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ABSTRACT

Immigration Background and the Intergenerational Correlation in Education^{*}

This paper analyzes the degree of intergenerational education mobility among immigrant and native-born youth in Australia. We find that young Australians from non-English-speaking background (NESB) immigrant families have an educational advantage over their English-speaking background (ESB) immigrant and Australian-born peers. Moreover, while highly-educated Australian-born mothers and fathers transfer separate and roughly equal educational advantages to their children, outcomes for ESB (NESB) youth are most closely linked to the educational attainment of their fathers (mothers). On balance, intergenerational mobility in families with two highly-educated parents appears to be much the same for Australian-born and ESB families and is somewhat greater for NESB families. Finally, the greater importance that NESB mothers attribute to education appears to mitigate the educational penalty associated with socio-economic disadvantage.

JEL Classification: I20, J11, J13

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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 make progress in quantifying this process. 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 capital investments and degree of intergenerational mobility. Although the process of intergenerational economic mobility has been intensively

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

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 Capps 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 way that nativity affects educational mobility across generations influenced by socio-economic disadvantage? 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, 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

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

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 directly link education across generations. Third, we consider a broad range of educational outcomes including educational attainment (i.e., completion of secondary school), relative academic achievement (i.e., university entrance rank), and enrollment in university study. This breadth of outcome measures allows us to paint a fuller picture of the link between parents' educational attainment and that of their young-adult children. 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 explicitly assessing the role of mothers' education separate to that of fathers and by analyzing 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 Australians in immigrant families from non-English-speaking backgrounds (NESB) have an educational advantage over their Australian-born and English-speaking-background (ESB) immigrant peers. Specifically, NESB youth have higher secondary school completion rates, are more likely to receive a university entrance ranking, have higher average ranks, and are more likely to attend university. Moreover, while highly-educated Australian-born mothers and fathers transfer separate and roughly equal educational advantages to their children, outcomes for ESB (NESB) youth are most closely linked to the educational attainment of their fathers (mothers). On balance, the positive intergenerational correlation in education associated with having two highly-educated parents appears to be much the same for Australian-born and ESB families and is somewhat smaller for NESB families. Finally, the greater importance that NESB mothers attribute to education seems to mitigate the educational penalty associated with having a family history of welfare receipt.

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; Glick and White 2003; Corak 2008), particularly if they are permanent rather than temporary migrants (Dustmann 2005). These relationships make it 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

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.

particular challenges relative to their 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 (Gang and Zimmermann 2000; Neilsen et al 2003; Dustmann 2005; Bauer and Riphahn 2007; Aydemir et al 2008; Corak 2008; Niknami 2009), 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 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. educational system

⁴ More generally, second generation youth have an educational advantage in Canada (Aydemir et al. 2008) and Australia (see Table 1; Le 2009), while educational attainment is lower among second generation youths in the

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 Capps 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 increased 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.

Against this backdrop, Australia makes a particularly interesting case for studying the intergenerational mobility of immigrants. Unlike many other immigrant-receiving countries, Australia runs a highly skilled and very selective immigration policy. Consequently, the immigrant population is on average more educated than the native-born population and in particular, immigrant youth in Australia have an educational advantage over their second-generation peers (Le 2009). It is important to understand whether previous conclusions regarding the extent of intergenerational mobility in education among relatively under-educated immigrant populations hold at the other end of the skills distribution.

Netherlands (van Ours and Veenman 2003) and Denmark (Nielsen et al. 2003). For a review of the international literature see Nolan (2009).

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 young people and their mothers.

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 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).

We use our administrative data to summarize a young person's exposure to the welfare system. The Australian government does not consider either the Family Tax Benefit or the Child

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

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 AUD 105,000 (Centrelink 2007).

Care Benefit to be welfare payments and we follow this convention. 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 the 31.6 percent of families that had more limited exposure to the welfare system at some point in the previous 12 years. The most common welfare benefits in this population are benefits for the unemployed or low-income parents. Unlike the U.S. case, in Australia unemployment benefits are income-, asset-, and activity-tested and are not time-limited or related to an individual's previous earnings history (Centrelink 2007). Consequently, they represent welfare rather than an insurance scheme.

We classify youths and their parents into one of six groups depending on the timing and intensity of the family's welfare receipt as follows: 1) those in families with no history of welfare (non-recipients); 2) those in families that received welfare for more than six years while the youth was growing up (intensive support); 3) those in families receiving less than six years of support after 1998 (late moderate support); and 4) those in families receiving less than six years of support some of which occurred before 1998 (early moderate support). This categorization allows us to make comparisons between those receiving intensive, moderate, and no welfare as well as to consider the relative importance of exposure to moderate welfare early in life (before the youth was 10 years old) and exposure to moderate welfare later in life (after age 10).

