

Nativity Differences in the Intergenerational Correlation in Education: The Role of Education Expectations

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PRELIMINARY AND INCOMPLETE

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February 4, 2010

Abstract:

This paper analyzes the degree of intergenerational education mobility among immigrant and native-born youth in Australia. We find that young people in NESB families have an educational advantage over their ESB and native-born peers. Moreover, there is greater intergenerational mobility in educational attainment among immigrant than among native-born families. In contrast, academic achievement is positively related to parental education in all families, though in ways that differ by immigration background. While having a family history of welfare receipt is associated with poorer educational outcomes, we find that intensive welfare receipt does not limit NESB youth's likelihood of completing secondary school as it does for ESB and native-born youth. Finally, the secondary school completion rates of immigrant youth are more closely tied to their mothers' views about the importance of education than to whether or not their parents have themselves completed secondary school. Within Australian-born families, parental education is somewhat more important than mothers' views about the importance of education in life success.

1. Introduction

Education is a one of the principal avenues through which socio-economic advantage (or disadvantage) is passed from parents to their children. The world over, children of highly-educated parents tend to have more education – and better life chances – than their counterparts with poorly-educated parents. This intergenerational persistence in educational attainment limits intergenerational income mobility and is an important driver of overall educational inequality (Solon 2004; d’Addio 2007). A multitude of mechanisms have been proposed to account for the intergenerational correlation in education including: genetics, cultural transmission (e.g. neighborhood effects, peer group effects, or ethnic capital), the institutional context (e.g. the mix of public vs. private education, school starting ages, or the age at which streaming (tracking) by ability begins), links between parental education and investments in child education, and spurious correlations in the other inputs into the education production function.¹ Designing sensible policies to promote educational mobility requires furthering our understanding of the process which links children’s education to that of their parents.

Researchers are increasingly turning to comparisons of educational mobility across ethnic groups in an effort to understand the process linking education across generations. Against this backdrop, there are several reasons to be interested in the intergenerational transmission of education within immigrant populations. First, immigrants have diverse cultural traditions, local neighborhoods, and social connections making it possible to analyze the effects of the cultural transmission of ethnic (e.g., Borjas 1992; Sweetman and Dicks 1999) or language capital (e.g., Bleakley and Chin 2008; Casey and Dustmann 2008). Second, the long-term economic and social integration of immigrant communities is directly linked to their human

¹ See d’Addio (2007) an excellent review of this literature.

capital investments and degree of intergenerational mobility. Although the process of intergenerational economic mobility has been intensively studied in native-born populations, much less is known about mobility within immigrant communities (Dustmann 2005). Finally, educational mobility is a particularly salient issue for the millions of children growing up in immigrant families. Many European countries are experiencing serious problems in integrating immigrants and their children (see Algan et al 2009), while the U.S. educational system is struggling to cope with a sharp increase in the proportion of students who are “English Language Learners” (Fix and Chapps 2005).

This paper contributes to this emerging literature by assessing the degree of intergenerational education mobility among immigrant and native-born youth in Australia. To this end, we take advantage of unique data from the Youth in Focus (YIF) Project which interviews 18-year olds and their mothers. These survey data are then linked to nearly a decade of administrative data on the family’s welfare receipt while the young person was growing up. We are particularly interested in the following questions. First, does the intergenerational transmission of education differ for youth who do and do not have an immigration background? Second, is the extent of educational mobility across generations influenced by socio-economic background? Finally, are mothers’ views about the importance of education important in understanding nativity differences in intergenerational mobility?

In addressing these questions, we make several contributions to the existing literature. First, our data allow us to control for SES background in a very detailed way. Our objective is not to estimate the causal effect of a parent’s education on his or her child’s education.² However, detailed controls are useful in purging the intergenerational association in education from the effects of any family background characteristics, in particular socio-economic status,

² See Niknami (2009) for the papers which attempt a causal estimate.

affecting both generations. These detailed controls are often unavailable to researchers working with other data sources. Second, previous researchers are often unable to directly link children's education to that of their parents making a grouping estimator across cohorts necessary (Card et al. 2000; Aydemir et al. 2008). In contrast, we are able to both directly link education across generations and to use multiple reports of parental education (i.e. both from youths and their mothers) to test the sensitivity of our results. Third, we consider not only educational attainment (i.e., completion of secondary school), but also relative academic achievement (i.e., university entrance rank). Finally, researchers have recently begun to focus explicitly on the role of mothers' education in their children's educational attainment (Gang and Zimmermann 2000; Ninami 2009). We extend this literature by assessing whether mothers' views about the importance of education in getting ahead in life are related to the transmission of education across generations.

We find that young people in NESB families have an educational advantage over their ESB and native-born peers. Moreover, there is greater intergenerational mobility in educational attainment among immigrant than among native-born families. In contrast, academic achievement is positively related to parental education in all families, though in ways that differ by immigration background. While having a family history of welfare receipt is associated with poorer educational outcomes, we find that intensive welfare receipt does not limit NESB youth's likelihood of completing secondary school as it does for ESB and native-born youth. Finally, the secondary school completion rates of immigrant youth are more closely tied to their mothers' views about the importance of education than to whether or not their parents have themselves completed secondary school. Within Australian-born families, parental education is somewhat more important than mothers' views about the importance of education in life success.

