Human Capital Investments, Marriage Market and the Intergenerational Transmission of Economic Advantage in India

Thangamuthu Lakshmanasamy
Professor, Department of Econometrics
Director i/c, Centre for Population Studies
University of Madras, Chennai, India
tlsamy@unom.ac.in

Paper for presentation at the IUSSP 26th International Population Conference
Session 113: Gender, Educational Achievement and the Marriage Market
Wednesday, September 30, 2009, 10.30 am to 12.00 pm
Fes 2B, Imouzzer Area, Palais des congres, Marrakech, Morocco

Abstract

This paper estimates the intergenerational transmission of socioeconomic advantage in India using a primary data. Under assortative marriage, potential partners are matched by their human capital and earnings potential. Hence parental investments in the human capital of children are in part motivated by the prospects of attracting a better partner for their children. This strengthens the intergenerational transmission of advantages and reduces intergenerational mobility. The OLS estimates of the intergenerational transmission model of education and income between parents and children, and between parents-in-law and sons/daughters-in-law show quite substantial transmission than mobility and are more pronounced for daughters. The elasticity of children's income/education is strongly positive with respect to parents and in-laws income/education. Spousal earnings is just as elastic as the children's own earnings with respect to the parents and in-laws education and income. Under assortative marriage and intergenerational transmission of advantage the inequalities in intergenerational income and opportunities is perpetuated.

Human Capital Investments, Marriage Market and the Intergenerational Transmission of Economic Advantage in India

I. Introduction

Public expenditure on education, it is generally argued, is to increase equality of opportunity. One of the benefits of education is the spillover effects on the later generations; having more educated citizens will have longer run effects by improving the outcomes of the children. However, there is little causal evidence to suggest this is true. The literature on intergenerational mobility tries to explain the transmission of the socioeconomic status of parents to those of children. It particularly analyses the effects of parental education and income on the children's economic outcomes as adults. Most commonly, this is measured as the association of incomes across generations. Sometimes the relationship may be a mere selection: the type of parents who have more education earn higher income, and have children who will do so as well. Alternatively, the relationship may be more causation: more education makes the parent a different type of person, and thus leads to his children having higher educational and earnings outcomes. Goldberger (1989) is quite explicit in emphasizing the distinction between endowments (genes) and investments (environments) in explaining intergenerational mobility. Data show that children from richer families enjoy more human capital investments and earnings. Becker and Tomes (1979; 1986) present an economic model of intergenerational transmission that takes into account nonlinearities and credit constraints, which has been used and extended to derive several important predictions. Mulligan (1999) finds a strong positive correlation between child's earnings and parental income after controlling for measures of human investment.

The strong association between incomes across generations indicates weak income mobility, and is often regarded as a violation of the norms of equality of opportunity. If an individual's income is strongly related to his or her parent's income, then a child from poor family background has limited opportunities to escape his or her own start in life (Blanden, 2005). Under equal opportunity conditions, the expected earnings of children are independent of parental earnings (income). Ermisch et al. (2006) find that about 40–50 percent of the covariance in income between generations attributable to assortative mating in Germany and Britain, driven by the strong spousal correlations in human capital. Thus, marital sorting plays a crucial role in that parents invest on children with expectation of better future marital partner. Consequently, the continuing unequal chances perpetuates under intergenerational transmission of economic advantage. The persistence of income inequality across generations also leads to the unequal distribution of educational attainments. Thus, intergenerational persistence is expected if income-earning endowments have an inherited component. Additional intergenerational persistence will occur if capital markets are imperfect and there are greater returns to human capital and marital matching.

2. Empirics of Intergenerational Mobility

The early literature on income mobility has observed an elasticity of son's earnings with respect to father's earnings around 0.2, or even less (Becker and Tomes, 1986). More

recent studies use long-run measures from longitudinal survey data. These studies suggest that the elasticity between the permanent components of son's and father's earnings is about 0.4 (Solon, 1999). Bjorkland and Jantti (1997) and Bjorkland et al. (2002) find greater income mobility in US and Scandinavian countries, more so in the latter. The evidence also suggest that the more compressed is the income distribution, the smaller the correlation between parental and child outcomes (Black et al. 2003). Bratberg et al. (2005), exploring the relationship between income inequality and mobility in Norway, argue that, over time, the compression of the earnings structure has increased intergenerational earnings mobility. Similar studies on intergenerational transmission of education are rather scanty. Studies by Deardon et al. (1997) and Mulligan (1999) suggest intergenerational education elasticity between 0.20 and 0.45. Raaum et al. (2001) also find similar results for Norway. Eide and Showalter (1999) adopt a quantile regression approach to investigate the role of education as an earnings transmission mechanism across generations. Recently, Hirvonen (2007) examined the issue from gender perspective by taking into consideration the extent to which education influence the transmission of earnings between parents, and daughters and sons. Using quantile regression, the possible non-linearity in the transmission of economic advantage from one generation to another is also examined. While Eide and Showalter (1999) find that education is more valuable at the bottom and tends to compress the son's conditional income distribution, the Swedish data of Hirvonen (2007) show that education is more valuable at the upper end than at the bottom tail of both daughters' and sons' conditional income distribution. In general, education explains just about one third of the intergenerational income correlation.

