Intergenerational Mobility in Australia

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Abstract

Combining four surveys conducted a forty year period, I calculate intergenerational earnings correlations for Australia, using average earnings in parents' occupations as a proxy for actual parental earnings. In the most recent survey, the correlation between the log earnings of fathers and sons in Australia is around 0.14 to 0.19. Comparing these figures with earlier surveys, I find no evidence that intergenerational mobility in Australia has changed over time. For daughters, intergenerational earnings correlations are substantially lower. Applying the same methodology to United States data, I find that Australian society exhibits more intergenerational mobility than the United States.

Keywords: intergenerational mobility, imputed earnings, Australia, United States

JEL Codes: D31, J62, N30

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I. Introduction

Australian society has always prided itself in the ease with which individuals can move from one social class to another. Settled as a penal colony, rapid social mobility was the inevitable during the early part of Australia's founding. The richest ever Australian (measured relative to GDP) was Samuel Terry, a Manchester thief transported to Australia in 1801. At the time of his death in 1838, Terry had amassed a wealth equivalent to $24 billion in today's dollars (Rubinstein 2004).

The notion of Australia as a country in which one's life chances were unaffected by one's parental upbringing was often reflected in comparisons with the United Kingdom. In the mid-1960s, McGregor (1966, 110) argued of Australia that: "There is not so much difference between the way the different classes speak, the way they dress or the schools they went to as in England, which makes it easier for individuals to move from social group to group. … … The lack of widespread extremes in social differentiation makes it easy for class-jumpers to 'pass'."[1]

In this paper, I estimate the extent of "class jumping", by estimating the intergenerational earnings correlation between parents and children. In a perfectly mobile society, the correlation between the earnings of children and their parents will be zero, while in a perfectly immobile society, it will be one. I then compare the degree of intergenerational

[1] In a similar vein, Horne (1964, 61) noted that "There are no possibilities in Australia of determining status by simple inspection. You can't place a man in a social scale by listening to his accent or what he talks about or by looking at his clothes or observing his manners. Ordinary people are not likely to be able to detect a 'real gentleman' with that sensory accuracy that used to be characteristic of ordinary people in England."

mobility in Australia in the 2000s with the level in the 1960s, and with intergenerational mobility in the United States.

The primary measure to be used is the correlation between fathers' and sons' earnings. Combining four cross-sectional surveys, conducted in 1965, 1973, 1987 and 2001-03, I analyse the correlation between the earnings of sons born between 1910 and 1978 with those of their fathers. As a proxy for fathers' earnings, I use average occupational earnings, adjusting the correlations to take account of the number of occupational categories in the survey. Using the same methodology, I also estimate the correlation between daughters' earnings and those of their parents, as well as intergenerational earnings correlations for the United States.

To preview my results, I find that the correlation between the log earnings of fathers and sons in Australia in the most recent survey is around 0.14 to 0.19. Comparing these figures with three past surveys, I find no evidence that intergenerational mobility has changed over time in Australia. For daughters, intergenerational earnings correlations are substantially smaller. Applying the same methodology to United States data, I find that Australian society exhibits more intergenerational mobility than the United States.

The remainder of this paper is structured as follows. Section II briefly outlines the relevant literature on intergenerational earnings mobility. Section III sets out the methodology and data. Section IV presents results for the four surveys, making it possible to observe how intergenerational mobility has changed over time. Section V uses

data on earnings over three years, and compares the results for Australia with those from other countries. Section VI estimates intergenerational earnings correlations for daughters, and the final section concludes.

II. Existing studies on intergenerational earnings mobility

In the United States, studies in the 1970s and 1980s had tended to estimate father-son earnings correlation earnings correlations of around 0.2 (Sewell and Hauser 1975; Bieby and Hauser 1977; Behrman and Taubman 1985; Becker and Tomes 1986). However, work by Solon (1992) using long-run data from the Panel Study on Income Dynamics (PSID), demonstrated that due to sample bias and errors-in-variables bias, the true correlation was closer to 0.4. Mazumder (2005) confirms this result for the United States, using social security earnings data. For daughters, Chadwick and Solon (2002) estimate family income correlations (as distinct from earnings correlations), and find estimates in the range 0.35 to 0.49.

For countries other than the United States, several researchers have used actual earnings data to estimate intergenerational earnings correlations for Britain (Atkinson, Maynard and Trinder 1983), Canada (Corak and Heisz 1999), Finland (Jäntii and Osterbacka 1996, Osterbacka 2001), Germany (Couch and Dunn 1997, Wiegand 1997), Malaysia (Lillard and Kulburn 1995), Sweden (Gustafsson 1994) and South Africa (Hertz 2001).