In the next section of the paper we review the international evidence the intergenerational correlation in education for immigrant youth. Following that, we provide details about the Youth in Focus data and our estimation sample. Our conceptual framework and estimation strategy are outlined in Section 4, while our results are discussed in Section 5. Our conclusions and suggestions for future research follow in Section 6.

2. Literature Review: Nativity and the Intergenerational Transmission of Education

There are a number of reasons to expect that the link between parents' and children's education might depend on nativity. Borjas (1992), in particular, argues that ethnic capital, i.e. the human capital of the ethnic community as a whole, has an independent effect to that of parental capital in raising the education levels of immigrant children.³ Moreover, language skills are also linked across generations. Deficiencies in parents' host-country language skills are often passed in part to their children reducing children's educational attainment (Bleakly and Chin 2008) and diminishing labor market outcomes (Casey and Dustmann 2008). At the same time, immigrant parents are often argued to have higher educational aspirations for and make greater investments in their children's education (Kao and Tienda 1995; Corak 2008), particularly if they are permanent rather than temporary migrants (Dustmann 20005). These relationships make it is difficult to predict a priori whether any disadvantage associated with having poorly-educated parents will be larger or smaller for immigrant or native-born children. On the one hand, if low parental education is also associated with poor language skills and relatively little ethnic capital, immigrant children with poorly-educated parents may face particular challenges relative to their

³ Empirical evidence for this proposition is somewhat mixed. While Borjas (1992) finds evidence that ethnic capital is important in the U.S. context, Canadian (Aydemir et al. 2008) and European studies (Nielsen et al. 2001; Bauer and Riphahn 2007; Niknami 2009) find little or no evidence that ethnic capital is an important driver of immigrant outcomes.

native-born counterparts. On the other hand, higher levels of investment in children's education on the part of immigrant parents would be expected to increase educational mobility.

A number of researchers have compared the degree of intergenerational mobility in education in immigrant versus native-born populations. Intergenerational mobility is usually estimated to be higher (i.e. the intergenerational correlation in education is lower) for immigrants than for the native-born (Dustmann 2005; Aydemir et al 2008; Niknami 2009; Corak 2008; Gang and Zimmermann 2000; Neilsen et al 2003; Bauer and Riphahn 2007), though there is also evidence of no significant difference (van Ours and Veenman 2003). Thus, the relatively poor overall educational performance observed for immigrant youth in some countries can be accounted for by low parental human capital rather than low intergenerational mobility. Over time, a higher degree of intergenerational mobility is expected to lead to convergence in the educational profiles of immigrant and native-born communities.

Despite this positive outlook, there are also reasons to be concerned. While in countries some countries the children of immigrants have better (or at least no worse) educational outcomes on average than their native-born peers, in others, children with an immigration background lag behind. Some of this disparity is certainly due to socio-economic disadvantage and a relative lack of parental human capital, however, there is also a possibility that schools do not function equally well for those children with an immigration background as for those without. In Germany, for example, the children of immigrants and foreigners receive less education, are on less favorable education tracks, and have increasing difficulty in accessing vocational training (Gang and Zimmerman 2000; Frick and Wagner 2000).⁴ Similarly, the U.S.

⁴ More generally, second generation youth have an educational advantage in Canada (Aydemir et al. 2008) and Australia (see Table 1), while educational attainment is lower among second generation youths in the Netherlands (van Ours and Veenman 2003) and Denmark (Nielsen et al. 2003). For a review of the international literature see Nolan (2009).

educational system is struggling to cope with a sharp increase in the proportion of students who are “English Language Learners” in the face of national education reforms that make schools accountable for students learning to speak English (Fix and Chapps 2005). These tensions raise concerns about the capacity of intergenerational educational mobility to mitigate economic and social disparities in future generations.

Moreover, researchers have begun to assess the link between educational outcomes for immigrant youth and the institutional design of national education systems themselves. Earlier school starting ages and later tracking on ability appear to be associated with lower intergenerational mobility in education (Bauer and Riphahn 2007; 2009). Moreover, Nolan (2009) argues that second generation youth achieve better educational outcomes in countries in which (i) there is a large tertiary sector with easy access to higher education; (ii) face-to-face contact hours are higher; (iii) the emphasis on homework is lower; and (iv) more resources are provided to youths with learning problems, in particular language difficulties.

3. Data: The Youth in Focus Data

We use data from the Youth in Focus project (YIF) to estimate the intergenerational correlation in educational attainment for immigrant and native-born youth.⁵ The YIF data are unique in providing detailed information about welfare histories, family background and parental behavior for a matched sample of mothers and their 18-year-old children.

