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by

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Intergenerational Educational Mobility in Hong Kong: Are Immigrants More Mobile Than Natives?

Kit-Chun Lam[1] and Pak-Wai Liu[2,*]

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Abstract: Intergenerational educational mobility is characterized in two ways, the percentage of children who have more schooling than their parents, and the relative probability of the children attending university across their parents' schooling levels. We find that from 1991 to 2011, following a major expansion in higher education in Hong Kong, there has been considerable intergenerational educational mobility. Immigrant children are very upward mobile; their percentage of upward mobility has caught up with that of the children of the Hong Kong born parents. Hong Kong born children of immigrant parents, the second generation immigrants, are also more mobile than the children of Hong Kong born parents. In terms of access to university education, there is also considerable intergenerational education mobility. Even though children from better educated families continue to have higher probability of university attendance than children from less educated families, immigrant children again have higher mobility than Hong Kong born children.

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1. Introduction

Poverty and inequality are issues that command the attention of researchers and policy makers. In many societies, these problems are intransigent to policy actions. They persist over time and more often than not, across generations. The intergenerational transmission of status or mobility across status becomes a major concern. The status concerned could be income class, social status or educational achievement. Intergenerational mobility occurs when the children's status is different from their parents'.

Economists have long studied intergenerational mobility of earnings, using correlation in earnings (Solon, 1992; Zimmerman, 1992), elasticity of earnings (Mazumder, 2005) or movement across earnings groups between generations (Zimmerman, 1992; Couch and Lillard, 1998; Hirvonen, 2008) as measures of mobility. In most of these studies often the current earnings (Solon, 1989) or the average earnings over a number of years (Solon, 1992; Zimmerman, 1992; Mazumder, 2005) are measured whereas the proper variable should be lifetime earnings or permanent income. Furthermore some studies rely on individuals to recall their parents' earnings, thus introducing additional measurement errors.

In this study we focus on intergenerational mobility in educational attainment. We study both the change in educational attainment across generations as well as the child's differential mobility across parental educational background over time. The empirical advantage in studying educational mobility over earnings mobility is obvious. Educational attainment of adult respondents does not pose a measurement issue since with the exception of those who return to school at an older age, most people will have attained their highest education level by mid 20's thus avoiding the life cycle bias common in intergenerational earnings mobility studies. It should be noted that many earnings mobility studies actually use education as a proxy for permanent income or to impute earnings.[3] To the extent that education is a good proxy, the study of educational mobility is a surrogate for the study of earnings mobility.

There is a wealth of evidence on the positive relationship between parents' education and their children's education for different countries. Mulligan (1999) estimates that the elasticity for intergenerational mobility in education ranges from

[3] For instance, Bjorklund and Jantti (1997)

0.14 to 0.45 in the U.S.. The estimate of Dearden et al. (1997) for U.K. ranges from 0.25 to 0.40. Checchi et al. (2008) find that intergenerational educational mobility has increased significantly in Italy over the last century but the gap in educational attainment persists because of the liquidity constraints and differences in risk aversion by parental background. Heineck and Riphahn (2007) find the relationship between the parents' and the children's education has not declined in Germany over the last half of the previous century, implying that there is little intergenerational mobility. Lillard and Willis (1994) study the effect of parental education on children's education in Malaysia. Behrman et al. (1998) study intergenerational educational mobility for 16 Latin American countries, and Heckman and Hotz (1986) for Panama. Other studies shed light on intergenerational educational mobility by analyzing the role of parents' schooling, family and labor market characteristics on children's schooling for different countries, such as Behrman and Wolfe (1987) for Nicaragua, Lam and Schoeni (1993) for Brazil, and Binder and Woodruff (2002) for Mexico.

There are also a number of studies on the parent-child education relation for different population subgroups. Of particular interest to our paper are studies on the natives and the immigrants. Card et al. (2000) find that in the U.S. educational mobility of immigrant children (the second generation) has remained stable over the last 50 years but the second generation has noticeably higher education than children of natives. Gang and Zimmerman (2000) find that in Germany second-generation immigrants are closer to comparable German cohorts in educational profiles than their first-generation immigrant parents. Moreover, the intergenerational differences in educational attainment between first-generation immigrants and their children are greater than the differences between the native-born Germans and their parents. Leslie and Drinkwater (1999), and Sweetman and Dicks (1999) study the intergenerational transmission of education of ethnic minorities in the U. K. and Canada respectively. Van Ours and Veenman (2003) conclude that natives and second-generation immigrants in fact do not differ in intergenerational educational transmission in the Netherlands. Nielsen et al. (2003) suggest that the educational mobility of second-generation immigrants in Denmark seems to be greater than natives. Similarly, Bauer and Riphahn (2005) find that intergenerational mobility is higher among second-generation immigrants than natives in Switzerland. However, for immigrant children, the probability of high education among those with poorly educated parents is only one third of those with well-educated parents.

The literature on intergenerational mobility in Hong Kong is rather scanty. There are only a few studies on intergenerational earnings mobility.[4] There have been some studies on the effect of family background and specifically income on the educational attainment of the child and implications on educational inequality (Post and Post, 1991; Post, 1994; Wu, 2007; Chou, 2013). Most of them do not address directly the issue of intergenerational educational mobility. Moreover, they suffer from the criticism of life cycle bias of using parents' current or imputed earnings as a determinant of the child's educational attainment. A few pieces of unpublished work that measure the intergenerational transmission of schooling over time that are more directly related to our paper are Kwok (2011) and Wong (2014) but their focus is not on the differential mobility of the natives and the immigrants.

In this study we utilize four censuses and by-censuses over a period of two decades to analyse intergenerational educational mobility in Hong Kong. Intergenerational mobility is characterized in two ways, the first one by the percentage of children who have more schooling than their parents, and the second one by the relative probability of the children attending university across their parents' schooling levels. We find that from 1991 to 2011, there has been considerable intergenerational educational mobility in Hong Kong. Immigrant children are very upward mobile; their percentage of upward mobility has caught up with that of the children of Hong Kong born parents. In terms of access to university education, there is also considerable intergenerational mobility even though children from better educated families continue to have higher probability of university attendance than children from less educated families. Again immigrant children have higher mobility in terms of access to university education than Hong Kong born children.