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. Separate wave 1 phone interviews were administered to youths (then age 18) and their parents in 2006, while young people also were administered a self-completion questionnaire in wave 1. Young people (then age 20) were re-interviewed in wave 2 two years later. All survey data is then matched to the family's administrative social security data.⁷

The data for this project come from wave 2 of the survey. We have necessarily made a number of sample restrictions. From the initial sample of 3623 young people, we drop a total of 571 youth for whom we had incomplete information on the key variables of interest. This results in a primary estimation sample of 3052 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 1879 family pairs, we drop 50 pairs in which the parent was not the biological mother and 77 pairs with missing data leaving us with an estimation sample of 1752 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 (and usually two) 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 (NESB) immigrant" indicates families in which both parents are immigrants from non-English-speaking countries.⁹ Thus, "immigrant" families consist of families in which neither

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.

⁹ English-speaking countries include: United Kingdom, Ireland, Canada, New Zealand, South Africa and United States. All other countries of origin are classified as non-English-speaking. This categorization is based on the English Proficiency Country Groups generated by the Australian government which classifies source countries on the basis of the English proficiency of recent arrivals to Australia (DIMIA 2003).

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.¹⁰

4. Educational Outcomes for Young Australians with Immigration Backgrounds

Immigration has historically been a cornerstone of economic, social, and cultural development in Australia. In contrast to many other countries, most notably the United States, Australia has for many years placed great weight on accepting economic migrants with skills that are relevant to the Australian labor market. Numerical testing has been used to judge the admissibility of skilled immigrants since the late 1970s (Birrell 1990). In recent years, there has been an increase in the number of visas allocated to permanent migrants selected under the points system leading the number of skills-based immigrants to Australia to triple between 1995 and 2005 (DIC 2006). As a result, the majority (56.4 percent) of all immigrants to Australia in 2008-2009 entered as skilled workers under the point system, while 34.2 percent entered as family migrants and fewer than one in ten (9.6 percent) entered as refugees (DIC 2009). Thus, unlike the case in many other countries, immigrants to Australia are highly-skilled and relatively permanent. The question is how these parental skill advantages are reflected in the educational attainment and achievement of young people from immigration backgrounds.

Most Australian children begin Kindergarten at age 5 and end their secondary schooling after completing 12th grade. Upon graduation, those students who meet certain minimum coursework requirements (e.g. with respect to minimum credit hours, English requirements, etc.)

¹⁰ Just over half (50.5 percent) of young people in NESB families are immigrants themselves. In ESB families, 37.3 percent of youths are immigrants.

are assigned a percentile ranking based on their academic performance in grades 11 and 12.¹¹ Students who wish to attend university register their preferences (in rank order) for the specific degree programs offered at various universities. University placements offers are then made centrally on the basis of students' entrance rankings once they are known (see Marks et al. 2001). Programs in fields such as law or medicine are highly competitive and often require rankings in the 99th percentile, while most degree programs at Australia's top-tier universities accept only those students in the top quartile of the distribution. Students with rankings toward the bottom of the scale are usually not offered any university placement at all.

Information about the nativity gap in the educational attainment of young Australians is presented in Table 1. We consider four measures of educational attainment: (i) secondary school completion; (ii) obtaining an entrance rank; (iii) the actual entrance rank (measured from 30.0–99.9); and (iv) enrollment in university.¹² Our results indicate that youth with an immigration background have higher educational attainment than those without. Specifically, young people with an immigration background are more likely to have completed secondary school (90 versus 81 percent), more likely to obtain a university entrance ranking upon completion (81 versus 76 percent), and achieve higher percentile rankings when they do (76.8 versus 74.7). Given this, it is not surprising that they are also more likely to be enrolled at university. While over half (53 percent) of 20 year olds with an immigration background are university students, this is true of just over one third (36 percent) of young people in native-born families.

This educational advantage is particularly large among young people who have two immigrant parents with non-English-speaking backgrounds. Fully 94 percent of NESB youth complete secondary school, with 83 percent of graduates obtaining a university entrance ranking

¹¹ Although each of Australia's six states and two territories calculates this ranking differently, a national conversion allows comparisons to be made across students educated in different jurisdictions.