Specifically, the YIF Project uses Australian administrative social security records to identify all young people born between October 1987 and March 1988 who ever had contact with the social security system between 1993 and 2005 (Breunig et al. 2007). The Australian social security system is nearly universal for families with children with some payments such as

⁵ For more information about the project see <http://youthinfocus.anu.edu.au>.

the Child Care Benefit having no income test at all and others, such as the Family Tax Benefit, being denied only to families in the top quintile of the income distribution.⁶ At the other extreme are welfare payments that are targeted towards low-income parents (mainly single parents) or unemployed individuals which are also subject to income, asset and/or activity tests. Young people are also in the administrative data if they receive benefits themselves. Most, however, are in the data because a family member (usually a parent) received a payment at some point between 1993 and 2005 which depended in part on his or her relationship to the youth. Comparing the number of young adults in these administrative data to census data suggests that over 98 percent of young people born between October 1987 and March 1988 are represented in the administrative data (Breunig et al. 2007). Thus, these social security records provide high-quality, fortnightly data on the payment details for the universe of Australians receiving a wide range of social benefits.

We summarize a family's welfare history by using the administrative data to categorize youths and their parents into one of six groups depending on the timing and intensity of the family's welfare receipt. The Australian government does not consider either the Family Tax Benefit or the Child Care Benefit to be welfare payments—a perspective which we also adopt. To place these payments in context, similar benefits in the United States are provided to families through the U.S. tax system in the form of standard deductions for dependent children and child care rebates. Fully 40.9 percent of families with children never receive welfare benefits and appear in the administrative data only through their family tax and child care benefit records.

At the other extreme are the 27.5 percent of families that received a welfare payment for a total of six years or more (who we classify as having had an intensive exposure to welfare) and

⁶ The Family Tax Benefit is essentially an income tax credit to families with children. Families with two children receive a Family Tax Benefit for incomes up to \$105,000 AUD (Centrelink 2007).

the 31.6 percent of families that had more limited exposure to the welfare system at some point in the previous 12 years (see Appendix Table 1). The most common welfare benefits in this population are benefits for the unemployed or low-income parents. Specifically, unemployment benefits (Newstart Allowance), payments to low-income parents with children (Parenting Payment Single or Parenting Payment Partnered), and disability payments (Disability Support Pension) are targeted towards the poor and are considered to be welfare. Unlike the U.S. case, in Australia unemployment benefits represent welfare rather than an insurance scheme. Newstart Allowance is income-, asset-, and activity-tested and is not time-limited or related to an individual's previous earnings history (Centrelink 2007).

A stratified random sample of young people and a corresponding parent or guardian—in 96.5 percent of cases the biological mother—was selected from the administrative data for interview. Data from separate phone interviews with youths and their parents as well as a self-completion questionnaire administered to youth were then matched to the administrative social security data.⁷

We have necessarily made a number of sample restrictions. From the initial sample of 4079 young people, we drop a total of 574 youth for whom we had incomplete information on the key variables of interest. This results in a primary estimation sample of 3505 young people.⁸ Models incorporating mothers' views about the importance of education are estimated on a matched sample of youth-mother pairs. Of the initial 2430 family pairs, we drop 75 pairs in

⁷ The survey response rate was 36.4 percent for parents, and 36.1 percent for youth—73.1 percent of whom also completed the self-completion questionnaire. More than 96 percent of youth and 92 percent of parents consented to having this survey data linked to their administrative records. Following best practice (Groves et al. 2004), approach letters, incentive payments, repeated call backs, and Computer Assisted Telephone Interviewing (CATI) were all used to maximize response rates. The final response rate differed somewhat across strata, however, but these differences stem primarily from differences in contact rates rather than refusal rates (Breunig et al. 2007).

⁸ Whenever possible we used information from mothers' survey records to fill in any missing information about parental education in youths' survey responses.

which the parent was not the biological mother and 3 pairs with missing data leaving us with an estimation sample of 2332 youth-mother pairs.

In order to focus attention on a young person's immigration background we classify families into three types using the following definitions: 1) "Australian-born" indicates families in which at least one parent is native-born; 2) "English-speaking background (ESB) immigrant" indicates families in which neither parent is native-born and at least one parent is an immigrant from an English-speaking country; and 3) "Non-English-speaking background immigrant" indicates families in which both parents are immigrants from non-English-speaking countries. Thus, "immigrant" families consist of families in which neither parent is native-born, while "native-born" families are families in which at least one (and almost always two) parents are Australian-born. We consider young people to have an immigration background whenever they live in "immigrant" families whether or not they themselves are Australian-born.

4. Educational Outcomes and Immigration Backgrounds in Australia

Australia's education policy is the responsibility of its six States and two Territories. Australian children typically enter Kindergarten at age five, complete a further six years of primary school, and leave secondary school after finishing 12th grade. Approximately two-thirds of school-aged children attend government (public) schools, while one third attend a variety of non-government (private) schools (ABS 2006b).⁹ Schooling is compulsory until the age of 15 or 16; however, the proportion of Australian students continuing their formal schooling after age 16 is much lower than in many other OECD countries with as many as 30 percent of young people not completing 12th grade (ABS 2006a; OECD 2009). Students who complete secondary school meeting certain

⁹ Non-government schools typically receive the majority of their funding (57 percent in 2004) from government sources, and the remainder from private income (primarily school fees). Government schools receive almost all of their funding (91 percent in 2004) from government sources (ABS 2006a).

minimum coursework requirements (e.g. with respect to minimum credit hours, English requirements, etc.) are eligible to obtain a percentile ranking for university entrance based on their academic performance in grades 11 and 12. Each state and territory calculates this ranking differently and a national conversion table is used to make comparisons across students educated in different jurisdictions. University placements are then made on the basis of students' entrance rankings.