2. Intergenerational Transmission of Education and Mobility

There are at least three channels through which educational attainment status is transmitted across generations. The first one is the nature effect of genetic transmission. To the extent that cognitive ability or IQ is a success factor in schooling, parents with more education tend to have higher cognitive ability and this could be transmitted genetically to their children. The study of schooling variation between

[4] For instance, Vere (2010), Ho, Huang and Wei (2013), and Wong (2014)

twins by Behrman and Rosenzweig (2002), and between natural and adopted children by Bjorklund et al. (2006), however, suggest that genetics do not explain fully the variation in schooling across generations. The second channel is the nurture effect. It is commonly believed that better- educated parents tend to be better informed and more aware of the long term benefits of education (Henderson and Berla, 1994; Desforges, 2003) and invest more in the education of their children. Parents with more education have more human capital. Their human capital inputs into their children's education are higher. For instance, when they spend time with their children they are more able to assist them in reading, writing, mathematics or schooling in general. They also serve as a role model and motivate their children to have a higher educational aspiration. The third channel is through pecuniary investment in schooling. Parents with more education tend to have higher earnings. They are financially more able to invest in their children's education than parents with less education, e.g. paying for tuition, summer programs, tutorial programs and other subsidiary inputs in the educational process. Carneiro and Heckman (2003) argue that permanent income rather than current parental income is important in explaining schooling decisions. Chevalier et al. (2005) conclude that the impact of parental education on child education is mainly through the higher permanent income rather than a direct effect; in other words, the third channel is more effective than the second.

The above three channels of intergenerational transmission of education attainment status underpin the observation in many countries that the children's education is positively correlated with their parents' education. This positive correlation by itself could be rather stable over time but it will change if the relative price of education changes. For instance, tuition fee or the price of other education inputs changes relative to the parental income. It could also change if the effectiveness of parents' human capital and cognitive inputs in promoting their children's entry to a higher level of education changes over time. Since education is usually publicly provided, government policies are the main driving force behind these changes. For instance, an increase in government subsidies changes the relative price of education. Expansion of the education sector providing more opportunities and policies that widen access of students from disadvantaged background change the effectiveness of parental inputs into the children's educational process. Any change in the efficacy of any of the channels of transmission of educational status will induce a

change in the relation between parental education and child education and result in intergenerational educational mobility.

In this paper we define intergenerational educational mobility in two ways. First, a child is said to experience intergenerational educational mobility if he/she has more schooling than his/her parent. The intergenerational educational mobility of the population is characterized by the percentage of children who experience the mobility. In most countries as public investment in education increases over time, intergenerational educational mobility is expected as children will in general be better educated than their parents. What is interesting is the comparison of intergenerational educational mobility of different population subgroups such as natives versus immigrants, and individuals with native born parents versus those with immigrant parents.

The second way to characterize intergenerational mobility is based on the change in relative probability of university education for children who have parents of different educational background. Specifically, if over time the probability of access to degree education of children who have less educated parents increases relative to children who have more educated parents, there is intergenerational educational mobility. In other words, even though children with less educated parents may still have lower probability of university education, it is said that there is educational mobility if their opportunity of university education has increased relative to children with better educated parents. Defined in this way, if there is intergenerational mobility, inequality in the access to university education will reduce across generations even though it may still persist. The use of differential access to university education and its change over time as a measure of educational mobility can be justified on the ground that university graduates command a substantial earnings premium over secondary school graduates. Therefore, the analysis of mobility in access to university education will be relevant to the study of earnings mobility.

In the rest of this paper, the data and methodology are introduced in Section III. In Section IV the effect of parent year of schooling on child year of schooling is estimated by an OLS and the cross-generation schooling elasticity is derived. In Section V, we use a probit model to study the effect of parent schooling on the child's attainment of university education. In Section VI we introduce the transition matrix which indicates for each level of schooling of the parents, the percentage of their children who attain different levels of schooling, and use it to calculate the percentage

of intergenerational mobility. A number of stylised facts on the change in intergenerational mobility for the full sample as well as the native born and the immigrants are derived. Section VII focusses on the access to university education as a measure of educational mobility. Using the transition matrices, the intertemporal change in the relative probability of the child attending university for the native born and immigrants are analysed. The paper concludes in Section VIII.

3. Data and Methodology

Our data are based on microdata sets derived from the Hong Kong Population Census and By-Census of 1991, 1996, 2001 and 2011. This 20-year period is chosen for study as it marks a period of rapid higher education expansion. In 1971 Hong Kong government began to provide free and compulsory education up to the primary school level. This was extended to junior secondary school in 1978. In 1990, in response to the outflow of well-educated emigrants induced by the perceived political uncertainty leading up to the changeover of sovereignty of Hong Kong in 1997, the government dramatically increased the university first degree intake from 7% of the relevant age cohort to 18%. Consequently university enrolment expanded by over 110% before it leveled off in 1996. Such a large scale expansion of higher education enrolment provides a convenient setting for studying intergenerational educational mobility. Under this setting one would expect that there will be considerable intergenerational mobility across various schooling levels, especially with regard to access to higher education. What is interesting is whether the intergenerational mobility is higher in some socioeconomic groups than the others.

In the Hong Kong census and by-census the parent-child relation can only be identified if the parent and the child live in the same household as defined in the census. The link between parents and their children who live apart cannot be established using census data. We construct a microdata set of young individuals aged 20 to 22 who are living with both their father and mother at the time of the census. The reason for choosing the age group of 20-22 is that young individuals who attain first degree level or above will have most likely enrolled in university by this age, and by and large they are not too old to have moved away and live apart from their parents. Among young people aged 20-22, 62-69% of them live with both of their parents during the four census years. Their mean year of schooling is 0.5-0.8 year higher than

those who do not live with their parents. The two groups do not look very different in characteristics. In any case since our sample does not cover young individuals who live away from their parents, a caveat of our study is that our results will be affected if the intertemporal change in parent-child education relation that we are studying is different for young people who live with their parents from those who do not.

The censuses contain information on the gender, the individual (child), father and mother level of schooling and the number of children in the family. They also contain information on the immigrant status, i.e. whether the individual and the parents are Hong Kong born, Mainland China immigrants or immigrants from other countries.

Appendix 1 tabulates the summary statistics of the four samples, 1991, 1996, 2001 and 2011. From 1991 to 2011 the mean year of schooling of the age 20-22 cohort of young individuals increases by 3.2 years from 10.7 years to 13.9 years. This increase is no doubt related to the aforementioned expansion in the education system, inter alia, the expansion of the higher education sector since 1990. The percentage of the age cohort 20-22 who are Hong Kong born varies between 75% to 84.2% over the twenty years. However, the percentage of Hong Kong born fathers (mothers) increases steadily from 19.4% (27.5%) to 47.8% (48.3%). This steady rise is the demographic outcome of the change in immigration policy in October 1980 when the so-called "touch-base" policy was terminated, thereby closing Hong Kong's door to massive illegal immigration.[5]

4. Effect of Parent Schooling on Child Schooling

The effect of parents' years of schooling on their children's years of schooling is estimated by OLS regressions from which we derive the intergeneration elasticities of schooling. In Equation 1, we regress the child year of schooling on father and mother year of schooling.[6]

[5] For a background introduction to the termination of "touch-base" policy and its demographic consequences, read Lam and Liu (2002).

[6] Year of schooling for those who have not completed a certain level of schooling is derived by assigning the mid-point of the year of schooling between the two levels.