¹² Individuals who obtain a ranking in the bottom 30 percent of the distribution are assigned a value of 30.

at an average rank of 77.3. Fully, 58 percent are studying at university. In comparison, young people with two immigrant parents at least one of whom is from an English-speaking-background have a secondary school completion rate of 78 percent, with 73 percent of graduates earning a university entrance ranking at an average rank of 74.6. Only 37 percent of ESB youth are university students.

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 (59 and 66 percent respectively) than are young people without (48 and 55 percent). Secondary school completion rates are particularly high among NESB fathers (67 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.¹³ In particular, fully 81 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, 54 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 (74 percent) NESB mothers—in comparison to 54 percent of Australian-born and 51 percent of mothers in ESB families—say that having well-educated parents is extremely important in getting ahead in life.¹⁴

¹³ Unfortunately, fathers were not directly surveyed implying that we do not have information about fathers' attitudes about the importance of education for life success.

¹⁴ Descriptive statistics for the other characteristics of interest are reported in Appendix Table 1.

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 no exposure to the welfare system at all (33 percent). In contrast, approximately half of youth in native-born families (47 percent) and in ESB immigrant families (49 percent) had no exposure to the welfare system while growing up. Only 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; (ii) conditional on completing secondary school, to have met the minimum requirements to be assigned a university entrance ranking; and (iii) to be enrolled in university at age 20. We use a tobit model to estimate the determinants of (iv) the actual entrance rank for the sample of young people who received one.¹⁵ These models allow us to control for a range of individual and family background characteristics. Table 2 presents the marginal effects (and p values) associated with 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 complete secondary school. They are also more likely (7 percentage points) to have earned a university entrance ranking upon secondary school completion, have average ranks that are 2.1 percentiles higher, and are fully 15 percentage points more likely to be university students than otherwise similar young people with

¹⁵ 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.

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 families. Specifically, NESB youth have secondary school completion rates that are 13 percentage points higher, are 8 percentage points more likely to receive a university entrance ranking, have average ranks that are 3.4 percentiles higher, and are 20 percentage points more likely to attend university. These differences are all economically meaningful and highly significant. Youth in ESB families, on the other hand, have educational outcomes that are statistically equivalent to those of young people in native-born families.¹⁶

These patterns raise a number of interesting questions about the intergenerational transmission of education within immigrant families generally and within NESB families in particular. Is the educational advantage of young people in NESB families attributable to higher intergenerational education mobility? Alternatively, does it arise because the handicap associated with low socio-economic status (in particular, 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 ($Y_{y,i}^*$):

¹⁶ Le (2009) excludes youth whose two parents differ in nativity status or English language background. She finds that the educational advantage is particularly prevalent among youth with two ESB parents, while NESB and Australian-born youth appear to have similar educational outcomes. In contrast, we include youth from “mixed” family background in our analysis.

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

where $Y_{p,i}$ is parental education and $X_{y,i}$ 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_i 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.¹⁷ The extent of intergenerational mobility is inversely related to the persistence in education across generations. Specifically, when $\hat{\beta} = 0$, 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 $\hat{\beta} = 1$ 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, to have received a university entrance ranking (conditional on graduation), and to be attending university. Tobit estimation is used to estimate the determinants of the actual university entrance rank (30.0 – 99.9) for the sample of young people who received one. All models are estimated separately by youths' detailed immigration background. The

¹⁷ See Corak (2006) and d'Addio (2007) who provide a useful discussion for the income case.

estimated marginal effect of having highly-educated parents (i.e. parents who completed secondary school) are reported in Table 3.

5.1.1 The Association with Immigration Background:

The results point to a strong link between parental and youth education within Australian-born families. In particular, young people without an immigration background have a significantly higher propensity of completing secondary school and—conditional on having completed—of obtaining a university entrance ranking if their parents also completed secondary school than if their parents did not.¹⁸ Having a highly-educated mother (father) is associated with a 9 (7) percentage point increase in the probability of completing secondary school, and a 6 (6) percentage point increase in the probability of earning a university entrance rank upon graduation. University rankings are higher (almost 5.0 percentiles) and the probability of being a university student is greater (15 percentage points) for each highly-educated parent that youth in Australian-born families have. These effects are substantial given that first, they represent the independent effects of each parent’s education¹⁹ and second, secondary school completion rates are 81 percent with only 76 percent of graduates earn university entrance rankings (see Table 1).

