variation in education in 2005 than they were in 1987. Whether these differences are statistically significant will be explored in the final phase of the analysis.

To examine whether the effects of the independent variables have changed over time, I merge the three datasets and include a time variable. Initially, I included three-way interaction terms for sex, time and each of the predictor and control variables, two-way interaction terms for sex and each of the predictor and control variables and two-way interaction terms for time and each of the predictor and control variables in the model. Interaction terms that did not produce statistically significant results were progressively dropped from subsequent models. The three-way interaction terms for time and sex and the two-way interaction terms for time and birth cohort, sex and attendance at a non-government school, sex and father's education and sex and mother's education were not significant. Therefore, in the final model I include only the two-way interaction terms for time and father's education, time and mother's education, time and attendance at a non-government school and sex and birth cohort.

Model 1 in Table 3 shows that women were less likely than men to have a university degree. As predicted by the literature, there is evidence that both men and women were more likely to have a university degree in 1994 and 2005. Men and women in 1994 were twice as likely, and men and women interviewed in 2005 were three times as likely to have a university degree than men and women interviewed in 1987. Men and women with a university-educated father were three times more likely to have a degree. Men and women with a university educated mother were twice as likely to have a university degree, as were those who attended a non-government school. Those born in later cohorts were more likely to have a degree than those born before 1940.

Table 3. Odds ratios from logistic regression for university degree versus no university degree

| | Model 1 | Model 2 |
|---------------------------------|-------------------|-------------------|
| | odds ratio | odds ratio |
| Male- reference | | |
| Female | 0.66*** | 0.35*** |
| Time | | |
| 1987- reference | | |
| 1994 | 2.05*** | 2.56*** |
| 2005 | 3.31*** | 4.16*** |
| University-educated father | 3.22*** | 6.06*** |
| University-educated mother | 1.84*** | 0.76 |
| Attended non-government school | 2.09*** | 3.03*** |
| Birth Cohort | | |
| <1940- reference | | |
| 1940-1954 | 1.89*** | 1.61*** |
| 1955-1969 | 2.26*** | 1.59*** |
| 1970-1984 | 2.72*** | 1.48 |
| Time Interactions | | |
| 1994 University-educated father | | 0.45* |
| 2005 University-educated father | | 0.46* |
| 1994 University-educated mother | | 2.49 |
| 2005 University-educated mother | | 3.21** |
| 1994 non-government school | | 0.67 |
| 2005 non-government school | | 0.61* |
| Sex Interactions | | |
| Female 1940-1954 | | 1.60* |
| Female 1955-1969 | | 2.41*** |
| Female 1970-1984 | | 3.60*** |
| n= | 4463 | 4463 |
| Pseudo R2 | 0.1232 | 0.1316 |

*p<0.05 ** p<0.01 *** p<0.001

Model 2 includes the interaction terms for time and father's education, time and mother's education, time and attendance at a non-government school and sex and birth cohort. The results reported in Table 2 showing that the effects of having a university-educated father declined over time are confirmed in Model 2. The odds ratio of 0.45 for 1994 and 0.46 for 2005 indicate that having a university educated father had less of an effect in 1994 and 2005 than it did in 1987. Having a university-educated mother increased the odds of respondents holding a university degree in 2005, but had no effect in 1994. The effect of attending a non-government school declined over time, with the odds ratio of 0.61 for 2005 being statistically significant. The effect for birth cohort differs according to sex. Although women born after 1970 were three and a half times more likely to have graduated from university than women

born before 1940, there is no corresponding effect for men. The final model accounts for 13 percent of the variation.

Discussion

The results presented here suggest that although the expansion of higher education during the last four decades has diminished the effect of father's education on child's education, having a university-educated father continued to increase the odds of graduating from university. In other words, respondents with a university-educated father were more likely to hold a university degree than other respondents in 1987, 1994 and 2005. This concurs with recent findings both here, in Australia, and internationally. Marks (2009b: 936) found that although the effect of socioeconomic background had diminished somewhat between 1965 and 2005, it continued to be a strong predictor of holding a university qualification. Pfeffer (2008: 555) found that there was a strong association between parental education and offspring's educational attainment in 20 OECD countries. Furthermore, this association remained stable in most countries for much of the twentieth century.