Equation (1):

$$S = \alpha + \beta_1 FS + \beta_2 MS + \varepsilon$$

where S is the year of schooling of the i^{th} individual, FS is the father year of schooling, MS the mother year of schooling, and ε the stochastic error.

In Equation 2 we control for the gender of the child and the immigrant status of the child and his/her father and mother. Furthermore we allow for the possibility that the effect of parent schooling on child schooling may vary with the parents' immigrant status. In other words, children of immigrant parents may have different degree of educational mobility from children of Hong Kong born parents.

Equation (2):

$$\begin{aligned} S= \alpha &+ \beta_1 FS + \beta_2 MS + \beta_3 Son + \beta_4 N + \beta_5 I + \beta_6 OthI + \beta_7 FI + \\ &\beta_8 FOthI + \beta_9 MI + \beta_{10} MOthI + \beta_{11} FS \times FI + \beta_{12} FS \times FOthI + \\ &\beta_{13} MS \times MI + \beta_{14} MS \times MOthI + \mu \end{aligned}$$

where Son is a dummy variable which equals 1 if the individual is a son, N is the number of children in the family and μ is the stochastic error term. The immigrant status of the individual is represented by two dummy variables: I $=1$ if the individual is an immigrant from Mainland China and OthI $= 1$ if the individual was born in places other than Mainland China and Hong Kong. The omitted dummy variable is for the Hong Kong born. Similarly, the immigrant status of the father and the mother is represented by the same set of dummy variables prefixed by F and M as the case may be. We include cross terms between father schooling and father immigrant status dummies and similarly for mother schooling and mother immigrant status dummies to allow for the possibility that the impact of parent schooling on child schooling may be different if the parents are immigrants and not Hong Kong born. The estimated coefficients for the four censuses are reported in Tables 1a and 1b.

Table 1a: Regression of Child Schooling on Parent Schooling, 1991 & 1996

Dependent Variable:	1991		1996	
Child schooling	[1]	[2]	[1]	[2]
Father schooling	0.0787*	0.1239*	0.1032*	0.1423*
	(8.49)	(8.97)	(13.95)	(11.55)
Mother schooling	0.0770*	0.1020*	0.1155*	0.1157*
	(7.70)	(7.64)	(14.53)	(10.08)
Son		-0.4399*		-0.6657*
		(-9.68)		(-14.30)
Number of children		-0.1301*		-0.1125*
		(-7.39)		(-5.17)
Child Mainland immigrant		-1.4839*		-1.3694*
		(-21.45)		(-19.60)
Child other immigrant		-9.7073*		-0.9072*
		(-101.94)		(-4.23)
Father Mainland immigrant		0.4182*		0.5080*
		(3.48)		(4.34)
Father other immigrant		0.7450*		-0.4038
		(5.09)		(-1.46)
Mother Mainland immigrant		0.2641*		0.2939*
		(2.77)		(2.97)
Mother other immigrant		0.2979*		0.0595
		(2.16)		(0.29)
Father schooling × father Mainland immigrant		-0.0414*		-0.0354*
		(-2.79)		(-2.55)
Father schooling × father other immigrant		-0.0657*		0.0546
		(-3.51)		(1.94)
Mother schooling × mother Mainland immigrant		-0.0199		-0.0011
		(-1.35)		(-0.08)
Mother schooling × mother other immigrant		0.0739*		0.0153
		(3.65)		(0.60)
Constant	9.8024*	10.5721*	10.7105*	11.0054*
	(175.71)	(85.21)	(211.45)	(87.50)
No. of cases	11526	11526	12097	12097
R^2	0.0299	0.5003	0.0799	0.1283
Adjusted R^2	0.0297	0.5000	0.0798	0.1273

N.B. t - ratios in parentheses
* Significant at the 5% level

Table 1b: Regression of Child Schooling on Parent Schooling, 2001 & 2011

Dependent Variable:	2001		2011	
Child schooling	[1]	[2]	[1]	[2]
Father schooling	0.1323*	0.1383*	0.1294*	0.1375*
	(19.23)	(13.75)	(19.18)	(14.80)
Mother schooling	0.1358*	0.1422*	0.0918*	0.0981*
	(18.86)	(14.43)	(12.38)	(9.36)
Son		-0.6069*		-0.5112*
		(-14.36)		(-11.70)
Number of children		-0.1979*		-0.1476*
		(-8.62)		(-5.24)
Child Mainland immigrant		-1.1281*		-1.0642*
		(-16.79)		(-17.05)
Child other immigrant		-0.4822*		-0.0579
		(-2.60)		(-0.40)
Father Mainland immigrant		0.2724*		0.5920*
		(2.57)		(4.85)
Father other immigrant		-0.3937		0.1910
		(-1.71)		(0.62)
Mother Mainland immigrant		0.4074*		0.4960*
		(4.10)		(3.71)
Mother other immigrant		0.1185		-0.0098
		(0.70)		(-0.04)
Father schooling × father Mainland immigrant		-0.0209		-0.0620*
		(-1.72)		(-4.97)
Father schooling × father other immigrant		0.0394		-0.0264
		(1.63)		(-0.93)
Mother schooling × mother Mainland immigrant		-0.0382*		-0.0390*
		(-3.00)		(-2.85)
Mother schooling × mother other immigrant		-0.0165		-0.0097
		(-0.80)		(-0.38)
Constant	10.7668*	11.5089*	11.9057*	12.4592*
	(213.43)	(103.00)	(188.78)	(99.39)
No. of cases	12855	12855	9670	9670
R^2	0.1196	0.1563	0.1040	0.1498
Adjusted R^2	0.1195	0.1554	0.1038	0.1486

N.B. t - ratios in parentheses
* Significant at the 5% level

The estimated β_1 in Equation (2) is positive and significantly different from zero but not large in magnitude, ranging from 0.1239 to 0.1423 across the censuses. It suggests that for a ten-year difference in the schooling of the native born father, on average the difference in the child year of schooling is only 1.24 to 1.42 years. This is the difference in the child year of schooling between having a university graduate father and a father who is a primary school leaver. The mother schooling effect (β_2) on the child schooling is lower (0.0981 to 0.1422). This contradicts the common view

that mother schooling has a larger effect than father schooling on the child's educational attainment but consistent with Behrman and Rosenzweig's (2002) finding. The result suggests that the intergenerational educational linkage between Hong Kong born parents and their children is not large and that implies considerable mobility in the educational system.

The magnitude of the father-child schooling linkage is not the same for Mainland immigrant and Hong Kong born fathers. The Mainland immigrant fathers' intergenerational linkage in schooling with their children is weaker than the linkage of the Hong Kong born fathers and their children, as evidenced by the significantly negative coefficient of the cross term FS×FI. Except for 2001 when the coefficient is not significantly different from zero, the linkage is smaller by an amount of 0.0354 to 0.0620. According to Equation (2), the estimated effect of one year of schooling of the Mainland immigrant father on the child year of schooling is as follows:

1991: 0.0825
1996: 0.1069
2001: 0.1383
2011: 0.0755

This weaker schooling linkage suggests that individuals with Mainland immigrant fathers may have greater intergenerational educational mobility than individuals with Hong Kong born fathers. It is likely that children from immigrant families have taken better advantage of the expanding education opportunity in Hong Kong to surpass their fathers in educational attainment.