In contrast, the link between parental and youth educational attainment is much less consistent among those with an immigration background. Moreover, unlike the case for their Australian-born peers, immigrant youths’ academic achievement is dependent on which parent, i.e. the mother or the father, is highly-educated. ESB youth are 15 percentage points more likely to complete secondary schools if their mothers have also completed 12th grade—an effect which

¹⁸ It is important to note that this is not the result of immigrant youth being significantly older on average than their native-born peers. T-tests reveal that there are no significant differences in the age distribution of young people from different immigration backgrounds.

¹⁹ The marginal effect of having two highly-educated parents is approximately the sum of these two separate effects.

is substantially higher than that among Australian-born families. However, there is no relationship between mothers' education and young peoples' propensity to complete secondary school in NESB families. Having a father who completed secondary school, on the other hand, has similar effects across all family types on completion rates, although the effect for ESB youth is imprecisely estimated and is insignificant. Highly educated ESB fathers are associated with a very large (18 percentage point) increase in the probability that their children who complete 12th grade also meet the curriculum requirements to receive a ranking for a university place. In all other cases, immigrant youth are equally likely to receive a university entrance score whether or not their parents are highly-educated.

Table 3 HERE

University entrance rankings and university enrollment rates are closely related to fathers' education levels in ESB families and mothers' education levels in NESB families. Specifically, ESB youth achieve entrance rankings that are fully 12.3 percentiles higher and, not surprisingly, are 22 percentage points more likely to be university students if their fathers completed secondary school. In contrast, it is mothers' rather than fathers' educational levels which are important in understanding university entrance rankings and enrollment among NESB youth. Entrance rankings are higher (7.4 percentiles) and the probability of being a university student is greater (12 percentage points) for NESB youth with highly-educated mothers.

Taken together, our results point to striking differences across family types in the process through which mothers' and fathers' educational advantage is transferred to their children. This disparity can perhaps be best understood in the context of a standard model of household production in which children's educational attainment is produced using a combination of market goods and parental time (see Gang and Zimmerman 2000). The differential effects of maternal

versus parental education then stem from disparity across mothers and fathers in i) the preference that each has for their children's education; ii) the contribution that each makes to market income; and iii) the time spent in child rearing. In Australian-born families, having both a highly-educated mother and father conveys separate educational advantages that are of a similar magnitude. In contrast, educational outcomes for ESB youth are most closely linked to the educational attainment of their fathers, while NESB youth have better educational outcomes if it is their mother who is highly-educated.²⁰ To the extent that highly educated fathers contribute relatively more to providing market goods through their higher earnings potential, while mothers contribute relatively more time in child rearing, our results are consistent with ESB families relying on goods-intensive technologies and NESB families relying on time-intensive technologies in producing child education.

These distinctions make it challenging to generalize about the role of immigration background in intergenerational educational mobility in Australia. Where there is a significant link in the educational attainment of immigrant parents and their children, these effects are typically much larger than the corresponding effects for Australian-born families indicating less intergenerational mobility. At the same time, highly-educated Australian-born mothers and fathers transfer separate and roughly equal educational advantages to their children implying that the overall degree of intergenerational educational persistence within families is higher (i.e., mobility is lower) than appears to be the case when we consider mothers and fathers separately.²¹ Youth with an immigration background, on the other hand, do not benefit from having two as opposed to one highly-educated parent. On balance, the positive intergenerational correlation in education associated with having two highly-educated parents appears to be much the same for

²⁰ The exception is secondary school completion for which this pattern is reversed.

²¹ This is particularly true if there is positive assortative mating on education.

Australian-born and ESB families, and somewhat smaller for NESB families. In contrast, in many other countries the intergenerational correlation in education is lower (i.e. mobility is higher) 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).

5.1.2 The Association with Welfare History:

One of the particular advantages of the YIF data is that we are able to assess the way that families' welfare histories are related to the educational attainment and academic achievement of their children. Previous researchers use parental education as proxies of socio-economic status with parental education making it difficult to assess how important each is for the educational achievements of immigrant children (van Ours and Veenman 2003).

We find that a family history of welfare receipt is clearly associated with substantially poorer educational outcomes for youth in Australian-born families (see Table 3). Young people in Australian-born families i) are 20 percentage points less likely to have completed their secondary schooling; ii) are 19 percentage points less likely to earn a university entrance rank (conditional on having completed); iii) have entrance rankings that are 3.6 percentiles lower; and iv) are 15 percentage points less likely to be enrolled in university if their family has a history of intensive welfare receipt than if it does not. There are slightly smaller, though still substantial, educational disadvantages associated with less intensive welfare exposure, particularly if it first occurs before age 10.