Against this institutional context, it is useful to consider how educational attainment of the 18-year olds in our sample varies with their immigration background. Information about the nativity gap in the educational attainment of young Australians is presented in Table 1. Specifically, we consider three measures of educational attainment: (i) secondary school completion; (ii) obtaining an entrance rank; and (iii) the actual entrance rank (measured from 30.0 – 99.9).¹⁰ Our results indicate that youth with an immigration background have higher educational attainment than those without. Specifically, 18-year olds with an immigration background are more likely to have completed secondary school (80 versus 68 percent), more likely to obtain a university entrance ranking upon completion (77 percent versus 74 percent), and achieve higher percentile rankings when they do (75.5 versus 72.3). Interestingly, this educational advantage is particularly large among young people who have two immigrant parents with non-English-speaking backgrounds (NESB). Fully 83 percent of NESB youth had completed secondary school at the time of the wave 1 interview, with 80 percent obtaining a university entrance ranking at an average rank of 76.5. In comparison, young people with two immigrant parents at least one of whom is from an English-speaking-background (ESB) have a secondary school completion rate of 72 percent, with 69 percent earning a university entrance ranking at an average rank of 72.4.

¹⁰ Individuals who obtain a ranking in the bottom 30 percent of the distribution are assigned a value of 30.

Table 1 HERE

Some of the educational advantage of immigrant youth may be accounted for by the higher educational attainment of their parents (see Table 1). Young people with an immigration background are more likely to report that both their fathers and mothers have completed secondary school (58 and 65 percent respectively) than are young people without (44 and 52 percent). Secondary school completion rates are particularly high among NESB fathers (66 percent) and mothers in ESB families¹¹ (63 percent) and are lowest for Australian-born mothers and fathers.

Interestingly, immigrant mothers from a non-English-speaking background are also more likely to see education as an important pathway for succeeding in life.¹² In particular, fully 82 percent of NESB mothers say that in order to get ahead in life it is extremely important for a person to have a good education. In contrast, 59 percent of mothers in ESB families and 59 percent of Australian-born mothers say the same. Moreover, NESB mothers are more likely to see an important link between parental education and young people's life chances. Nearly three in four (73 percent) NESB mothers—in comparison to 53 percent of Australian-born and 54 percent of mothers in ESB families—say that having well-educated parents is extremely or very important in getting ahead in life.¹³

Despite their parents' relative educational advantage and the importance their mothers place on education, NESB youth are more likely than other young people to have had intensive exposure to the welfare system while growing up. NESB youth are nearly as likely to be in families with a history of intensive welfare receipt (30 percent) as they are to be in families with

¹¹ Note that given our definitions above, mothers in ESB families are immigrants from either English-speaking or non-English speaking countries.

¹² Unfortunately, fathers were not directly surveyed implying that we do not have information about fathers' attitudes about the importance of education for life success.

¹³ Descriptive statistics for the other characteristics of interest are reported in Appendix Table 1.

no exposure to the welfare system at all (34 percent). In contrast, approximately half of youth in native-born families (46 percent) and in ESB immigrant families (51 percent) had no exposure to the welfare system while growing up. Less than one in four experienced intensive welfare receipt.

To what extent is the higher educational attainment of immigrant youth attributable to their characteristics, in particular the higher levels of human capital among their parents? To address this question, we estimate baseline probit models of (i) the propensity to complete secondary school and (ii) conditional on completing secondary school, to have met the minimum requirements to be assigned a university entrance ranking. We use a tobit model to estimate the determinants of (iii) the actual entrance rank for the sample of young people who received one. These models allow us to control for a range of individual and family background characteristics.¹⁴ Table 2 presents the marginal effect (and p values) associated with various measures of young people's immigration background.

Table 2 HERE

We find that young Australians with an immigration background (i.e. youth with two immigrant parents) are 9 percentage points more likely to have completed secondary school at the wave 1 interview. They are also somewhat more likely to have earned a university entrance ranking at secondary school completion, though this difference is not significant at standard levels and have average ranks that are 2.8 percentiles higher than otherwise similar young people with at least one Australian-born parent. This educational advantage is striking in that: first, it is net of individual and family background characteristics—most importantly parental education and welfare history—and, second, it is concentrated among those young people in NESB

¹⁴ We use a Tobit model to account for the fact that university entrance ranks are left censored at 30. See Table 2 for the controls included in the model.

families. Specifically, NESB youth have secondary school completion rates that are 13 percentage points higher, are 4 percentage points more likely to receive a university entrance ranking, and have average ranks that are 4.7 percentiles higher. These differences are all statistically significant at more than a 10 percent level. Youth in ESB families, on the other hand, are as likely as youth in native-born families to complete secondary school and earn a university entrance rank, and have entrance ranks that are significantly lower (3.6 percentiles).

These patterns raise a number of interesting questions about the intergenerational transmission of education within immigrant families generally and within NESB families in particular. In particular, is the educational advantage of young people in NESB families attributable to higher intergenerational education mobility? Alternatively, is it because the handicap associated with low socio-economic status (i.e. welfare receipt) is lower? What role do mothers' views about the importance of education play in driving these results?