One measure that has been used in the literature to characterize intergenerational educational mobility is the elasticity of the child year of schooling with respect to the parent year of schooling. Based on the estimates of Equation (2), we calculate the cross-generation schooling elasticity with respect to the Hong Kong born and the Mainland immigrant parents at the mean years of schooling as follow:

Table 2: Cross-Generation Schooling Elasticity

	1991	1996	2001	2011
Hong Kong born father	0.0716	0.0851	0.0829	0.0879
Mainland immigrant	0.0477	0.0640	0.0829	0.0483
Hong Kong born mother	0.0466	0.0565	0.0743	0.0616
Mainland immigrant mother	0.0466	0.0565	0.0524	0.0371

The magnitude of the elasticities is below 0.1 (cf 0.14 to 0.45 for the U.S. and 0.25 to 0.40 for the UK). This very small elasticity between schooling across generations indicates that child schooling bears little relation to parent schooling. In other words, there has been considerable intergenerational educational mobility in Hong Kong. It is pertinent to note that the elasticities for the Mainland immigrant father/mother are in most cases considerably smaller than those for Hong Kong born father/mother, suggesting that children of immigrant families experience greater educational mobility than children of Hong Kong born families, in line with the previous result.

The other estimated coefficients in Tables 1a and 1b suggest that male children have 0.44 to 0.67 less year of schooling than female children. Individuals from families with more children have less schooling. This is predicted by Becker and Tomes (1976, 1979) as each additional child in the family will enjoy fewer parental inputs because of the corresponding increase in marginal cost and reduction in resources. Our empirical result is consistent with the findings of Chiswick (1988), Sweetman and Dicks (1999), and Ermisch and Francesconi (2001) of a negative correlation between the number of siblings and educational attainment.

Immigrants from Mainland China or other countries have on average less schooling than the Hong Kong born. Over the two decades the schooling gap between the immigrants and the Hong Kong born has been steadily narrowing from 1.48 year to 1.06 year. The parent immigrant status tells a different story. Individuals with Mainland immigrant fathers actually have more schooling than those with Hong Kong born fathers. The difference is 0.27 to 0.59 year, depending on the census year.

It is pertinent to point out that many Mainland immigrant fathers have been in Hong Kong for many years. They represent as many as 69.8% of the population sample in 1991 though falling to 48.7% in 2011. From 1991 to 2001 most of their children, in fact 75-77%, were actually born in Hong Kong; this percentage falls

somewhat in 2011 but it is still as high as 60%. Their children are known as second generation immigrants. Our figures suggest that Hong Kong born children from immigrant families have more schooling than Hong Kong born children from Hong Kong born families. Second generation immigrant children probably work harder to achieve a higher educational attainment than their Hong Kong born counterparts with Hong Kong born parents.

4. Effect of Parent Schooling on Child Probability of University Attendance

Next, we use the probit model to study the effect of parent year of schooling on the probability of the child attaining university level of education. The probit model has the following specification:

$$Pr(S5 = 1|X) = F(X'\beta)$$

where S5 =1 if the child attains university level of education or above and zero otherwise. Pr denotes the probability. F is the cumulative distribution function of the standard normal distribution. X is a vector of explanatory variables. The parameters β are estimated by the maximum likelihood method. We estimate two versions of the probit model with different explanatory variables. To facilitate comparison with the OLS results, the sets of explanatory variables in Model (1) and (2) of the probit model are the same as those in Equations (1) and (2) respectively of the OLS regressions.

Table 3 reports the marginal effects of the explanatory variables on the probability of the child attaining university level or above, calculated at the mean values of each variable. In Model (2), the marginal effect of father schooling increases from 0.0069 in 1991 to 0.0291 in 2011, suggesting that children of more educated fathers have a higher probability of university education than those with less educated fathers and the difference in probability increases over time. The effect of father schooling on child probability of university attendance differs between Mainland immigrant and Hong Kong fathers. The increasingly negative coefficient of the cross term FS x FI indicates that immigrant father schooling has a weaker effect than native born father schooling on the child probability of university attendance. This suggests

that children with Mainland immigrant fathers have higher intergenerational mobility with regard to university education than those with Hong Kong born fathers. This result is consistent with the finding of the OLS regressions. The marginal effect of mother schooling and its cross term follows a similar pattern.

Table 3: Marginal Effects of Parent Schooling on Child Probability of University Attendance

	1991		1996		2001		2011	
	[1]	[2]	[1]	[2]	[1]	[2]	[1]	[2]
Father schooling	0.0031*	0.0069*	0.0121*	0.0185*	0.0193*	0.0214*	0.0268*	0.0291*
	(3.47)	(4.55)	(10.78)	(9.36)	(16.80)	(12.37)	(19.81)	(15.26)
Mother schooling	0.0064*	0.0069*	0.0118*	0.0136*	0.0181*	0.0208*	0.0184*	0.0205*
	(6.74)	(4.82)	(9.78)	(7.63)	(15.03)	(12.36)	(11.97)	(9.42)
Son		0.0006		-0.0338*		-0.0502*		-0.0614*
		(0.12)		(-4.70)		(-6.99)		(-6.86)
Number of children		-0.0107*		-0.0116*		-0.0260*		-0.0292*
		(-5.13)		(-3.31)		(-6.34)		(-4.89)
Child Mainland immigrant		-0.0760*		-0.1549*		-0.1378*		-0.1910*
		(-8.61)		(-13.75)		(-11.29)		(-14.44)
Child other immigrant		0.3516*		-0.0822*		-0.0272		0.1023*
		(40.89)		(-2.32)		(-0.83)		(3.41)
Father Mainland immigrant		0.0103		0.0891*		0.0583*		0.1359*
		(0.70)		(4.47)		(2.95)		(5.03)
Father other immigrant		0.0553*		-0.0507		-0.0394		0.0683
		(3.23)		(-1.02)		(-0.85)		(1.02)
Mother Mainland immigrant		0.0137		0.0598*		0.0847*		0.1332*
		(1.20)		(3.69)		(4.64)		(4.59)
Mother other immigrant		-0.0025		-0.0032		0.0313		0.0509
		(-0.16)		(-0.09)		(0.98)		(0.92)
Father schooling × father Mainland immigrant		-0.0013		-0.0070*		-0.0047*		-0.0144*
		(-0.78)		(-3.14)		(-2.21)		(-5.36)
Father schooling × father other immigrant		-0.0076*		0.0082		0.0025		-0.0074
		(-3.78)		(1.75)		(0.55)		(-1.23)
Mother schooling × mother Mainland immigrant		-0.0012		-0.0030		-0.0091*		-0.0108*
		(-0.75)		(-1.36)		(-4.05)		(-3.68)
Mother schooling × mother other immigrant		-0.0037		0.0003		-0.0017		-0.0005
		(-1.72)		(0.06)		(-0.45)		(-0.09)
No. of cases	11526	11526	12097	12097	12855	12855	9670	9670
Log likelihood	-4267.10	-3049.51	-5963.91	-5825.25	-6542.05	-6423.14	-5649.42	-5468.07