Estimates have also been produced based on predicted fathers' earnings, rather than actual earnings. For Britain, Dearden, Machin and Reed (1997) use an instrumental variables approach to predict earnings using education and social class, while for Sweden, Björkland and Jäntii (1997) use a two-sample instrumental variables approach to predict earnings using education and occupation.[2] This approach has been replicated elsewhere, using father's education only (Grawe 2001 for Nepal, Pakistan and Peru; Dunn 2004 for Brazil), and using both father's education and father's occupation (Ferriera and Veloso 2004).

As Solon (2002) points out in his review of international studies on intergenerational mobility, methodological differences limit comparability between these studies. However, some researchers have sought to benchmark their results against the United States by using as comparable a methodology as possible. Studies by Corak and Heisz (1999), Jäntii and Osterbacka (1996), Osterbacka (2001) and Gustafsson (1994) suggest that intergenerational earnings correlations in Canada, Finland and Sweden, respectively, are lower than in the United States.

A small number of studies have also sought to estimate whether intergenerational mobility has risen or fallen since World War II. For the United States, three studies have come to different conclusions. Mayer and Loopo (2005) construct successive cohorts from the PSID and find that the correlation between parental income and sons' income fell for cohorts born during the 1950s and 1960s (though the fall is not statistically

[2] For further discussion of the Dearden, Machin and Reed (1997) approach, see Abul Naga and Cowell (2002).

significant). Lee and Solon (2005) use the PSID, but construct overlapping birth cohorts, and find no significant trend in mobility. Aaronsen and Mazumder (2005) impute parental income using parents' state of birth for cohorts born from 1921-75, and conclude that the intergenerational earnings correlation was highest for cohorts born in the 1950s and 1960s.[3] For the United Kingdom, Blanden et al (2002) compare two cohorts, comprising all children born during a single week in 1958 with a similar sample for 1970, and conclude that intergenerational earnings correlations have risen over time.

In Australia, most of the existing research on intergenerational mobility in Australia has appeared in the sociological literature, and has focused on occupational status, rather than imputed earnings. Radford (1962) analysed results from a survey of nearly all those who left school in Australia in 1959-60. He found that the fraction of sons entering the same broad occupation as their fathers was 61 percent for farming, 38 percent for skilled trades, 20 percent for semi-skilled or unskilled jobs, and 36 percent for jobs requiring a university education.

Surveys of social mobility in Australia that were conducted in 1965 and 1973 formed the basis for further work by Broom et al (1977, 1980). Other significant studies by sociologists on intergenerational occupational mobility in Australia include Davis (1984), Jones and Davis (1986), Jones, Wilson and Pittelkow (1990), Wanner and Hayes (1996)

[3] Ferrie (2005) takes a longer view, comparing intergenerational occupational mobility in the US for sons observed 1880-1900 and sons observed in 1950-1973. He concludes that intergenerational occupational mobility fell substantially over this period.

and Marks and McMillan (2003). I am not aware of any studies to have estimated intergenerational earnings correlations in Australia.[4]

III. Methodology and Data

Following the previous literature, the primary measure of intergenerational earnings inequality used in this paper will be the father-son earnings correlation. Since suitable long-run panel surveys and samples of social security earnings records are not available for Australia, I instead predict fathers' earnings, following a similar approach to that of Björkland and Jäntii (1997) for Sweden.[5] Such a prediction technique is necessitated by the fact that parental earnings are not directly available in the Australian surveys. It is also desirable, since the use of single-year earnings data has been shown to lead to an overestimate of the level of social mobility in a society. For example, using US Social Security earnings data for 1951-1991, Haider and Solon (2004) find that the use of single-year earnings leads to a considerable underestimate of the true earnings correlation between fathers and sons.

In each of the surveys, sons' earnings are measured directly (with earnings coded in bands in the 1965 and 1973 surveys, and measured precisely in the 1987 and 2003

[4] A recent Australian study to have looked at intergenerational transmission channels is Miller, Mulvey and Martin (2001), who use a sample of Australian twins to estimate the extent to which intergenerational educational correlations are genetically determined. They do not estimate intergenerational earnings correlations.

[5] The two representative national panel data surveys in Australia are the Negotiating the Life Course Survey, which has been conducted on a triennial basis since 1997, and the Household Income and Labour Dynamics in Australia Survey (HILDA), which has been conducted on an annual basis since 2001.

surveys). For comparability, the sample is restricted to men aged 25-54 who are in full-time employment, with non-missing earnings.