5. The Intergenerational Transmission of Education

5.1 *The Intergenerational Correlation in Education*

We calculate the intergenerational correlation in education for youth in different family circumstances by estimating the following reduced-form model of a young person's propensity

to acquire an educational qualification ($Y_{y,t}^*$):

$$Y_{y,t}^* = \alpha + Y_{p,t}\beta + X_{y,t}\delta + \varepsilon_t \quad (1)$$

where $Y_{p,t}$ is parental education and $X_{y,t}$ controls for the youth's socio-economic background (i.e., family welfare history), gender, and residential location (i.e., metropolitan areas, state). In addition, ε_t is an error term that captures the effects of unobserved factors on young people's propensity to get an education, while the remaining variables are parameters to be estimated.

In equation (1), α captures the way in which the educational attainment of each generation evolves over time, while β represents the strength of the relationship between a young person's education and that of his or her parents. In effect, β captures the extent of educational advantage that is on average transmitted across the generations.¹⁵ The extent of intergenerational mobility is inversely related to the persistence in education across generations. Specifically, when $\beta = 0$, there is no relationship between a young person's educational attainment and that of his or her parents. This implies that there is complete intergenerational mobility in education and young people are expected to obtain the average educational level for their generation irrespective of their parents' educational qualifications. At the other extreme, when $\beta = 1$ all of the dispersion in educational attainment within the parents' generation is passed on to the youths' generation. Higher parental education is perfectly associated with higher youth education and there is complete intergenerational immobility in educational attainment.

As before, we use probit regression to estimate the determinants of the propensity to complete secondary school and, conditional on having completed secondary school, to have received a university entrance ranking. Tobit estimation is used to estimate the determinants of the actual entrance rank (30.0 – 99.9) for the sample of young people who received one. All models are estimated separately by youths' immigration background. The estimated marginal effect of having highly-educated parents (i.e. parents who completed secondary school) are reported by immigration background in Table 3.

The results indicate that there is a stronger link between parental and youth education within Australian-born families than within immigrant families. In particular, young people

¹⁵ See Corak (2006) and d'Addio (2007) who provide a useful discussion for the income case.

without an immigration background have a significantly higher propensity of having completed secondary school at wave 1 and—conditional on having completed—of obtaining a university entrance ranking if their parents also completed secondary school than if their parents did not.¹⁶ Having a highly-educated mother (father) is associated with an 11 (9) percentage point increase in the probability of completing secondary school, and a 7 (8) percentage point increase in the conditional probability of earning a university entrance rank. These effects are substantial given that first, they represent the independent effects of each parent’s education¹⁷ and second, secondary school completion rates are 68 percent on average while only 74 percent of those who complete earn university entrance rankings (see Table 1). In contrast, there is no significant relationship between parental and youth educational attainment for young people with an immigration background. In other words, both ESB and NESB immigrant youth are equally likely to complete secondary school and receive a university entrance score whether or not their parents are highly-educated or not. These patterns imply that there is greater intergenerational mobility in educational attainment among immigrant families.

Table 3 HERE

It is also striking that there is a link between parents’ educational attainment and the academic achievement of their children. Young people in native-born families achieve higher university entrance rankings when their mothers (6.0 percentiles) and fathers (5.0 percentiles) have completed secondary school than when they have not. Although parental education is not significantly related to youths’ educational attainment in immigrant families, there is a link between parental education and academic achievement in these families as well. Specifically,

¹⁶ It is important to note that this is not the result of immigrant youth being significantly older on average than their native-born peers. If anything, the young people in our sample who have an immigration background are slightly younger than their Australian-born peers.

¹⁷ The marginal effect of having two highly-educated parents is approximately the sum of these two separate effects.

ESB youth who have a highly-educated father score fully 13.0 percentiles higher than their peers who do not, while NESB youth score 6.9 percentiles higher if their mothers have completed secondary school. Somewhat surprisingly, the educational attainment of mothers in ESB families and fathers in NESB families is not significantly related to the academic achievement of their children.

Finally, we consider the way that families' welfare histories are related to the educational attainment and academic achievement of their children. Not surprisingly, our results indicated that on balance having a family history of welfare receipt is associated with poorer educational outcomes. For example, youth in native-born families i) are 21 percentage points less likely to have completed their secondary schooling, ii) are 16 percentage points less likely to earn a university entrance rank (conditional on having completed), and iii) have entrance rankings that are 4.5 percentiles lower if their family has a history of intensive welfare receipt than if it does not. In contrast, intensive welfare receipt is not significantly related to the probability that NESB youth have completed secondary school or to the average university entrance ranking among those who receive them, but is associated with a significantly lower probability (19 percentage points) of NESB youth receiving a university entrance ranking after completion of secondary school. Thus, although NESB families are more likely to have had intensive welfare receipt (see Table 1) this experience does not seem to limit their children's ability to complete secondary school. For ESB youth, intensive welfare receipt is associated with a lower probability of secondary school completion (17 percentage points) and with lower university entrance rankings (10.7 percentiles).