N.B. t - ratios in parentheses
* Significant at the 5% level

Mainland immigrants have a lower probability of university attendance than the Hong Kong born and the gap in probability actually widens over time from 0.076 in 1991 to 0.191 in 2011, in contrast to the narrowing gap in year of schooling revealed in the OLS regressions. This is likely to be the consequence of the substantial widening of the access to university education after 1990. While the probability of university attendance increases across all demographic groups, the Hong Kong born gain the most. The success that the Mainland immigrants have in narrowing their gap in year of schooling with respect to the Hong Kong born has not reached the university level of education. However, as we will show later, the story is different in terms of the intergenerational mobility measured by the change in child probability of university attendance across father schooling levels. While Mainland immigrants have a lower probability of university education than the Hong Kong born, children with Mainland immigrant parents actually have a higher probability than those with native born parents. The second generation immigrants are more successful educationally as in the OLS results.

5. Transition Matrix and Intergenerational Mobility

The use of cross-generation year of schooling elasticity as a characterisation of intergenerational mobility has its limitation. Like all summary measures, it does not reveal fine details of mobility of different demographic groups. A transition matrix relates parent schooling level and the child schooling level in a matrix format. It allows us to explore possible nonlinearities in the intergeneration transmission process across parent and child schooling distributions.

The parent and child schooling levels are classified into five levels as follows;

S1 = primary and below
S2 = lower secondary (Secondary 1-3, i.e. Year 7 – Year 9)
S3 = upper secondary (Secondary 4-5, i.e. Year 10 and Year 11)
S4 = post-secondary (include Secondary 6 and 7 (Year 12 and 13)
S5 = university level or above

Table 4 reports the father-child transition matrices for 1991, 1996, 2001 and 2011 and Appendix 2 reports the father-son and father-daughter transition matrices.[7] The entries in each row of a matrix represent for a given father schooling level, the percentages of children who have S1 to S5 levels of schooling. For example, Table 4 shows that in 1991, 4.13% of the children of fathers who are primary school educated (S1 father) have primary schooling, 20.77% have lower secondary schooling, 52.66% have upper secondary schooling, 13.15% post-secondary education and 9.29% university level or above. All in all, 95.87% of the children of S1 fathers attain levels of schooling higher than their fathers. For these children there is clearly upward intergenerational educational mobility. As a matter of fact, all the entries in the upward half above the diagonal of the transition matrix represent the percentages of children who experience upward mobility as compared to their fathers. By corollary, the entries in the lower half of the matrix below the diagonal represent percentages of downward mobility. In 1991 only 25.25% of the children of S5 fathers also attain S5 level of schooling. As many as 74.75% attain levels of schooling lower than their fathers'; in other words, they experience downward mobility. By nature of the hierarchy of the S1-S5 levels of schooling, it is expected that children with S1 parents will have higher intergenerational educational mobility as their educational attainment cannot be worse than the primary level of their parents. Conversely for children with S5 parents, they can at most attain the university level which is the same as their parents or move downward along the schooling ladder.

[7] In the interest of space, the mother-child, mother-son and mother-daughter transition matrices are not reported here. Their pattern is similar to the father-child, father-son and father-daughter matrices.

Table 4: Transition Matrices 1991 – 2011 (Father-Child)

A. 1991

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	4.13%	20.77%	52.66%	13.15%	9.29%	6,677
	S2	2.08%	16.56%	53.91%	15.23%	12.22%	1,727
	S3	1.05%	10.41%	54.94%	17.38%	16.22%	1,720
	S4	1.05%	7.72%	48.07%	26.32%	16.84%	285
	S5	2.06%	11.64%	45.39%	15.67%	25.25%	1,117

B. 1996

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	2.42%	18.96%	50.13%	13.29%	15.19%	6,064
	S2	1.29%	14.94%	48.48%	14.51%	20.78%	2,791
	S3	0.88%	8.01%	45.78%	16.78%	28.55%	2,396
	S4	1.99%	6.77%	34.26%	18.33%	38.65%	251
	S5	0.67%	6.39%	31.09%	15.97%	45.88%	595

C. 2001

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	1.40%	14.55%	50.26%	18.19%	15.59%	5,855
	S2	0.72%	10.61%	44.98%	21.14%	22.55%	3,477
	S3	0.45%	5.12%	38.53%	21.52%	34.39%	2,658
	S4	0.31%	2.19%	25.94%	23.75%	47.81%	320
	S5	0.00%	2.94%	19.08%	12.11%	65.87%	545

D. 2011

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	0.68%	6.10%	40.47%	31.94%	20.80%	3,081
	S2	0.33%	4.15%	34.48%	33.24%	27.81%	2,726
	S3	0.30%	2.25%	25.19%	31.72%	40.54%	2,664
	S4	0.00%	1.27%	12.31%	35.46%	50.96%	471
	S5	0.14%	0.82%	7.83%	16.48%	74.73%	728

We calculate the percentages of individuals who experience upward and downward educational mobility with respect to their fathers from the transition matrices of Table 4 and Appendix 2. Table 5 shows that the upward intergenerational mobility percentage is large and increase from 1991 to 2001 for children as well as for sons and daughters separately before essentially levelling off. This is accompanied by a decrease in the percentage of the downward mobility.

Table 5: Percentage of Intergenerational Educational Mobility, 1991-2011[8]

		1991	1996	2001	2011
A.	Both gender				
	Upward mobility	73.16	78.02	81.64	80.96
	Downward mobility	10.67	5.61	3.50	3.36
	Nil mobility	16.17	16.37	14.86	15.68
B.	Son				
	Upward mobility	71.57	75.22	79.77	79.67
	Downward mobility	11.21	6.89	4.28	3.75
	Nil mobility	17.22	17.89	15.95	16.57
C.	Daughter				
	Upward mobility	74.92	81.09	83.74	82.35
	Downward mobility	10.07	4.22	2.62	2.94
	Nil mobility	15.01	14.69	13.63	14.71

[8] Percentage of upward, downward and nil mobility may not add to 100 because of rounding.

We summarise the observations in the following stylized facts:

Stylized Fact 1: In 1991-2011 there has been considerable upward intergenerational educational mobility which increases over time.

Stylized Fact 2: Female children have higher intergenerational educational mobility than male children.