More recent research in this area attempts to distinguish causation from mere correlation in ability across generations. Generally, three broad approaches have been used. Behrman and Rosenzweig (2002) use data on pairs of identical twins to difference out any correlation attributable to genetics. The OLS estimates suggest a positive and significant relationship (0.13) between mother's and children's schooling. Plug (2002) and Sacerdote (2002) use data on adopted children to investigate the causal relationship and finds a positive effect of father's education on child education, but no significant effect of the mother's. The third approach is to use instrumental variables. Chevalier (2003) uses a change in the compulsory schooling law in Britain in 1957 to identify the effect of parental education on their offspring education and finds a positive effect of mother's education on her child's education. Similarly, Black et al. (2003) use the 1959 Norwegian reform in school education that increased the number of compulsory schooling from 7 to 9 years as an instrument for parental education. Despite significant OLS relationships, the 2SLS estimates provide little evidence of a causal relationship between parent's education and children's education. This leads them to conclude that the high correlation between parental and children's education are due primarily to selection rather than causation. Holmlund (2007) uses the education reform in Sweden in the 1950s and 1960s which extended compulsory education from 7 to 9 years. The differences-in-differences and sibling-difference estimates indicate significant intergenerational income mobility.

The bulk of the research has estimated the average transmission of earnings across generations, basically by applying OLS or IV in the regression of son's earnings on the

conditional mean of the father's earning. The observed nonlinearities in intergenerational earnings are often explained by credit constraints, as parents are constrained by the possibility to finance education of their children (Becker and Tomes, 1986). Recent analyses by quantile regression method show that intergenerational effects to be somewhat higher for lower earnings, implying the intergenerational mobility is lower at the lower end of the earnings distribution than at the upper end, for sons as well as for daughters (Bratberg et al. 2007). While the UK, US and some other European countries appear to have high levels on intergenerational income transmission, the Scandinavian countries and Canada appear rather mobile by comparison (Corak, 2004). Similar results are also reported by Raaum et al. 2007), who focusing on the role of gender and marital status, confirms that earnings mobility in Nordic countries is typically greater than in the US and in the UK. However, for married women mobility is uniform across countries for women's own earnings, while the usual differences hold for family earnings. Bratberg et al. (2007) show that the pattern of intergenerational earnings mobility in the Nordic countries as highly nonlinear, while in the US and UK the relationship is much close to linear. Blanden et al (2007) explain the UK intergenerational income persistence in terms of noncognitive traits, education and labour market attachment

Unfortunately, most of the studies on intergenerational income mobility neglect the mobility of daughters and the influence of mother's earnings on daughters. Though the intergeneration transmission studies on education do consider the influence of mother's education, they ignore the impact of income. Presumably, such neglects have stemmed from the view that, in societies in which married women's labour force participation rates are lower than men's, women's earnings (and incomes) are likely to be an unreliable measure of their status. Further, the studies on the role of spousal education and earnings in intergenerational mobility of daughters are rather scanty. However, studies on labour market participation of married women show a high degree of spousal correlations and that the education and earnings predict the status women have in the society. A recent work by Chadwick and Solon (2002) considers daughter's intergenerational income mobility using family income (rather than just earnings) and husband's earnings, thus providing a link between assortative marriage and intergenerational mobility. Also Blanden (2005) finds for Canada that the intergenerational correlation for sons with partners is 0.185 compared with 0.168 for daughters with partners. This new direction has implications for marital relations and for the unpaid work of women in the household sector. Recently, Fernandez et al. (2004) finds evidence for a direct positive relationship between a mother-in law's working during her son's childhood and the probability of daughter-in-law working. In line with the significant intergenerational mobility in Nordic countries, Holmlund (2007) also finds that in Sweden the effect of marital sorting on intergenerational income mobility as rather negligible. Thus, marital sorting seems to play a key role in shaping intergenerational family income persistence (Raaum et al. 2007). Evidences show that assortative mating is equally important for men and women for understanding how family earnings are transmitted across generations.