In sharp contrast, intensive welfare receipt is in general not significantly related to any of these educational outcomes for NESB youth.²² This is particularly striking given that NESB

²² In most cases, welfare history is also not significantly related to the educational outcomes of ESB youth. Given the small sample sizes, however, results for ESB families are imprecisely estimated making it difficult to draw firm

families are much more likely to have had intensive welfare receipt (see Table 1) - an experience which does not seem to limit their children's educational attainment or achievement. Receiving moderate welfare support for the first time after age 10 is linked to a 18 percentage point lower probability that NESB youth are university students at age 20. With this exception, moderate welfare receipt whether early or late also does not appear to be related to the educational outcomes of young people in NESB families.

Why does a family history of welfare receipt while growing up severely constrain the educational attainment and achievement of Australian-born youth, while at the same time, appear to have relatively little effect on the educational outcomes of NESB youth? How are NESB families able to overcome the challenges associated with providing good educational opportunities for their children despite experiencing socio-economic disadvantage? Previous research suggests that immigrant families often have high educational aspirations for and strongly support the academic achievement of their children and, moreover, that this mitigates some of the disadvantages immigrant children face (Duran and Weffer 1992; Kao and Tienda 1995; Fuligni 1997; Glick and White 2003; Corak 2008; Le 2009). In what follows, we explore whether the higher importance that NESB mothers attribute to education can account for the relatively small effect of socio-economic disadvantage in limiting the educational outcomes of their children.

5.2 Mothers' Views about the Importance of Education

Previous researchers have argued that the deficits immigrant children face in terms of poor language skills, greater socio-economic disadvantage, and a lack of host-country-specific human

conclusions. Consequently, in this section we focus attention on the results for NESB youth which are estimated much more precisely.

capital may be mitigated by social capital in the form of higher levels of parental support and strong family ties (See Glick and White 2003 for a review). This raises questions about the role of parental support 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. Results (marginal effects and p-values) are reported in Table 4.²³

Table 4 HERE

We find that the probability young people in Australia-born families complete secondary school is significantly higher if his or her mother believes that having a good education is extremely important in getting ahead in life. In particular, young people in Australian-born families are 8 percentage points more likely to have completed secondary school and 6 percentage points more likely to be university students if their mothers believe education is extremely important than if they do not. There is no significant relationship between mothers’ views about education and the probability of receiving a university entrance ranking or the percentile ranking itself. Thus, Australian-born mothers appear to be influencing educational attainment rather than educational achievement.

Given our small sample sizes, it is challenging to assess how the greater weight that immigrant mothers place on education in driving life success contributes to educational

²³ We also re-estimated our models including a measure of mothers’ views about the importance of having highly-educated parents in getting ahead in life. We find no evidence that young people’s educational outcomes are related to the importance that their mothers’ place on having highly-educated parents. Results are available upon request.

outcomes for young people with immigration backgrounds. Our results, for example, indicate that mothers' views about the importance of education are more strongly linked to secondary school completion rates in ESB families (18 percentage points) than in Australian-born families (8 percentage points). However, the relationship between NESB mother's views about education and their children's likelihood of completing 12th grade is both economically small (3 percentage points) and statistically insignificant. Young people in immigrant families—in contrast to their peers in Australian-born families—have a higher probability of obtaining a university entrance ranking and are more likely to be university students if their mothers' believe education is extremely important. Although these effects are economically meaningful, they are also imprecisely estimated and statistically insignificant. Moreover, university entrance rankings are lower (not higher) for young people whose mothers believe strongly in the importance of education, though as before, these effects are also statistically insignificant.

Does the greater importance that NESB mothers attribute to education help explain the relatively small effect that a family history of welfare receipt has in limiting the educational outcomes of their children? Overall, our results provide some evidence in support of this proposition. In particular, the estimated negative effect of experiencing welfare while growing up becomes larger (in absolute magnitude) in many cases once we account for NESB mother's views about education. We find, for example, that having a family history of intensive or moderate (late) welfare receipt is associated with a 30 percentage point reduction in the probability that NESB youth completing secondary school have met the necessary curriculum requirements to obtain a university entrance rank (see Table 4). This estimated effect is much smaller and statistically insignificant when we fail to account for the importance that NESB mothers place on education (see Table 3). Similar results are observed for enrollment in

university, though somewhat surprisingly not secondary school completion. In contrast, accounting for Australian-born mothers' views about the importance of education has a much smaller effect in reducing the educational penalty associated with socio-economic disadvantage. Thus, our results are consistent with previous research suggesting that family support and parental aspirations contribute to the educational success of young people with immigration backgrounds (Glick and White 2003; Le 2009).