Even though female children on average have about 0.5 year of schooling less than male children and have lower access to university education in 1991, by 2011 the percentage of female children attending university is higher than male children, regardless of their fathers' educational background. In Hong Kong women are not disadvantaged with regard to access to university education.

Besides the gender difference, it is important to study the difference in intergenerational educational mobility of the Hong Kong born versus the Mainland immigrants. The educational mobility of immigrants holds the key to their economic assimilation in Hong Kong. There is a wide literature on the economic assimilation of immigrants in the destination country (Borjas, 1985, 1995; Lalonde and Topel, 1992; Lam and Liu, 1998, 2002). An important channel of assimilation for immigrants and their children is through acquiring education. As indicated earlier, Mainland immigrants on average have less schooling than the Hong Kong born but the gap in year schooling has been narrowing over time; immigrants have been able to take advantage of the expanding education opportunity in Hong Kong to narrow the gap. The cross-generation schooling elasticity indicates that children with Mainland immigrant parents have greater intergenerational educational mobility with respect to those with Hong Kong born parents. To address the issue for different combinations of father and child immigrant status we analyse the transition matrices of three father-child groups: father and child both Hong Kong born; father Mainland immigrant but child Hong Kong born; and father and child both Mainland immigrant.[9] The percentage of Hong Kong born children of Hong Kong born fathers in the sample is over 90% throughout the period. It should be noted that the percentage of Hong

[9] We do not consider the group of Hong Kong father and Mainland immigrant child because there are too few of them. See Table 6.

Kong born children of Mainland immigrant fathers (second-generation immigrants) is quite large even though it has fallen from 77% in 1991 to below 60% in 2011. As we will show later, the second-generation immigrants turn out to be quite different in educational mobility from the other father-child groups. The percentage distribution of children of Hong Kong born and Mainland immigrant fathers is as follows:

Table 6: Percentage Distribution of Children by Father's Immigrant Status, 1991-2011[10]

	1991	1996	2001	2011
A. *Hong Kong Born Father*				
Hong Kong born child (Two-generation native born)	91.41	96.66	96.39	90.99
Mainland immigrant child	3.04	2.41	2.76	6.06
Other immigrant child	5.55	0.93	0.85	2.94
B. *Mainland Immigrant Father*				
Hong Kong born child (Second-generation immigrant)	77.00	75.33	76.01	59.78
Mainland immigrant child (Two-generation immigrant)	17.86	23.96	22.91	39.35
Other immigrant child	5.13	0.71	1.08	0.87

[10] Column percentages may not add up to 100 because of rounding.

The transition matrices of the three father-child groups for 1991 and 2011 are reported in Tables 7a and 7b.

Table 7a: Transition Matrices of Hong Kong Born and Immigrant Father-Child Groups, 1991

A. Father and child Hong Kong born

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	5.06%	22.87%	55.02%	12.24%	4.81%	1,185
	S2	1.21%	13.90%	59.21%	17.52%	8.16%	331
	S3	0.25%	4.50%	59.00%	21.75%	14.50%	400
	S4	1.69%	3.39%	49.15%	28.81%	16.95%	59
	S5	1.47%	2.94%	32.35%	26.47%	36.76%	68

B. Father Mainland immigrant and child Hong Kong born

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	2.54%	19.73%	56.08%	15.34%	6.32%	4,369
	S2	0.97%	12.96%	57.24%	19.11%	9.72%	926
	S3	0.14%	9.09%	58.46%	19.16%	13.15%	715
	S4	0.00%	6.82%	52.27%	26.14%	14.77%	88
	S5	0.00%	7.29%	50.00%	22.92%	19.79%	96

C. Father and child Mainland immigrant

		Child (Both gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	14.49%	31.41%	46.77%	6.28%	1.05%	573
	S2	7.89%	33.83%	51.88%	5.26%	1.13%	266
	S3	4.23%	20.28%	56.34%	13.80%	5.35%	355
	S4	2.63%	14.47%	50.00%	25.00%	7.89%	76
	S5	1.20%	10.78%	45.51%	22.16%	20.36%	167

Table 7b: Transition Matrices of Hong Kong Born and Immigrant Father-Child Groups, 2011

A. Father and child Hong Kong born

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	0.63%	5.80%	34.70%	35.65%	23.21%	948
	S2	0.00%	2.53%	32.49%	36.60%	28.38%	948
	S3	0.20%	1.68%	20.43%	32.93%	44.76%	1,488
	S4	0.00%	0.87%	11.92%	36.63%	50.58%	344
	S5	0.00%	0.21%	6.53%	16.42%	76.84%	475

B. Father Mainland immigrant and child Hong Kong born

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	0.38%	4.15%	35.85%	32.45%	27.17%	1,060
	S2	0.52%	2.71%	29.38%	32.81%	34.58%	960
	S3	0.31%	1.40%	22.67%	34.94%	40.68%	644
	S4	0.00%	1.52%	9.09%	36.36%	53.03%	66
	S5	1.15%	4.60%	10.34%	29.89%	54.02%	87

C. Father and child Mainland immigrant

		Child (Both Gender)					
		S1	S2	S3	S4	S5	Observations
Father	S1	0.96%	8.65%	52.64%	25.84%	11.90%	832
	S2	0.61%	7.63%	46.41%	29.77%	15.57%	655
	S3	0.31%	4.33%	48.61%	27.24%	19.50%	323
	S4	0.00%	8.70%	26.09%	26.09%	39.13%	23
	S5	0.00%	4.76%	28.57%	19.05%	47.62%	21

Table 8 shows the percentages of father-child intergenerational upward and downward educational mobility from 1991 to 2011 for the three father-child groups calculated from the transition matrices in Tables 7a and 7b.

Table 8: Percentages of Intergenerational Educational Mobility by Father-Child Group, 1991-2011

		1991	1996	2001	2011
A.	*Upward Mobility*				
	Child and father Hong Kong born (Two-generation Hong Kong born)	76.41	78.04	80.45	76.04
	Child Hong Kong born, father Mainland immigrant (Second-generation immigrant)	85.55	85.48	86.15	88.99
	Child and father Mainland immigrant (Two-generation immigrant)	50.03	60.40	75.41	85.44
B.	*Downward Mobility*				
	Child and father Hong Kong born (Two-generation Hong Kong born)	4.80	4.22	3.50	4.33
	Child Hong Kong born, father Mainland immigrant (Second-generation immigrant)	3.29	3.22	2.36	2.24
	Child and father Mainland immigrant (Two-generation immigrant)	20.32	13.22	5.49	2.05

The group of Hong Kong born child with Hong Kong born father has high percentage of intergenerational educational mobility (76-80%). The group of Hong Kong born child with Mainland immigrant father (second-generation immigrant) has even higher mobility (85-89%) which increases over time. What is interesting is that the group of Mainland immigrant child with Mainland immigrant father starts off with a much lower percentage of intergenerational educational mobility in 1991(50%) but by 2011 their mobility (85%) has surpassed the Hong Kong born child and father group (76%) and almost catches up with the second-generation Mainland immigrants (89%). We have the following stylized facts:

Stylized Fact 3: Among Hong Kong born children, those who have Hong Kong immigrant fathers (second-generation immigrants) have higher intergenerational educational mobility than those who have native born fathers.