Women born after 1954 were more likely to have a university degree than women born before 1940. Interestingly, although men born between 1940 and 1969 were more likely to have a university degree than men born before 1940, men born after 1969 were no more likely to have a university degree than men born before 1940. These findings suggest that as women show more of an inclination to achieve a higher level of education, men appear to be less inclined to do so. There is also evidence that the proportion of each cohort holding a university qualification increased over time, suggesting that the expansion of the higher education sector encouraged Australians to return to education as mature-aged students.

The dramatic increase in the likelihood of being university-educated for women born in the latter cohorts appears to provide support for both MMI theory and RRA theory. According to MMI theory, inequalities in educational achievement will persist until all members of the privileged class (those with a university-educated parent) who want to attend university are accommodated. It is only after 'saturation' level for this class is attained that an increase in the number of students from the lower classes will occur. RRA theory predicts that people will only invest in their education to avoid downward mobility (Breen & Goldthorpe 1997; Goldthorpe 1996; Goldthorpe & Breen 2007). Students from the privileged class have higher

educational aspirations than students from the working class because they need to study longer to acquire the credentials required to maintain their social class position. Putting these two theories together can explain why the expansion of higher education has not negated the relationship between parent's education and child's education and why women have been taking up higher education in increasing numbers. Women born before 1940 relied on marriage to secure their social class position therefore women from higher social classes did not have to participate in higher education to avoid downward mobility. When higher education expanded in the latter half of the twentieth century, it provided women with an alternative path to secure their social class position. Therefore, it seems likely that it was women from the privileged class who took advantage of the expansion of higher education rather than men from the working class. Breen and Goldthorpe (1997: 296) came to a similar conclusion suggesting that changes in the labour market encouraged women from the privileged classes to acquire qualifications for service-class occupations rather than to rely on marriage to suitable qualified men to maintain their social class position and avoid downward social mobility.

Overall, I find that there continues to be an association between parents' education and offspring's education. The full effect of this association could be further tested using data that includes the type of university attended (that is, Go8 versus other universities), the field in which the qualification was obtained (for example, more prestigious professions versus less prestigious occupations) and year graduated (to determine the lag between finishing high school and graduation from university).

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List of References

ABS (1979) *Schools Australia 1979* Cat. No. 4202.0 Available at: www.abs.gov.au. Accessed 24/10/2010.

ABS (1980) *Schools Australia 1980* Cat. No. 4202.0 Available at: www.abs.gov.au. Accessed 24/10/2010.

ABS (2007) *Schools Australia 2007* Cat. No. 4221.0 Available at: www.abs.gov.au. Accessed 24/10/2010.

Alon, S. (2009) 'The evolution of class inequality in higher education: Competition, exclusion and adaptation', *American Sociological Review* 74, 731-755.

Arum, R., Gamoran, A. and Shavit, Y. (2007) 'More inclusion than diversion: Expansion, differentiation and market structure in higher education.' Pp. 1-35 in Y. Shavit, R. Arum and A. Gamoran (eds) *Stratification in Higher Education: A Comparative Study* Stanford: Stanford University Press.

Bradley, D., Noonan, P., Nugent, H. and Scales, B. (2008) *Review of Australian Higher Education Discussion Paper June 2008* Available at: www.dest.gov.au/HEreview . Accessed on 17/2/2010

Breen, R. & Goldthorpe, J.H. (1997) 'Explaining educational differentials: Towards a formal rational action theory' *Rationality and Society* 9, 275-305.

Chapman, B. (1997) 'Conceptual issues and the Australian experience with income contingent charges for higher education'. *The Economic Journal* 107, 738-751.

Chapman, B. And Ryan, C. (2003) 'The access implications of income contingent charges for higher education: Lessons from Australia', Discussion Paper No. 463, *Centre for Economic Policy Research Discussion Papers*, ANU.

DEEWR (2009) *Summary of the 2008 Higher Education Student Statistics*. Available at: <http://www.deewr.gov.au/HigherEducation/Publications/HEStatistics/Publications/Pages/2008FullYear.aspx> . Accessed: 24/02/2010.

DEST (2000) *Higher Education Students Time Series Tables 2000*. Available at: www.dest.gov.au . Accessed on 11/11/2009.