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 four alternative educational outcomes: i) completion of secondary school; ii) completion of an academic track which attracts a university entrance ranking; iii) university entrance rankings themselves; and iv) enrollment in university at age 20.

We find that after controlling for individual and family background characteristics—most importantly parental education and welfare history—young Australians in NESB families have an educational advantage over their ESB and Australian-born peers. Moreover, while highly-educated Australian-born mothers and fathers transfer separate and roughly equal educational advantages to their children, outcomes for ESB (NESB) youth are most closely linked to the educational attainment of their fathers (mothers). On balance, the positive intergenerational correlation in education associated with having two highly-educated parents appears to be much the same for Australian-born and ESB families and is somewhat smaller for NESB families. Finally, the greater importance that NESB mothers attribute to education appears to reduce the

negative effects that a family history of welfare receipt has in constraining their children's educational outcomes.

What is it about the Australian institutional context that—unlike the case in many other countries—leads the intergenerational mobility in education to be very similar among native-born and immigrant families? Most likely the answer to this question lies in the nature of Australian immigration policy and the characteristics of the immigration stream itself. Immigrants to Australia are in general permanent and highly-skilled, both of which might be expected to lead to better educational outcomes for young people with immigration backgrounds. Immigrant families, for example, are expected to have greater incentives to invest in their children's education if they are permanent rather than temporary (Dustmann 2005). These investments are facilitated in the Australian case by immigrant parents' relatively large human capital endowments and high earnings capacity. Moreover, Borjas (1995), argues that “ethnic capital”, i.e. the average human capital of the ethnic community, facilitates educational investments in the younger generation resulting in more persistence of skills and less mobility across generations. The highly-skilled nature of immigration to Australia ensures that the ethnic capital of immigrant communities is high.

Finally, the design of the Australian education system itself may contribute to the relatively small nativity gap in intergenerational mobility in education. Approximately two-thirds of Australian school-aged children attend government (public) schools, while one third attend a variety of non-government (private) schools (ABS 2006a). Although the system of both free public and fee-based private schools may differentiate students somewhat on parents' ability to

pay,²⁴ relatively little formal tracking of students on ability takes place. This is important as there is evidence that tracking on ability reduces intergenerational mobility and that immigrant families face particular challenges in getting their children on to advantageous educational tracks (Frick and Wagner 2000; Bauer and Riphahn 2007). Perhaps most importantly, there is no formal discrimination against first-generation immigrant children in the Australian primary and secondary school system. While government-sponsored university places are reserved for Australian citizens and individuals on permanent humanitarian visas (DEEWR 2010), acquiring Australian citizenship is relatively straightforward. Immigrants are eligible to become citizens after only two years of permanent residence and the Australia government actively advertizes the benefits of and encourages immigrants to take up citizenship.²⁵ These features of the Australian educational system most likely contribute to reducing any disparity in educational mobility by immigration background.

²⁴ 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 2006b).

²⁵ See www.citizenship.gov.au for more information.

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Table 1: Educational Outcomes and Family Characteristics by Immigration Background

Variables	Total	Native	Immigrants		
			Total	English speaking immigrants	Non-English speaking immigrants
Year 12 completion	0.83	0.81	0.90	0.78	0.94
Has ENTER score ^(a)	0.77	0.76	0.81	0.73	0.83
ENTER score ^(b)	75.21	74.72	76.76	74.63	77.31
At University	0.40	0.36	0.53	0.37	0.58
Mother completed Year 12	0.51	0.48	0.59	0.61	0.59
Father completed Year 12	0.57	0.55	0.66	0.62	0.67
No history of welfare receipt	0.45	0.47	0.37	0.49	0.33
Intensive income support	0.23	0.22	0.27	0.19	0.30
Late moderate income support	0.08	0.07	0.11	0.09	0.12
Early moderate income support	0.24	0.23	0.24	0.23	0.25
Mother believes education extremely important ^(c)	0.61	0.59	0.71	0.54	0.81
Mother believes having well-educated parents is extremely important ^(c)	0.56	0.54	0.66	0.51	0.74

Notes: Statistics are adjusted for sampling weights.

^(a): figures for this variable are calculated for a sample of youths completed year 12 (2471 observations).