Taken together, these results indicate that the relationship between immigration background and the degree of intergenerational mobility in educational attainment may differ to

that between immigration background and academic achievement. Moreover, unlike the case for their native-born counterparts, in terms of immigrant youths' academic achievement it appears to matter which parent, i.e. the mother or the father, is highly-educated. Finally, the effect of growing up in disadvantage on educational outcomes appears to be linked to an individual's immigration background.

5.2 Mothers' Views about the Importance of Education

Immigrants are often portrayed as having higher aspirations for and making greater investments in the education of their children (Dustmann 2005; Kao and Tienda 1995; Corak 2008). This raises questions about the role of these aspirations and investments in facilitating the human capital investments of young people. Unfortunately, we have no direct information about the education investments that parents are making. However, one of the strengths of the YIF data is that – for a subsample of respondents (see Section 3) – we are able to link young people's educational attainment and academic achievement to their mothers' views about the importance of education for getting ahead in life.

We begin by re-estimating our models of educational attainment and academic achievement to account for the importance that mothers' place on education in determining success in life. We consider two alternative specifications. In the first, we control for mothers' views about the importance of one's own education and in the second, we control for mothers' perspective on the importance of having highly-educated parents. Results (marginal effects and p-values) are reported in Table 4.

Table 4 HERE

We find that the probability of having completed secondary school at the time of the wave 1 interview is significantly higher if a young person's mother reports that having a good education is extremely important in getting ahead in life. In particular, native-born youth are 9 percentage points more likely to have completed secondary school if their mothers view education as extremely important than if they do not. Mothers' views about the importance of education are much more strongly linked to secondary school completion rates in ESB immigrant (24 percentage points) and NESB immigrant (18 percentage points) families. These differences are striking and – in conjunction with patterns in intergenerational mobility (see Table 3) – suggest that the secondary school completion rates of immigrant youth are more closely tied to their mothers' views about the importance of education than to whether or not their parents have themselves completed secondary school. Within Australian-born families, parental education is somewhat more important than mothers' views about the importance of education in life success.

Young people's secondary school completion rates are not related to whether or not their mothers' believe that having well-educated parents is extremely important in getting ahead in life. Moreover, neither the likelihood of earning a university entrance ranking nor the entrance ranking itself are related to mothers' views about the importance of education. In particular, young people who complete secondary school and have mothers who believe education is extremely important are no more likely to earn a university ranking (or to achieve a high ranking) than are those whose mothers do not. Thus, any effect of mothers' beliefs about the importance of education appears to be centered on increasing secondary school completion rates rather than in driving the nature of young people's course of study (i.e. taking a course load

which attracts a university ranking) or in enhancing academic achievement (i.e. raising rankings themselves).

6. Conclusions

This paper analyzes the degree of intergenerational education mobility among immigrant and native-born youth in Australia. To this end, we take advantage of unique data from the Youth in Focus (YIF) Project which interviews 18-year olds and their mothers to estimate the determinants of three alternative educational outcomes: i) completion of secondary school; ii) completion of an academic track which attracts a university entrance ranking; and iii) university entrance rankings themselves.

We find that after controlling for individual and family background characteristics—most importantly parental education and welfare history—young people in NESB families have an educational advantage over their ESB and native-born peers. Moreover, there is a much stronger relationship between parental education and young people’s propensity to complete secondary school and obtain a university entrance ranking within Australian-born families than within immigrant families implying that there is greater intergenerational mobility in educational attainment among immigrant families. In contrast, academic achievement, i.e. entrance rankings themselves, are positively related to parental education in all families, though in ways that differ by immigration background.

Not surprisingly, we find that on balance having a family history of welfare receipt is associated with poorer educational outcomes. However, there is evidence that intensive welfare receipt does not limit NESB youth’s likelihood of completing secondary school in the way that it does for ESB and native-born youth.

Finally, the secondary school completion rates of immigrant youth are more closely tied to their mothers' views about the importance of education than to whether or not their parents have themselves completed secondary school. Within Australian-born families, parental education is somewhat more important than mothers' views about the importance of education in life success.

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Table 1: Descriptive Statistics

Variables	Total	Native	Immigrants		
			Total	English speaking immigrants	Non-English speaking immigrants
Year 12 completion	0.71	0.68	0.80	0.72	0.83
Has ENTER score ^(a)	0.75	0.74	0.77	0.69	0.80
ENTER score ^(b)	73.02	72.33	75.52	72.43	76.49
Mother completed Year 12	0.47	0.44	0.58	0.63	0.56
Father completed Year 12	0.55	0.52	0.65	0.62	0.66
No history of welfare receipt	0.44	0.46	0.39	0.51	0.34
Intensive income support	0.24	0.23	0.27	0.18	0.30
Late moderate income support	0.08	0.08	0.11	0.10	0.11
Early moderate income support	0.24	0.24	0.24	0.21	0.25
= 1 if it is extremely important for a person to have good education, = 0 if otherwise ^(c)	0.62	0.60	0.72	0.59	0.82
= 1 if to get ahead in life, to have well-educated parents is extremely important or important, = 0 if otherwise ^(c)	0.55	0.53	0.65	0.54	0.73

Notes: Statistics are adjusted for sampling weights.

^(a): figures for this variable are calculated for a sample of youths completed year 12 (2404 observations).