Since fathers' earnings are not measured directly in the surveys, I proxy the actual earnings of fathers using the average earnings of the occupation in which a respondent's father was employed when the respondent was aged 14. The number of occupational categories is large, varying from 78 to 241 (see Data Appendix for details). Fathers are then assigned the average earnings for a male aged 25-54 currently working full-time in that occupation. Since fathers' earnings are proxied using *current* earnings data, this method means that a son who happened to earn precisely the average occupational wage would be assigned the same earnings as his father.

Among employed fathers and sons, three factors drive intergenerational mobility: (i) sons working in different occupations from their fathers (inter-occupational mobility), (ii) sons working in the same occupation but with lower or higher earnings than their fathers (intra-occupational mobility), and (iii) changes in the average earnings of occupations over time. The method employed here will capture inter-occupational mobility (factor i), but will only capture part of intra-occupational mobility (factor ii), since all fathers are assigned the mean earnings for their occupation. Moreover, this approach will not take account of changes in the average earnings of occupations over time (factor iii). To the extent that intra-occupational changes or changes in average occupational earnings over time are a major factor in intergenerational mobility, this approach may mis-estimate the true level of intergenerational mobility.

How does this approach compare with that of Björkland and Jäntii (1997)? While my approach proxies earnings using a large number of occupations, theirs uses eight occupational categories, two educational categories, and a regional indicator. Using an earlier survey to obtain a sample of "synthetic fathers", they employ the technique of two-sample instrumental variables to predict the earnings of fathers in the sample.[6] In the case of Australia, such an approach is not feasible, due both to changes in occupational coding systems across surveys, and to the paucity of earnings survey data prior to the 1970s.

However, using fine occupational categories to impute earnings may also have advantages over predicting earnings using broad occupational categories plus parental education; or predicting earnings using parental education alone. As Solon (1992) points out, the use of parental education may be problematic if parental education has a direct impact on sons' earnings, rather than only affecting sons' earnings through the channel of parental earnings. For example, Solon suggests that one would not want to proxy parental income using parental education if "the son of a highly educated clergyman with a moderate income tends to earn somewhat more than the son of a less-educated moderate-income father". By contrast, it is more probable that a father's occupation affects his son's earnings primarily through the channel of income.

In using occupational-level averages, it is necessary to take account of the fact that the number of occupations differs from survey to survey. Where y represents log earnings, s

[6] For a detailed discussion of two-sample instrumental variables, see Angrist and Krueger (1992).

and f index sons and fathers, j indexes occupations, and i indexes individuals, the intergenerational earnings correlation is defined as:

$$r = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{y_{sji} - \bar{y}_s}{\sigma_s}\right)\left(\frac{y_{fji} - \bar{y}_f}{\sigma_f}\right) \quad (1)$$

Rewriting earnings as Z-scores, this is equivalent to:

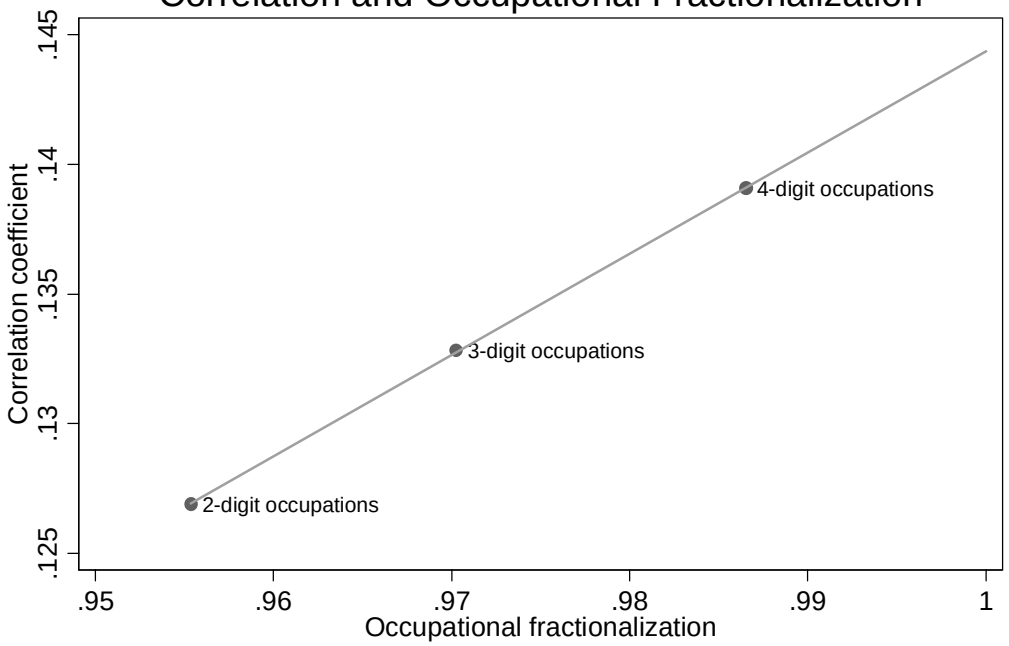
$$r = \frac{1}{N}\sum_{i=1}^{N} z_{sji} z_{fji} \quad (2)$$