Stylized Fact 4: Among children who have Mainland immigrant fathers, Mainland immigrant children have much lower intergenerational educational mobility than the Hong Kong born children in 1991 but their mobility increases rapidly over time; by 2011 their level of mobility is about even with the Hong Kong born.

Holding the Hong Kong born status of the children the same, children from immigrant families (second-generation immigrants) are more mobile than children from Hong Kong born families. One possible explanation is that immigrant parents recognize education is a channel of upward mobility for immigrants and motivate their children to achieve a higher level of schooling; the immigrant status of the father of the child makes a difference. Furthermore, the immigrant status of the child also makes a difference. Holding the immigrant status of the father the same, children who are themselves immigrants are initially disadvantaged by the limited access to education in Mainland China from where they came, but after immigration they are able to take advantage of the widened access as Hong Kong's education system expands and become just as mobile as the Hong Kong born. To summarise, education holds the promise of upward mobility for immigrants. Immigrant parents exert a positive influence on their children's schooling and immigrant children are able to take advantage of the educational opportunity that becomes available after their migration to move upward in schooling.[11] Immigrant status of the parent and the child matters in intergenerational educational mobility.

7. Transition Matrix and Mobility in Access to University Education

In this section we focus on educational mobility as represented by the probability of enrolment in university degree (or higher) level of schooling for individuals with fathers of different educational background and birth status. Over

[11] To keep this paper within reasonable length, the mother-child transition matrices are not reported. The effect of immigrant mothers on their children's educational mobility is similar to the immigrant fathers.

time if the proportionate increase in the probability of university education of children from less educated families is larger than those from more educated families, then the former group is said to have higher intergenerational mobility. This measure is relevant as there has been a major expansion in university education in Hong Kong since 1990.

Making use of the transition matrices in Table 4, we derive the change in the relative probability of access by father schooling level over time. Table 9 reports the probability of university attendance of children with university-educated fathers relative to children with less educated fathers for different father-child groups. For the two-generation Hong Kong born father-child group the ratio of the probability of university attendance of child with S5 father to S1 father decreases substantially from 1991 to 2011. In 1991 children with S5 fathers are 7.64 times more likely to attend university than children with primary school education fathers. In 2001, they are 4.51 times more likely but by 2011 the relative probability falls to 3.31. The intertemporal decline in the relative probability of university attendance of the two-generation immigrant father-child group is dramatic. In 1991 the probability of a child who has a university-educated father attaining university degree level education is 19.39 times higher than a child with primary school educated father. Over the two decades, following the expansion of the higher education sector, the relative probability has dropped to 4 times, to a level close to the two-generation Hong Kong born father-child group. The ratio of the probability of S5 father to S2, S3 and S4 father follows a similar decline pattern over time. We can conclude that there is considerable intergenerational educational mobility in terms of access to university education for the various Hong Kong born-immigrant subgroups. The mobility is particularly high for the immigrant children. It should be noted that there is still a substantial difference in educational opportunities for university education between those with well-educated fathers and those with less educated fathers regardless of the fathers' birth status; children whose fathers are university educated are still 2-4 times more likely to attend university than children whose fathers only have primary schooling in 2011. However, the trend towards less inequality of access is obvious. We have the following stylized fact.

Stylized Fact 5: Immigrant children from less educated families have much higher intergenerational mobility in terms of access to university education than those from better educated families but there is still considerable inequality in access.

Table 9: Ratio of Probability of University Attendance of Child with Different Father Schooling Levels by Father-Child Group, 1991-2011

	S5 father/S1 father	S5 father/S2 father	S5 father/S3 father	S5 father/S4 father
1. Father & child Hong Kong born (Two-generation Hong Kong born)				
1991	7.64	4.50	2.54	2.17
2001	4.51	3.34	1.83	1.42
2011	3.31	2.71	1.72	1.52
2. Father Mainland immigrant, child Hong Kong born (Second-generation immigrant				
1991	3.13	2.04	1.50	1.34
2001	3.80	2.50	2.02	1.39
2011	1.99	1.56	1.33	1.02
3. Father and child Mainland immigrant (Two-generation immigrant)				
1991	19.39	18.02	3.81	2.58
2001	5.40	3.48	2.36	1.47
2011	4.00	3.06	2.44	1.22

Over time the ratio of the percentage of S5 children of the Hong Kong born father-child group to S5 children of the Mainland immigrant father-child group decreases across all father schooling levels as shown in Table 10 below. This suggests that children of the two-generation immigrant group is gaining proportionally in the probability of access to university education over time relative to the children of the two-generation Hong Kong born group.

Table 10: Ratio of Percentage of S5 Children of Hong Kong Born Father-Child Group to S5 Children of Immigrant Father-Child Group by Father Schooling Level

		1991	2011
Father Schooling	S1	4.55	1.96
	S2	7.14	1.82
	S3	2.70	2.33
	S4	2.13	1.28
	S5	1.81	1.61

We summarise the observation in the following stylized fact:

Stylized Fact 6: Relative to the native born, over time immigrant children have higher mobility in terms of access to university education irrespective of the father educational background.

8. Conclusion

Education has been touted by the great American advocate of universal public education, Horace Mann (1796-1859), as the great social equalizer. Many governments are unwilling to equalize the distribution of wealth by a very progressive income tax or onerous inheritance tax for fear of the disincentive effect on work and for other political reasons. However, most governments subscribe to the view that education should be publicly funded. Free or heavily subsidized schooling is provided for all citizens up to the secondary school level and in some countries the university level in an attempt to equalize as much as possible the human capital investments in children from different socioeconomic background. If financial capital cannot be equalized, then perhaps equal opportunity in human capital investments should be provided to put the children from different socioeconomic background on the same starting line. If equal educational opportunity cannot be provided for disadvantaged immigrants by their countries of origin, perhaps it can be provided for their second generation in the destination country to promote intergenerational mobility. Expansion of the education system and widening access to secondary school and then university are the main thrusts of this social policy.

Hong Kong went through a period of major expansion in the higher education sector in the 1990s. Our results show that children from better educated families are more able to capture the expanded educational opportunity, specifically they have higher probability of entry to university. However, in terms of advancement over their parents in educational attainment, the story is nuanced. Immigrant children are very upward mobile in the education system; their percentage of upward mobility has caught up with that of children of Hong Kong born parents. They have higher mobility in terms of access to university education than the Hong Kong born, and those from less educated immigrant families have much higher mobility than those from well-educated families. While there is still a large difference in the probability of university education between the Hong Kong born and the immigrant children the gap in year of schooling is narrowing, Immigrants have made great progress in taking advantage of the expansion in education system. The education systems in Hong Kong still holds a great promise for upward mobility and more equal access to educational opportunity for immigrants.