^(b): figures for this variable are calculated for a sample of youths achieved ENTER score (1731 observations).

^(c): figures for these variables are calculated for a sample of youths with non-missing information on parents' attitude toward education (1782 observations).

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

	Combined parents' COB (2 group)				Combined parents' COB (3 group)				Separate parents' COB			
	Year 12 completion	Has ENTER score	ENTER score	At University	Year 12 completion	Has ENTER score	ENTER score	At University	Year 12 completion	Has ENTER score	ENTER score	At University
Both parents are immigrants	0.09*** [0.00]	0.07*** [0.00]	2.08** [0.04]	0.15*** [0.00]								
ESB immigrant parents					-0.04 [0.17]	0.02 [0.58]	-3.06 [0.11]	-0.02 [0.56]				
NESB immigrant parents					0.13*** [0.00]	0.08*** [0.00]	3.40*** [0.00]	0.20*** [0.00]				
ESB immigrant mother									0.01 [0.76]	0.02 [0.55]	-0.80 [0.61]	0.00 [0.89]
NESB immigrant mother									0.07*** [0.01]	0.06** [0.03]	1.26 [0.38]	0.13*** [0.00]
ESB immigrant father									-0.02 [0.32]	-0.03 [0.30]	0.19 [0.90]	-0.02 [0.56]
NESB immigrant father									0.07*** [0.00]	0.02 [0.54]	1.91 [0.18]	0.06* [0.06]
Mother completed Year 12	0.09*** [0.00]	0.05*** [0.01]	4.49*** [0.00]	0.13*** [0.00]	0.08*** [0.00]	0.05*** [0.01]	4.53*** [0.00]	0.13*** [0.00]	0.08*** [0.00]	0.05*** [0.01]	4.47*** [0.00]	0.13*** [0.00]
Father completed Year 12	0.07*** [0.00]	0.06*** [0.00]	4.16*** [0.00]	0.14*** [0.00]	0.07*** [0.00]	0.06*** [0.00]	4.15*** [0.00]	0.13*** [0.00]	0.07*** [0.00]	0.06*** [0.00]	4.18*** [0.00]	0.13*** [0.00]
Intensive ISH	-0.16*** [0.00]	-0.16*** [0.00]	-2.32** [0.04]	-0.13*** [0.00]	-0.16*** [0.00]	-0.16*** [0.00]	-2.58** [0.02]	-0.14*** [0.00]	-0.16*** [0.00]	-0.16*** [0.00]	-2.55** [0.02]	-0.13*** [0.00]
Late moderate ISH	-0.09*** [0.00]	-0.07** [0.02]	-1.93 [0.13]	-0.08*** [0.00]	-0.09*** [0.00]	-0.08** [0.01]	-2.10 [0.10]	-0.09*** [0.00]	-0.09*** [0.00]	-0.08** [0.01]	-2.10 [0.10]	-0.09*** [0.00]
Early moderate ISH	-0.09*** [0.00]	-0.12*** [0.00]	-1.78* [0.10]	-0.12*** [0.00]	-0.09*** [0.00]	-0.12*** [0.00]	-1.95* [0.07]	-0.12*** [0.00]	-0.09*** [0.00]	-0.12*** [0.00]	-1.90* [0.08]	-0.12*** [0.00]
Observations	3052	2471	1731	3052	3052	2471	1731	3052	3052	2471	1731	3052

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

ESB - English speaking background immigrant, NESB - Non-English speaking background immigrant.

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			At University		
	Native	ESB	NESB	Native	ESB	NESB	Native	ESB	NESB	Native	ESB	NESB
Mother completed Year 12	0.09*** [0.00]	0.15** [0.05]	0.01 [0.56]	0.06*** [0.01]	-0.10 [0.29]	0.06 [0.13]	4.66*** [0.00]	-0.06 [0.99]	7.39*** [0.00]	0.15*** [0.00]	0.04 [0.67]	0.12** [0.03]
Father completed Year 12	0.07*** [0.00]	0.09 [0.23]	0.06** [0.03]	0.06*** [0.01]	0.18* [0.07]	0.03 [0.47]	4.94*** [0.00]	12.32*** [0.00]	-1.51 [0.54]	0.15*** [0.00]	0.22** [0.01]	0.00 [0.99]
Intensive ISH	-0.20*** [0.00]	-0.16* [0.10]	-0.01 [0.61]	-0.19*** [0.00]	-0.20 [0.11]	-0.05 [0.33]	-3.58*** [0.00]	-1.96 [0.70]	-0.19 [0.94]	-0.15*** [0.00]	-0.08 [0.42]	-0.08 [0.20]
Late moderate ISH	-0.10*** [0.00]	-0.04 [0.74]	-0.04 [0.33]	-0.05 [0.13]	-0.17 [0.26]	-0.08 [0.19]	-0.67 [0.65]	-3.89 [0.49]	-4.35 [0.15]	-0.06* [0.07]	-0.12 [0.31]	-0.18** [0.02]
Early moderate ISH	-0.12*** [0.00]	-0.05 [0.61]	0.02 [0.55]	-0.13*** [0.00]	-0.24* [0.06]	-0.00 [0.99]	-2.29* [0.05]	-2.46 [0.61]	-0.13 [0.96]	-0.12*** [0.00]	-0.14 [0.17]	-0.10 [0.13]
Observations	2378	160	506	1867	123	475	1280	85	366	2378	158	510