Changes in the number of occupations will affect the standard deviation of fathers' earnings, and the standard deviation of sons' earnings, but because earnings are standardized into Z-scores, this ought not affect the correlation coefficient. However, it will also affect the covariance between z_{sji} and z_{fji}. In theory, the relationship between the number of occupations and the intergenerational earnings correlation is ambiguous, since the correlation coefficient is adjusted to take account of the corresponding fall in the standard deviation.

It is therefore necessary to estimate the relationship between the correlation coefficient and the number of occupations from the data. To do this, I use data from the 2003 HILDA survey, and estimate the relationship between the intergenerational earnings correlation and the number of occupations, using 2-digit, 3-digit and 4-digit occupations.

For each of the three occupational combinations, I calculate a Herfindahl-type occupational fractionalization index, estimating the probability that any two randomly chosen fathers are in different occupations. This probability ranges from zero (a labour market with only one occupation) to one (a labour market with an infinite number of occupations). An increase in the number of possible occupations will increase the fractionalization index. Figure 1 shows the association between the correlation coefficient and the occupational fractionalization index. Using more finely disaggregated occupations (which boosts the occupational fractionalization index) appears to be associated with a higher intergenerational earnings correlation.

Figure 1: Relationship Between Intergenerational Correlation and Occupational Fractionalization



To estimate this relationship formally, I regress the three intergenerational earnings correlations on the occupational fractionalization indices, producing the following regression:

$$r_j = \underset{(0.002)}{-0.246} + \underset{(0.002)}{0.391} * Fract_{sj} \quad (3)$$

N=3

R^2=0.99

Extrapolating slightly out of sample, it is possible to adjust the correlation coefficients so as to estimate the effect on the correlation if the fractionalization index were one – in other words, a labour market in which there are an infinite number of occupations. This is done using the following formula:

$$r(adjusted)_j = r_j \frac{-0.246 + 0.391}{-0.246 + 0.391 * Fract_{sj}} \quad (4)$$

For purposes of comparability, equation (4) is used to adjust all correlation coefficients presented in this paper.

Combining four surveys, conducted in 1965, 1973, 1987 and 2003, it is possible to estimate intergenerational earnings correlations for those born between 1911 and 1978. Details of the surveys are presented in the data appendix. Table 1 presents summary statistics for the annualised earnings and fractionalization measures.

Table 1: Summary Statistics		
Variable	**Mean**	**SD**
1965 Survey (N=941)		
Sons' earnings (£)	1598.19	635.09
Fathers' earnings (£)	1552.97	418.01
Occupational fractionalization	0.975	
1973 Survey (N=1834)		
Sons' earnings ($)	6694.22	3031.44
Fathers' earnings ($)	6541.91	2015.44
Occupational fractionalization	0.981	
1987 Survey (N=238)		
Sons' earnings ($)	31202.43	18280.47
Fathers' earnings ($)	26593.44	9362.41
Occupational fractionalization	0.965	
2003 Survey (N=2000)		
Sons' earnings ($)	56097.42	33639.28
Fathers' earnings ($)	44518.70	22895.70
Occupational fractionalization	0.986	

Note: Australia switched its currency from pounds to dollars in 1966, at a conversion rate of two dollars per pound.

IV. Has Intergenerational Mobility Changed Over Time?

Table 2 presents intergenerational earnings correlations for four cohorts, born between 1911 and 1978. The estimates are fairly narrowly bunched, ranging between 0.14 and 0.20. Since the estimates have standard errors of between 0.02 and 0.06, I am unable to discern any statistically significant trend in the data, suggesting that the level of intergenerational earnings mobility in Australia today is similar to the level prevailing in the 1960s.

Table 2: Intergenerational Log Earnings Correlations

Birth Cohort	Survey	Father-Son Earnings Correlation	N
1911-1940	1965	0.173 (0.031)	941
1919-1943	1973	0.154 (0.023)	1834
1933-1962	1987	0.197 (0.061)	238
1948-1978	2003	0.142 (0.021)	2000

Note: Standard errors in parentheses.

One possibility is that the correlations observed in Table 2 are affected by the changing migration patterns in Australia over the twentieth century. By international standards, a very high fraction of Australians are born overseas. In the 1961 census, 17 percent of Australians were born overseas, and by 2001, this figure had risen to 23 percent. This is potentially relevant for two reasons. First, using fathers' occupations to impute earnings is likely to be less precise in the case of fathers who worked in another country. Second, being born overseas might have a direct impact on intergenerational earnings correlations, since immigrant families might invest more resources in their children.