None of these studies incorporate the significant relationship between the income and education of in-laws and the children's education and earnings. This relationship is so important in an environment of assortative marriage market, in which the partners are

matched with complementary characteristics. A considerable body of research show that there is systematic positive sorting of partners with respect to socioeconomic backgrounds and market characteristics, non-wage incomes, and possibly wages (Becker, 1991; Lam and Schoeni, 1994). Since parents invest substantially on children's human and financial capital, the prospective life partners of children are to be matched to a large extent by the prospective in-laws background. Those sons and daughters raised by own parents eventually become someone's spouse, and the way in which this matching occurs has important consequences for their own socioeconomic position. Accordingly, how inequality evolves over generations depends on who marries whom. On an empirical observation in Brazil, Lam and Schoeni (1994) interpret the greater effect of father-in-law's schooling than that of father's schooling on the wages of male workers as an indication of the high degree of assortative mating in the marriage market. The empirical evidences show that the in-laws relationship is strong and in no case is the parent to son-in-law/daughter-in-law's elasticity substantially below the parent to son or daughter elasticity (Blanden, 2005).

Thus, both parents and parents-in law shape their offsprings' status and hence their intergenerational mobility. This paper examines the extent to which assortative mating influences intergenerational transmission and presents evidence on the role of in-laws characteristics on the intergenerational mobility of daughters and daughters in-law in India. We also consider the role of spousal background along with in-laws background for sons and daughters as well as sons-in-law and daughters-in-law in the intergenerational mobility. We find that the intergenerational transmission of education status is stronger than that of income, but the latter is also quite substantial. We also find that assortative mating is an important element in the intergenerational transmission process. This has important implications for the provision of equality of opportunity through public education.

3. A Model of Intergenerational Transmission

Following Ermisch et al. (2006), let the parents (and in-laws) care about the expected joint income of their adult offspring, which is the expected sum of their child's and his/her future partner's incomes $E(y_t+y_t^p)$, besides their own consumption C_{t-1}.Then the utility function is given by

$$U=\phi \ln[E(y_t+y_t^p)]+(1-\phi)\ln(C_{t-1}) \qquad \phi\in(0,1) \qquad (1)$$

where y's represent income, t indicates the generation, p the partner, ϕ measuring the relative preference for child's future family income as against parent's own consumption. Incomes are assumed to increase with human capital:

$$y_t=\gamma_{01}+\gamma_1 H_t+e_t \qquad (2)$$

$$y_t^p=\gamma_{02}+\gamma_2 H_t^p+e_t^p \qquad (3)$$

where γ_1 and γ_2 are non-negative parameters. These income equations allow the returns to human capital to differ between the sexes. The matching function under assortative marriage market can be specified as

$$H_t^p=\alpha_0+\alpha_1 H_t+v_t^p \qquad (4)$$

which links own and potential partner's human capital. Parents choose H_t to maximize their utility subject to equations 2 to 4 and their own budget constraint

$$y_{t-1}=C_{t-1}+\lambda_H H_t \quad (5)$$

where λ_H is the relative unit price of child's human capital. Solving this problem implies that the optimal level of child's human capital is a linear function of parent's income. Then the child's income equation is

$$y_t= \beta_0+\beta_1 y_{t-1}+u_{1t} \quad (6)$$

where $\beta_1=\phi\gamma_1/\lambda_H$ and the partner's income is given by

$$y_t^p= \delta_0+ \delta_1 y_{t-1}+u_{2t} \quad (7)$$

where $\delta_1=\alpha_1\phi\gamma_2/\lambda_H$. From the definitions of these parameters, it follows that $\delta_1/\beta_1=\alpha_1 \gamma_2/\gamma_1$. If the income returns are to human capital are the same for men and women ($\gamma_1=\gamma_2$), then the ratio δ_1/β_1 identifies α_1, the degree of assortative mating on human capital in (4).

The model has implications for the relationship between child's family (joint) income ($y_t+y_t^p$), and that of his/her parents, whereby

$$cov(y_t+y_t^p,y_{t-1})=cov(y_t,y_{t-1})+cov(y_t^p,y_{t-1})=(\beta_1+\delta_1)var(y_{t-1}) \quad (8)$$

The contribution that assortative mating makes to the intergenerational mobility is taken to be

$$\mu=cov(y_t^p,y_{t-1})/cov(y_t+y_t^p,y_{t-1}) \quad (9)$$

which is given by

$$\mu=[\delta_1/(\delta_1+\beta_1)]=[\alpha_1\gamma_2/(\gamma_1+\alpha_1\gamma_2)] \quad (10)$$

It is straightforward to see that μ decreases with β_1 and increases with δ_1, and (10) implies that $\alpha_1=(\gamma_1/\gamma_2)[\mu/(1-\mu)]$.