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

ESB - English speaking background immigrant, NESB - Non-English speaking background immigrant.

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 Mothers' Views about the Importance of Education by Immigration Background

	Year12 completion			Has ENTER score			ENTER score			At University		
	Native	ESB	NESB	Native	ESB	NESB	Native	ESB	NESB	Native	ESB	NESB
Mother completed Year 12	0.10*** [0.00]	0.21** [0.05]	0.03 [0.56]	0.07*** [0.00]	-0.16 [0.33]	-0.03 [0.66]	4.91*** [0.00]	4.00 [0.40]	6.32* [0.08]	0.17*** [0.00]	0.16 [0.21]	0.08 [0.40]
Father completed Year 12	0.08*** [0.00]	0.01 [0.89]	0.07 [0.21]	0.08*** [0.00]	0.12 [0.49]	0.04 [0.47]	5.57*** [0.00]	18.08*** [0.00]	2.83 [0.48]	0.16*** [0.00]	0.22* [0.06]	0.15 [0.12]
Intensive ISH	-0.18*** [0.00]	-0.14 [0.29]	0.04 [0.44]	-0.18*** [0.00]	-0.31 [0.11]	-0.30** [0.01]	-2.39 [0.12]	-6.16 [0.27]	-1.16 [0.78]	-0.10*** [0.00]	0.02 [0.88]	-0.12 [0.30]
Late moderate ISH	-0.09** [0.02]	-0.22 [0.18]	-0.00 [0.99]	-0.06 [0.16]	dropped	-0.30** [0.05]	-0.90 [0.62]	-9.13 [0.14]	-2.98 [0.54]	-0.06 [0.14]	0.02 [0.93]	-0.34** [0.01]
Early moderate ISH	-0.10*** [0.00]	-0.24 [0.12]	0.00 [0.94]	-0.13*** [0.00]	-0.42* [0.06]	-0.15 [0.22]	-2.13 [0.13]	3.87 [0.54]	5.62 [0.20]	-0.11*** [0.00]	-0.05 [0.73]	-0.13 [0.30]
Mother believes education extremely important	0.08*** [0.00]	0.18* [0.06]	0.03 [0.60]	0.03 [0.31]	0.09 [0.56]	0.10 [0.23]	0.02 [0.99]	-6.59 [0.12]	-4.03 [0.31]	0.06** [0.03]	0.08 [0.46]	0.04 [0.67]
Observations	1500	89	146	1204	51	148	841	50	115	1503	87	162

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

ESB - English speaking background immigrant, NESB - Non-English speaking background immigrant.

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.

Appendix Table 1: Summary Statistics by Immigration Background

Variables	Total	Native	Immigrants		
			Total	English speaking immigrants	Non-English speaking immigrants
Male	0.51	0.52	0.50	0.47	0.51
Metropolitan	0.67	0.61	0.91	0.78	0.95
Aboriginal	0.03	0.03	0.01	0.01	0.01
New South Wales	0.31	0.29	0.39	0.22	0.44
Victoria	0.27	0.28	0.27	0.15	0.31
Queensland	0.20	0.22	0.14	0.24	0.11
South Australia	0.07	0.07	0.05	0.10	0.04
Western Australia or Northern Territory	0.10	0.09	0.14	0.27	0.09
Tasmania	0.02	0.03	0.00	0.00	0.00
Australian Capital Territory	0.02	0.02	0.01	0.01	0.01
Number of observations	3052	2378	674	161	513

Notes: Statistics are adjusted for sampling weights.