Table 3 therefore excludes from the calculations all respondents who were themselves born overseas, or whose fathers were was born overseas. While this has little impact on the 1965 and 1973 surveys, it causes the intergenerational earnings correlation to rise for both the 1987 and 2003 surveys. While the 1987 estimate is higher than the other three estimates, it also has a larger standard error. As a result, I cannot reject at conventional levels of statistical significance the hypothesis that intergenerational mobility for Australian-born respondents has been flat over the past forty years.

Table 3: Intergenerational Log Earnings Correlations – Fathers and Sons Born in Australia

Birth Cohort	Survey	Father-Son Earnings Correlation	N
1911-1940	1965	0.168 (0.038)	640
1919-1943	1973	0.140 (0.028)	1218
1933-1962	1987	0.238 (0.071)	166
1948-1978	2003	0.159 (0.027)	1259

Note: Standard errors in parentheses.

While the results set out in Table 3 allow a direct comparison of earnings mobility over time, it may be that the measurement of sons' earnings in a single year causes a downward bias in the intergenerational earnings correlation. Due to the panel structure of the HILDA survey, earnings are measured in three years, making it possible to create a measure of sons' average earnings over the years 2001, 2002 and 2003. Since only two-thirds of full-time working-age men who reported earnings in 2003 also reported full-time earnings in 2001 and 2002, I instead use the average earnings for those years in which the respondent reported earnings. For example, if a respondent reported earnings only in 2001 and 2002, then their earnings are calculated as the average of those two years. Note that this has the effect of slightly increasing the sample size when compared to Table 3 (from 2000 to 2020).

Table 4: Intergenerational Log Earnings Correlations Using Three Year Earnings (1948-1978 birth cohort, 2001-03 surveys)

	Correlation	N
All Fathers and Sons	0.162 (0.021)	2020
Father and Son Born in Australia	0.191 (0.027)	1258

Note: Standard errors in parentheses.

Table 4 shows the results of this specification. Across all male respondents, using three-year earnings increases the intergenerational earnings correlation from 0.14 to 0.16, while for fathers and sons born in Australia, it increases the correlation from 0.16 to 0.19.

V. Intergenerational Mobility of Daughters

In this section, I estimate intergenerational earnings correlations for daughters. Due to low labour force participation rates for women in past surveys (and the omission of women entirely from the 1965 survey), I estimate these only using the 2001-03 survey (for the 1948-78 birth cohort). By contrast with Chiswick and Solon (2002), who estimate intergenerational correlations for daughters using family income, I use daughters' earnings. This is done both for comparability with the results for fathers and sons, as well as because I do not have a measure of the family income of the respondent's parents.

As in previous tables, earnings estimates for mothers are based on average full-time earnings in their occupation. Earnings for daughters are average earnings over the three years 2001-2003 (and are hence directly comparable with the estimates in Table 4). Daughters working part-time or not at all are excluded. However, since the survey does not ask whether mothers worked full-time, it is possible that the mother-daughter coefficient shown here would be different if it were possible to restrict the sample to mothers working full-time.

Table 5 presents father-daughter and mother-daughter earnings correlations. Both sets of correlations are substantially smaller than for men, ranging from 0.04 to 0.07. The father-daughter correlations are slightly larger than the mother-daughter correlations, though the difference is not statistically significant. These results suggest that parental earnings can explain around three times more variance in sons' earnings than in daughters' earnings.

Table 5: Intergenerational Log Earnings Correlations for Daughters (1948-1978 birth cohort, 2001-03 survey)

	Correlation	N
All		
Father-Daughter Correlation	0.065 (0.030)	1047
Mother-Daughter Correlation	0.055 (0.035)	816
Daughter and Parent Born in Australia		
Father-Daughter Correlation	0.066 (0.037)	687
Mother-Daughter Correlation	0.041 (0.042)	556

Note: Standard errors in parentheses.

VI. Comparing Intergenerational Mobility in Australia and the United States

Finally, I use the estimate intergenerational earnings correlations for the United States using the same methodology, thus facilitating a direct comparison between the two countries. The 2001 wave of the Panel Study of Income Dynamics (PSID) asked respondents for the occupation of their father when they were growing up. Restricting the sample to men aged 25-54 who are in full-time employment, with positive earnings, results in a sample of 340 respondents, whose fathers are spread across 111 occupations.