^(b): figures for this variable are calculated for a sample of youths achieved ENTER score (1603 observations).

^(c): figures for these variables are calculated for a sample of youths with non-missing information on parents' attitude toward education (2323 observations).

Table 2: The Effect of Immigration Background on Youths' Educational Outcomes

	Combine parents' COB (2 group)			Combine parents' COB (3 group)			Separate parents' COB		
	Year12 completion	Has ENTER score	ENTER score	Year12 completion	Has ENTER score	ENTER score	Year12 completion	Has ENTER score	ENTER score
Both parents are immigrants	0.09*** [0.02]	0.03 [0.02]	2.84*** [1.01]						
English speaking immigrant parents				-0.03 [0.04]	-0.01 [0.04]	-3.58* [1.88]			
Non-English speaking immigrant parents				0.13*** [0.02]	0.04* [0.02]	4.74*** [1.10]			
English speaking immigrant mother							-0.01 [0.03]	-0.01 [0.03]	-1.13 [1.52]
Non-English speaking immigrant mother							0.07** [0.03]	0.06** [0.03]	3.02** [1.38]
English speaking immigrant father							-0.04 [0.03]	-0.03 [0.03]	0.37 [1.49]
Non-English speaking immigrant father							0.07** [0.03]	-0.03 [0.03]	2.08 [1.38]
Mother completed Year 12	0.09*** [0.02]	0.06*** [0.02]	5.80*** [0.86]	0.09*** [0.02]	0.06*** [0.02]	5.84*** [0.85]	0.09*** [0.02]	0.06*** [0.02]	5.71*** [0.85]
Father completed Year 12	0.08*** [0.02]	0.08*** [0.02]	4.99*** [0.88]	0.08*** [0.02]	0.08*** [0.02]	4.89*** [0.88]	0.08*** [0.02]	0.08*** [0.02]	4.99*** [0.88]
Intensive income support	-0.16*** [0.02]	-0.16*** [0.03]	-3.77*** [1.12]	-0.16*** [0.02]	-0.16*** [0.03]	-4.15*** [1.11]	-0.17*** [0.02]	-0.16*** [0.03]	-4.16*** [1.12]
Late moderate income support	-0.08*** [0.03]	-0.08** [0.03]	-1.57 [1.26]	-0.09*** [0.03]	-0.08** [0.03]	-1.73 [1.26]	-0.09*** [0.03]	-0.08** [0.03]	-1.82 [1.26]
Early moderate income support	-0.09*** [0.02]	-0.09*** [0.03]	-1.67 [1.03]	-0.09*** [0.02]	-0.09*** [0.03]	-1.90* [1.03]	-0.09*** [0.02]	-0.09*** [0.03]	-1.84* [1.03]
Observations	3505	2404	1603	3505	2404	1603	3505	2404	1603

Notes: p-values in brackets; *** p<0.01, ** p<0.05, * p<0.1

Full estimations also include gender, ethnicity, metropolitan areas and state of residence of the youth.

Probit model is used to estimate the model of Year 12 completion or whether has ENTER score,

Tobit model is used to estimate the model of ENTER score using a sample of youths have ENTER scores.

Marginal effects are calculated at mean; for dummy variables: the marginal effect is for discrete change from 0 to 1.

Table 3: The Intergenerational Correlation in Education by Immigration Background

	Year12 completion			Has ENTER score			ENTER score		
	Native	English speaking immigrant	Non-English speaking immigrant	Native	English speaking immigrant	Non-English speaking immigrant	Native	English speaking immigrant	Non-English speaking immigrant
Mother completed Year 12	0.11*** [0.02]	0.05 [0.08]	0.02 [0.04]	0.07*** [0.02]	0.06 [0.10]	0.01 [0.05]	6.03*** [0.94]	0.91 [3.50]	6.90*** [2.50]
Father completed Year 12	0.09*** [0.02]	0.04 [0.08]	0.05 [0.04]	0.08*** [0.02]	0.10 [0.10]	0.10** [0.05]	5.01*** [0.96]	12.98*** [3.67]	2.73 [2.61]
Intensive income support	-0.21*** [0.03]	-0.17* [0.10]	0.04 [0.05]	-0.16*** [0.03]	-0.08 [0.14]	-0.19*** [0.06]	-4.49*** [1.26]	-10.68** [4.56]	-2.46 [2.82]
Late moderate income support	-0.05 [0.03]	-0.14 [0.12]	-0.15** [0.07]	-0.06 [0.04]	-0.09 [0.15]	-0.19** [0.09]	-1.26 [1.40]	-1.77 [4.75]	-3.77 [3.36]
Early moderate income support	-0.12*** [0.03]	0.04 [0.10]	0.02 [0.05]	-0.10*** [0.03]	-0.17 [0.13]	-0.01 [0.07]	-1.85 [1.13]	-0.07 [3.93]	-2.79 [2.84]
Observations	2794	180	526	1843	124	435	1225	80	298

Notes: p-values in brackets; *** p<0.01, ** p<0.05, * p<0.1

Full estimations also include gender, ethnicity, metropolitan areas and state of residence of the youth.

Probit model is used to estimate the model of Year 12 completion or whether has ENTER score,

Tobit model is used to estimate the model of ENTER score using a sample of youths have ENTER scores.