Goldthorpe, J.H. (1996) 'Class analysis and the reorientation of class theory: The case of persisting differentials in educational attainment', *British Journal of Sociology* 47(3), 480-505.

Goldthorpe, J.H. (2007) *On Sociology 2nd edition Volume Two: Illustration and Retrospect* Stanford: Stanford University Press.

Goldthorpe, J.H. and Breen, R. (2007) 'Explaining education differentials: Towards a formal rational action theory'. Pp. 45-72 in John Goldthorpe *On Sociology 2nd edition Volume Two: Illustration and Retrospect* Stanford: Stanford University Press.

Holm, A. and Jaeger, M.M. (2008) 'Does Relative Risk Aversion explain educational inequality? A dynamic choice approach.' *Research in Social Stratification and Mobility* 26, 199-219.

James, R. Baldwin, G., Coates, H., Krause, K. and McInnis, C. (2004) *Analysis of equity groups in higher education 1991-2002*. Available at: http://www.dest.gov.au/NR/rdonlyres/DBDE717B-6367-4847-A091-BD85FC6E0D4A/2391/equity_report.pdf . Accessed on 24/02/2010.

James, R. Bexley, E. and Maxwell, L. (2008) *Participation and Equity: A review of the participation in higher education of people from low socioeconomic backgrounds and Indigenous people*. Universities Australia. Available at: www.universitiesaustralia.edu.au . Accessed on 17/02/2010.

Kelley, J., Bean, C. Evans, M. and Krzystof, Z. (2009) *National Social Science Survey: Inequality 1994* Data file. Canberra: Australian National University. Available at: <http://assda-nestar.anu.edu.au> Accessed on 23/07/09.

Kelley, J., Evans, M.D.R. and Bean, C. (2009) *National Social Science Survey: Inequality 1987-88* Data file. Canberra: Australian National University. Available at: <http://assda-nestar.anu.edu.au> Accessed on 23/07/09.

Marks, G.N. (2009a) Social consequences of the higher education contribution scheme', *Higher Education* 57(1), 71-84.

Marks, G.N. (2009b) 'Modernization theory and changes over time in the reproduction of socioeconomic inequalities in Australia', *Social Forces* 88(2):917-944.

Marks, G.N. and McMillan, J. (2003) 'Declining inequality? The changing impact of socio-economic background and ability on education in Australia.' *British journal of Sociology* 54(4), 453-471.

Marks, G.N. and McMillan, J. (2007) 'Australia: Changes in socioeconomic inequalities and university participation.' Pp.351-373 in Y. Shavit, R. Arum and A. Gamoran (eds) *Stratification in Higher Education: A Comparative Study* Stanford: Stanford University Press.

Pfeffer, F.T. (2008) 'Persistent Inequality in Educational Attainment and its Institutional Context', *European Sociological Review* 24(5), 543-565.

Raferty, A.E. and Hout, M. (1993) 'Maximally Maintained Inequality: Expansion, reform, and opportunity in Irish education, 1921-1975' *Sociology of Education* 66(1), 41-62.

Van de Werfhorst, H.G. and Hofstede, S. (2007) 'Cultural capital or relative risk aversion? Two mechanisms for educational inequality compared', *The British Journal of Sociology* 58(3), 391-415.

Western, M., Baxter, J., Pakulski, J., Tranter, B., Western, J. and van Egmond, M. (2005) *Neoliberalism, Inequality and Politics National Survey*. Data file. St Lucia: The University of Queensland Social Research Centre.

Wilson, S., Gibson, R., Meagher, G., Denmark, D. and Western, M. (2006) Australian Survey of Social Attitudes, 2005, [computer file]. Canberra: Australian Social Science Data Archive, The Australian National University, 2006.

Appendix

Table A1. Percentage of respondents with a university degree by birth cohort

| Birth Cohort | AuSSA 2005 | Neoliberalism 2005 |
|---------------------|-------------------|---------------------------|
| Male<1940 | 22 | 25 |
| Male 1940-54 | 21 | 39 |
| Male 1955-69 | 26 | 36 |
| Male 1970-84 | 40 | 42 |
| Female <1940 | 13 | 13 |
| Female 1940-54 | 28 | 24 |
| Female 1955-69 | 37 | 36 |
| Female 1970-84 | 50 | 47 |