Table 6 shows the intergenerational correlations for this sample, first for the full sample, and then for the native-born. For the full sample, the intergenerational earnings correlation is 0.26 for the United States, as compared to 0.14 for Australia. The standard

errors indicate that this gap is statistically significant at the 10 percent level. When the sample is restricted to native-born fathers and sons, the intergenerational earnings correlation rises for Australia, and falls for the United States, making the two coefficients statistically indistinguishable.

Table 6: Comparing Intergenerational Log Earnings Correlations in Australia and the United States

Country	Birth Cohort (Survey)	Father-Son Earnings Correlation	N
All			
Australia	1948-1978 (2003)	0.142 (0.021)	2000
United States	1946-1976 (2001)	0.262 (0.049)	340
Father and Son Both Native-Born			
Australia	1948-1978 (2003)	0.159 (0.027)	1259
United States	1946-1976 (2001)	0.196 (0.063)	215

Note: Standard errors in parentheses. Results for Australia are taken from Tables 2 and 3.

Calculating the intergenerational earnings correlation for the United States using this method makes it possible to estimate the extent of the downward bias in the correlation arising from this method. Using high-quality data on permanent income, Solon (1992) estimated that the US intergenerational earnings correlation was 0.4, substantially larger than my US estimate of 0.26. Assuming the bias is the same in the two countries, this suggests that if suitable data were available, applying the Solon method to Australia would yield an intergenerational earnings correlation for Australia of slightly over 0.2.[7]

[7] To be precise, (0.142/0.262)*0.4=0.217. Note also that Solon's calculation was based on earlier PSID data, so this method also assumes that the intergenerational earnings correlation in the US has not changed over time.

VII. Conclusion

Combining four surveys over a forty year period, I estimate intergenerational earnings correlations for Australia. Using parental occupation as a proxy for parental earnings, I estimate that the correlation between log earnings of fathers and sons in the range 0.14 to 0.19. I find no evidence that intergenerational mobility has risen over time in Australia. For daughters, the intergenerational earnings correlation is only about one-third as large. Applying the same methodology to a sample of fathers and sons in the United States, I find that the level of intergenerational mobility is higher in Australia than in the United States.

On one view, the absence of any significant rise in intergenerational mobility might be regarded as surprising. Increases in health care coverage, the banning of racial discrimination, the abolition of up-front university tuition fees, and an increase in the number of university places are among the policy reforms that might have been expected to increase intergenerational mobility. Yet there were also trends in the opposite direction. Rising unemployment, the abolition of federal inheritance taxes in 1979, and rising spatial concentration of joblessness are among the factors that might have acted to reduce intergenerational mobility. Australia today is more socially mobile than the United States, but mobility does not appear to have risen or fallen over time.

References

Aaronson, D and Mazumder, B. 2005. "Intergenerational Economic Mobility in the U.S., 1940 to 2000" Federal Reserve Bank of Chicago WP 2005-12

Abul Naga, R. and Cowell, F.A. 2002. "Intergenerational Mobility in Britain: Revisiting the Prediction Approach of Dearden, Machin and Reed" London School of Economics and Political Science, Distributional Analysis Research Programme. Discussion Paper DARP 62

Angrist, J. and Krueger, A. 1992. "The Effect of Age at School Entry on Educational Attainment: An Application of Instrumental Variables with Moments from Two Samples" *Journal of the American Statistical Association* 87(418): 328-336

Atkinson, A.B., Maynard, A.K. and Trinder, C.G. 1983. *Parents and Children: Incomes in Two Generations*. London: Heinemann.

Becker, G.S and Tomes, N. 1986. "Human Capital and the Rise and Fall of Families". *Journal of Labor Economics*. 4: S1-S39

Behrman, J.R and Taubman, P. 1985. "Intergenerational Earnings Mobility in the United States: Some Estimates and a Test of Becker's Intergenerational Endowment Model" *Review of Economics and Statistics* 67: 144-151

Bielby, W.T. and Hauser, R.M. 1977. "Response Error in Earnings Functions for Nonblack Males" *Sociological Methods and Research* 6: 241-280

Björklund, A and Jäntti, M. 1997. "Intergenerational Income Mobility in Sweden Compared to the United States." American Economic Review. 87(5) 1009–1018.

Blanden, J. Goodman, A., Gregg, P. and Machin, S. 2002. "Changes in Intergenerational Mobility in Britain" Centre for the Economics of Education. London School of Economics and Political Science

Broom, L., Jones, F.L. and Zubrzycki, J. 1965. *Social Stratification in Australia, 1965* [computer file]. (ASSDA Study No. 7). Canberra: Australian Social Science Data Archive, The Australian National University

Broom, L., Duncan-Jones, P., Jones, F.L, McDonnell, P. and Williams, T. 1973. *Social Mobility in Australia Project, 1973* [computer file]. (ASSDA Study No 8). Canberra: Australian Social Science Data Archive, The Australian National University

Broom, L., Duncan-Jones, P., Jones, F.L. and McDonnell, P. 1977. "Investigating Social Mobility". Department of Sociology, Research School of Social Sciences, the Australian National University. Department Monograph No 1.