In this paper we study intergenerational educational mobility as a surrogate for intergenerational earnings mobility. Earnings mobility is more complex empirically to handle but we believe that educational mobility will shed some light on earnings mobility even though we have not explored the relationship between schooling and lifetime earnings across generations. Suffice it to say that in Hong Kong the university earnings premium represented by the ratio of earnings of university graduates to secondary school graduates with 5 years of labour market experience has increased from 2.27 in 1991 to 2.35 in 2011. After 25 years in the labor market, that ratio increases to 3.21. Contrary to some expectation, the university earnings premium remains substantial, despite the large expansion in university enrolment in the 1990s. As such, the study of intergenerational educational mobility in terms of access to university education is relevant to our understanding of earnings mobility over time.

Appendix 1: Summary Statistics—Mean (Standard Deviation) 1991–2011

Variables	1991	1996	2001	2011
Child schooling	10.662	12.148	12.670	13.850
	(3.425)	(2.715)	(2.578)	(2.303)
Father schooling	6.162	7.268	7.593	8.858
	(4.371)	(4.057)	(3.824)	(3.936)
Mother schooling	4.870	5.951	6.620	8.690
	(4.049)	(3.774)	(3.654)	(3.582)
Son	0.525	0.523	0.529	0.518
	(0.499)	(0.499)	(0.499)	(0.500)
Number of children	3.160	2.757	2.418	2.145
	(1.348)	(1.120)	(0.961)	(0.816)
Child Hong Kong born	0.775	0.811	0.842	0.750
	(0.417)	(0.392)	(0.365)	(0.433)
Child Mainland immigrant	0.161	0.176	0.145	0.223
	(0.368)	(0.381)	(0.352)	(0.416)
Child other immigrant	0.063	0.013	0.014	0.027
	(0.244)	(0.114)	(0.116)	(0.162)
Father Hong Kong born	0.194	0.302	0.395	0.478
	(0.395)	(0.459)	(0.489)	(0.500)
Father Mainland immigrant	0.698	0.650	0.556	0.487
	(0.459)	(0.477)	(0.497)	(0.500)
Father other immigrant	0.108	0.048	0.049	0.035
	(0.311)	(0.213)	(0.216)	(0.184)
Mother Hong Kong born	0.275	0.431	0.513	0.473
	(0.447)	(0.495)	(0.500)	(0.499)
Mother Mainland immigrant	0.630	0.509	0.420	0.483
	(0.483)	(0.500)	(0.494)	(0.500)
Mother other immigrant	0.095	0.059	0.067	0.043
	(0.293)	(0.236)	(0.251)	(0.204)
No. of cases	11526	12097	12855	9670

Appendix 2: Father-Son and Father-Daughter Transition Matrice, 1991-2011

A. 1991 (Father-Son)

		Son					
		S1	S2	S3	S4	S5	Observations
Father	S1	4.98%	28.34%	44.55%	12.93%	9.20%	3,511
	S2	2.92%	22.29%	48.38%	13.31%	13.10%	924
	S3	1.24%	14.11%	53.50%	16.37%	14.79%	886
	S4	0.00%	10.34%	44.14%	24.83%	20.69%	145
	S5	2.55%	14.43%	42.78%	14.43%	25.81%	589

B. 1996 (Father-Son)

		Son					
		S1	S2	S3	S4	S5	Observations
Father	S1	3.03%	27.30%	43.22%	12.76%	13.68%	3,165
	S2	1.69%	21.59%	43.59%	13.36%	19.77%	1,482
	S3	1.22%	11.68%	44.93%	15.49%	26.68%	1,233
	S4	0.75%	10.45%	41.04%	20.15%	27.61%	134
	S5	0.63%	9.43%	29.87%	17.30%	42.77%	318

C. 2001 (Father-Son)

		Son					
		S1	S2	S3	S4	S5	Observations
Father	S1	1.67%	20.56%	47.34%	17.00%	13.44%	3,118
	S2	0.97%	14.81%	42.59%	21.14%	20.49%	1,850
	S3	0.66%	7.62%	38.71%	20.75%	32.26%	1,364
	S4	0.58%	2.92%	31.58%	21.64%	43.27%	171
	S5	0.00%	4.44%	20.14%	9.56%	65.87%	293

D. 2011 (Father-Son)

		Son					
		S1	S2	S3	S4	S5	Observations
Father	S1	0.92%	8.46%	44.79%	28.19%	17.65%	1,632
	S2	0.64%	5.55%	37.30%	30.82%	25.69%	1,405
	S3	0.29%	2.70%	28.45%	30.85%	37.71%	1,371
	S4	0.00%	1.28%	11.97%	37.61%	49.15%	234
	S5	0.27%	0.82%	9.02%	19.13%	70.77%	366

E. 1991 (Father-Daughter)

		Daughter					
		S1	S2	S3	S4	S5	Observations
Father	S1	3.19%	12.38%	61.66%	13.39%	9.38%	3,166
	S2	1.12%	9.96%	60.27%	17.43%	11.21%	803
	S3	0.84%	6.47%	56.47%	18.47%	17.75%	834
	S4	2.14%	5.00%	52.14%	27.86%	12.86%	140
	S5	1.52%	8.52%	48.30%	17.05%	24.62%	528

F. 1996 (Father-Daughter)

		Daughter					
		S1	S2	S3	S4	S5	Observations
Father	S1	1.76%	9.87%	57.68%	13.87%	16.83%	2,899
	S2	0.84%	7.41%	54.01%	15.81%	21.93%	1,309
	S3	0.52%	4.13%	46.69%	18.14%	30.52%	1,163
	S4	3.42%	2.56%	26.50%	16.24%	51.28%	117
	S5	0.72%	2.89%	32.49%	14.44%	49.46%	277

G. 2001 (Father-Daughter)

		Daughter					
		S1	S2	S3	S4	S5	Observations
Father	S1	1.10%	7.71%	53.60%	19.55%	18.05%	2,737
	S2	0.43%	5.84%	47.70%	21.14%	24.89%	1,627
	S3	0.23%	2.47%	38.33%	22.33%	36.63%	1,294
	S4	0.00%	1.34%	19.46%	26.17%	53.02%	149
	S5	0.00%	1.19%	17.86%	15.08%	65.87%	252

H. 2011 (Father-Daughter)

		Daughter					
		S1	S2	S3	S4	S5	Observations
Father	S1	0.41%	3.45%	35.61%	36.16%	24.36%	1,449
	S2	0.00%	2.65%	31.49%	35.81%	30.05%	1,321
	S3	0.31%	1.78%	21.73%	32.64%	43.54%	1,293
	S4	0.00%	1.27%	12.66%	33.33%	52.74%	237
	S5	0.00%	0.83%	6.63%	13.81%	78.73%	362

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