Marginal effects are calculated at mean; for dummy variables: the marginal effect is for discrete change from 0 to 1.

Table 4: The Effect of Education Expectations by Immigration Background

	Native		English speaking immigrant		Non-English speaking immigrant	
	(1)	(2)	(1)	(2)	(1)	(2)
<i>Year12 completion</i>						
Mother completed Year 12	0.12*** [0.00]	0.12*** [0.00]	-0.01 [0.90]	-0.01 [0.96]	-0.04 [0.54]	-0.02 [0.78]
Father completed Year 12	0.10*** [0.00]	0.10*** [0.00]	0.10 [0.30]	0.10 [0.30]	0.09 [0.19]	0.09 [0.19]
Intensive income support	-0.20*** [0.00]	-0.19*** [0.00]	-0.20 [0.11]	-0.20 [0.10]	-0.01 [0.86]	-0.01 [0.88]
Late moderate income support	-0.02 [0.54]	-0.02 [0.56]	-0.24* [0.08]	-0.22 [0.11]	-0.05 [0.65]	-0.03 [0.77]
Early moderate income support	-0.10*** [0.00]	-0.10*** [0.00]	-0.04 [0.72]	-0.02 [0.87]	0.02 [0.84]	0.02 [0.79]
It is extremely important for a person to have good education	0.08*** [0.00]		0.24*** [0.01]		0.18** [0.02]	
To get ahead in life, to have well-educated parents is extremely important		-0.01 [0.59]		0.03 [0.73]		-0.06 [0.36]
<i>Has ENTER score</i>						
Mother completed Year 12	0.07*** [0.01]	0.07*** [0.01]	0.03 [0.81]	0.02 [0.87]	-0.08 [0.17]	-0.07 [0.22]
Father completed Year 12	0.09*** [0.00]	0.09*** [0.00]	0.11 [0.42]	0.08 [0.54]	0.02 [0.72]	0.02 [0.73]
Intensive income support	-0.15*** [0.00]	-0.15*** [0.00]	-0.00 [0.98]	-0.03 [0.86]	-0.28*** [0.01]	-0.27*** [0.01]
Late moderate income support	-0.05 [0.27]	-0.05 [0.28]	0.08 [0.65]	0.06 [0.72]	-0.24 [0.11]	-0.21 [0.14]
Early moderate income support	-0.11*** [0.00]	-0.11*** [0.00]	-0.13 [0.34]	-0.13 [0.35]	-0.04 [0.69]	-0.03 [0.79]
It is extremely important for a person to have good education	0.04 [0.17]		0.13 [0.26]		0.05 [0.52]	
To get ahead in life, to have well-educated parents is extremely important		0.02 [0.39]		-0.17 [0.13]		-0.03 [0.68]
<i>ENTER score</i>						
Mother completed Year 12	6.23*** [0.00]	6.33*** [0.00]	1.69 [0.67]	2.51 [0.52]	6.32* [0.08]	6.92* [0.06]
Father completed Year 12	5.05*** [0.00]	5.06*** [0.00]	12.65*** [0.00]	13.49*** [0.00]	3.75 [0.36]	3.43 [0.40]
Intensive income support	-4.15*** [0.00]	-4.13*** [0.00]	-10.61** [0.03]	-9.76** [0.04]	-2.50 [0.57]	-2.26 [0.60]
Late moderate income support	-2.23 [0.17]	-2.24 [0.17]	-6.81 [0.23]	-4.96 [0.37]	2.31 [0.66]	2.29 [0.66]
Early moderate income support	-3.38*** [0.01]	-3.35*** [0.01]	-0.65 [0.88]	-0.09 [0.98]	1.86 [0.67]	2.05 [0.64]
It is extremely important for a person to have good education	0.92 [0.39]		-6.28 [0.12]		-3.30 [0.44]	
To get ahead in life, to have well-educated parents is extremely important		-0.32 [0.76]		-4.52 [0.19]		-2.36 [0.52]

Notes: p-values in brackets; *** p<0.01, ** p<0.05, * p<0.1; Sample of matched parent-youth pairs.

Full estimations also include gender, ethnicity, metropolitan areas and state of residence of the youth.

Marginal effects are calculated at mean; for dummy variables: the marginal effect is for discrete change from 0 to 1.

Appendix Table 1: Summary Statistics for Remaining Variables

Variables	Total	Native	Immigrants		
			Total	English speaking immigrants	Non-English speaking immigrants
Male	0.52	0.52	0.51	0.57	0.49
Metropolitan	0.63	0.56	0.89	0.80	0.93
Aboriginal	0.03	0.03	0.01	0.01	0.01
NSW	0.31	0.29	0.35	0.20	0.41
VIC	0.27	0.27	0.27	0.16	0.31
QLD	0.20	0.21	0.14	0.24	0.11
SA	0.08	0.08	0.06	0.11	0.04
WA or NT	0.10	0.09	0.14	0.26	0.10
TAS	0.03	0.04	0.01	0.02	0.01
ACT	0.02	0.02	0.02	0.01	0.02
Number of observations	3505	2794	711	182	529

Notes: Statistics are adjusted for sampling weights.