Broom, L., Jones, F.L., McDonnell, P. & Williams, T. 1980. *The Inheritance of Inequality*. London: Routledge and Kegan Paul.

Burkhauser, R.V, Butrica, B.A., Daly, M.C and Lillard, D.R. 2001. “The Cross-National Equivalent File: A product of cross-national research" in Soziale Sicherung in einer dynamischen Gesellschaft (Social Insurance in a Dynamic Society) Irene Becker, Notburga Ott, and Gabriele Rolf (Eds.) Festschrift fuer Richard Hauser zum 65. Geburtstag Papers in Honor of the 65th Birthday of Richard Hauser.

Chadwick, L and Solon, G. 2002. “Intergenerational Income Mobility among Daughters.” *American Economic Review*. 92(1): 335-344.

Corak, Miles and Andrew Heisz. 1999. “The Intergenerational Earnings and Income Mobility of Canadian Men: Evidence from Longitudinal Income Tax Data.” *Journal of Human Resources*. 34(3): 504-533.

Couch, Kenneth A. and Thomas A. Dunn. 1997. “Intergenerational Correlations in Labor Market Status: A Comparison of the United States and Germany.” *Journal of Human Resources*. 32(1): 210-232

Davis, P. 1984. “Social Mobility and Class Structure in Australia and New Zealand”. Paper presented to Section 27 of the Australian and New Zealand Association for the Advancement of Science, May 1984.

Dearden, Lorraine, Stephen Machin and Howard Reed. 1997. “Intergenerational Mobility in Britain.” *Economic Journal*. January, 107(440): 47-66

Dunn, C., 2004. “The Intergenerational Transmission of Earnings: Evidence from Brazil”. Ph.D. Dissertation, Department of Economics, University of Michigan.

Ferreira, S.G. and Veloso, F.A. 2004. “Intergenerational Mobility of Wages in Brazil”. *mimeo*, BNDES

Ferrie, J.P. 2005. “The End of American Exceptionalism? Mobility in the United States Since 1850” *Journal of Economic Perspectives* 19(3): 199-215

Grawe, N., 2001. “Intergenerational Mobility in the US and Abroad: Quantile and Mean Regression Measures”. Ph.D. Dissertation, Department of Economics, University of Chicago.

Gustafsson, Bjorn. 1994. “The Degree and Pattern of Income Immobility in Sweden.” *Review of Income and Wealth*. 40(1): 67–86.

Haider, S.J. and Solon, G. 2004. ‘Life-Cycle Variation in the Association between Current and Lifetime Earnings’ *mimeo,* University of Michigan

Hertz, T.N. 2001. *Education, Inequality and Economic Mobility in South Africa*. Ph.D. thesis, University of Massachusetts.

Horne, D. 1964. *The Lucky Country: Australia in the Sixties*. Ringwood, VIC: Penguin

Jäntti, M. and Osterbacka, E. 1996. "How Much of the Variance in Income Can Be Attributed to Family Background? Evidence from Finland." Unpublished.

Jones, F.L. and Davis, P. 1986. *Models of Society: Class, Stratification and Gender in Australia and New Zealand*. Sydney: Croom Helm.

Jones, F.L., Wilson, S.R. and Pittelkow, Y. 1990. "Modelling mobility: the use of simulation to choose between near-equivalent models" *Quality and Quantity* 24(2): 189-212

Kelley, J., Bean, C., and Evans, M. 1988. *National Social Science Survey 1987-1988: Inequality* (ASSDA Study No. 627). Canberra: Australian National University, Social Science Data Archives

Lee, C. and Solon, G. 2005. "Trends in Intergenerational Income Mobility", *mimeo*, Ann Arbor, MI: University of Michigan.

Lillard, L.A. and Kilburn, M.R. 1995. "Intergenerational Earnings Links: Sons and Daughters." *mimeo*.

McGregor, C. 1966. *Profile of Australia*. London: Hodder and Stoughton

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

Mayer, S. and Lopoo, L. 2005. "Has the Intergenerational Transmission of Economic Status Changed?" *Journal of Human Resources* 40(1): 169-185.

Miller, P., Mulvey, C. and Martin, N. 2001. "Genetic and environmental contributions to educational attainment in Australia" *Economics of Education Review* 20: 211–224

Osterbacka, E. 2001. "Family Background and Economic Status in Finland." *Scandinavian Journal of Economics*. September, 103:3, pp. 467–84.

Osterberg, T. 2000. "Intergenerational Income Mobility in Sweden: What Do Tax-Data Show?" *Review of Income and Wealth*. 46(4): 421–436.

Radford, W.C. 1962. *School Leavers in Australia 1959-60*. Melbourne: Australian Council for Educational Research

Rubinstein, W.D. 2004. *The All-Time Australian 200 Rich List*. Sydney: Allen and Unwin

Sewell, W.H. and Hauser, R.M. 1975. *Education, Occupation and Earnings: Achievements in the Early Career*. New York: Academic Press

Solon, Gary. 1992. “Intergenerational Income Mobility in the United States.” *American Economic Review*. 82(3): 393-408

Solon, G. 2002. "Cross-Country Differences in Intergenerational Earnings Mobility", *Journal of Economic Perspectives*, 16 (3): 59-66

Watson, N. (ed). 2005. *HILDA User Manual – Release 3.0*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Wanner, R.A. and Hayes, B.C. 1996. “Intergenerational Occupational Mobility Among Men in Canada and Australia”. *Canadian Journal of Sociology*. 21: 43-76

Wiegand, J. 1997. “Intergenerational Earnings Mobility in Germany.” *mimeo*.

Data Appendix

General

In all cases, the sample was restricted to men aged 25-54, in full-time employment. Where income was provided in bands, amounts were coded to the midpoint of the band, and the top income amount was recoded to 1.15 times the upper limit. Where provided, sample weights were used.

Australian datasets

1965 Social stratification in Australia (Broom et al 1965)
This survey was restricted to those in the paid workforce. The sample is mostly men working full-time, but a small number of women and part-time employees were excluded from the analysis. Fathers are spread across 89 occupations. Income is annual income (variable name: INCOME), measured in six bands.

1973 Social mobility in Australia project (Broom et al 1973)
The microdata for this survey are separated into two files by gender, and I use the male file. The sample is restricted to men aged 30 and over. Fathers are spread across 214 occupations. Income is the respondent's weekly income (variable V390), in 16 bands. After being recoded, income is multiplied by 52 to produce the annual earnings figures shown in Table 1.

1987-1988 National Social Science Survey (Kelley et al 1988)
Fathers are spread across 78 occupations. Income is reported in dollars, and the sample is restricted to those for whom income was reported on an annual basis (incper=3).

2001-03 Household, Income and Labour Dynamics in Australia (HILDA) survey
Fathers are spread across 241 occupations. Full-time employment was coded as usually working 35 or more hours per week in the main job (variable cjbmhruc). Income measure is current weekly gross wages and salary in main job (variable cwscmg). For more detail about the HILDA survey, see Watson (2005).

US Panel Study of Income Dynamics (PSID)

For simplicity, I use the Cross-National Equivalent File version of the PSID (for background on the CNEF, see Burkhauser et al 2001), and merge in the variable for father's occupation. Fathers are spread across 111 occupations. Full-time employment is coded as working more than 1750 hours per year (coded as e1110101 by the CNEF). Income is annual individual labor earnings for 2001 (coded as i1111001 by the CNEF). Occupations are 3-digit codes, using the 1970 occupational coding system. They are drawn from the 2001 wave of the PSID (codes er17226 for sons, and er19959 for fathers).

Datasets Not Used in This Paper

In order to be included in this paper, a dataset had to contain information on the occupation of the respondent, the occupation of their father when they were aged 14, and the respondent's income. In addition to the four surveys used in this paper, five additional surveys met these basic criteria, yet were not included. Here I set out the reasons for not using those additional surveys, in the hope that doing so may assist other researchers engaged in similar research in the future.

- The 1967 Australian Election Study (ICPSR Study No 7282) was excluded since it was conducted only shortly after the 1965 Social Stratification survey, and had a smaller sample of males.
- The 1979 Macquarie election survey (ASSDA Study No 9) was omitted on the basis that its sample size was small, and it did not contain a code for the country of birth of the father.
- The 1984-88 integrated NSSS (ASSDA Study No 594) combined datafile was not used since it contained a substantial number of non-credible values for the income variable.
- The 1986 Social Mobility survey (ASSDA Study No 493) and the 1987 Australian Standard of Living Study were excluded on the basis that they contained fewer usable observations than the 1987 NSSS Inequality survey (in addition, the Social Mobility Survey asked about the "provider", raising issues as to its reliability).
- The 1993 Australian Election Study (ASSDA Study No 763) was excluded since it asked only for household income, not individual income.