4. Empirical Analysis

The intergenerational persistence of economic status is the result of the assortative mating process in which the 'likes' marry the 'likes' (Becker, 1991). It is a character-specific mate selection which would not have occurred by chance or random process. Most of the models closely follow the intergenerational mobility model of Lam and Schoeni (1993, 1994) and Chadwick and Solon (2002). While Ermisch et al. (2006) and Chadwick and Solon (2002) are concerned with the intergenerational mobility by exploiting the relationship between the son's earnings and his father's and father-in-law's education, Lam and Schoeni (1993, 1994) explores the effects of father's education on wages as representing the impact of inherited characteristics and the effect of father-in-law's education as the correlation with the uninherited attributes through assortative mating. Let the intergenerational determination of a child's earnings be

$$lny_i=\beta_0+\beta_i y_j+\varepsilon_i \quad (11)$$

i = son(s), daughter(d), son-in-law(sl), daughter-in-law(dl)
j = father(f), mother(m), father-in-law(fl), mother-in-law(ml)

where y_i denotes the earnings of ith child, y_j denotes the earnings of jth parent, and the slope coefficient β_i is the intergenerational elasticity of ith child's earnings (income) with respect to jth parent's earnings (income). This is positive with assortative mating. The assortative mating can be summarized by a correlation ρ between the earnings of g and k:

$$\rho=Corr(lny_g,lny_k) \quad (12)$$

g=son or daughter; k=daughter-in-law or son-in-law

Then, the β_k, representing the elasticity is

$$\beta_k=\beta_g\rho\sqrt{[var(\ln y_k)/var(\ln y_g)} \quad (13)$$

Thus, if there is no assortative mating on earnings ($\rho=0$), this elasticity is zero. With positive assortative mating on earnings, this elasticity is positive (Altonji and Dunn, 1991). Further, this has implications for the connection between the two families. Let ω denote the k's share of the family's combined earnings (where family income is comprised entirely of k and g (spousal earnings), then the elasticity of g's family (joint) income with respect to that of his/her parents is

$$\beta= \omega\beta_k+(1-\omega)\beta_g \quad (14)$$

the share-weighted average of the separate elasticities of the g's own earnings and his/her spouse's. If there is no assortative mating, so that $\beta_k=0$, and if the male earnings are greater than the female earnings, then the daughter's (son's) family income is much less (more) elastic with respect to her parent's (his in-laws) income than her (his) own earnings are. Suppose that assortative mating is very positive, and β_k is just as large as β_g. Then in the typical family, in which ω is much more than half, the association between the daughter's (g's) family income and that of her (his) parents is mostly accounted for by her husband's (wife's) earnings.

Similar arguments apply for the case of education also. The assortative mating process implies that matching is made to suit the spousal career advancement. In terms of the intergenerational transmission model, better educated parents tend to provide more education to their offspring and search for similar educated life partners. Thus the matching process is not random, but selective.

Estimation of the model parameters requires data that provide information on the socioeconomic position of individuals, their partners, and their parents and in-laws. As such type of data is not readily available, in the empirical analysis on intergenerational mobility we use a primary survey data collected during September 1996 - March 1997 in Tamil Nadu as part of a larger project on the marriage and determinants of age at marriage of females. A total of 1014 respondents have been selected from both urban and rural areas, of which 566 (55.8 percent) are married and 448 (44.2 percent) are unmarried females. A special questionnaire has been designed separately for married women and for unmarried females. Both the questionnaires seek information about age, age at marriage, education, occupation and household characteristics of the respondents as well the parents. The married female questionnaire further seeks information on husband, in-laws, marriage related aspects and post–marital behaviour of the household. The unmarried

female questionnaire seeks information on marital search and marriage related expectations.

Table-1 presents the distribution of the educational background of the sample households. Most females are secondary educated, followed by degree course; compared to the children's educational level, parents are less educated; a sizable number of female parents are illiterate. Compared to them, more male parents are either primary or secondary educated. Very few parents as well as children are higher educated. The educational backgrounds of male child are better compared to their female counterparts. A sizable male children are college educated. Thus, though parents are less educated, their children are better educated. This shows the educational mobility of children.

The descriptive statistics presented in Table-2 shows that the mean educational level of daughters is 12.39 years, compared to the 8 years of their mothers and 9.4 years of education of father. The male children education of 14.42 years is also higher than their parental education. The spousal education of children is thus higher than their in-laws, again supporting intergenerational mobility. A similar picture also holds for children's annual income compared to their parental and in-laws household income. Daughter's earnings are higher than mother and mother-in-law's earnings and male children earnings are also higher than parental or in-laws earnings. Moreover, male earnings are higher than their spousal earnings in all cases. These results reinforce the educational background results that the mating process is assortative and that there is an upward intergenerational educational and income mobility with respect to both parental and in laws backgrounds.

Table-3 presents the correlation among the educational and income backgrounds of parents and in laws and children. All the background characteristics of parents and in laws are positively correlated with children education and earnings. The influence of in laws characteristics on daughter and son in laws characteristics are also strong and statistically significant just like that of parental characteristics. Similarly, the correlation between spousal earnings and education is significantly and strongly positive. These results again indicate the positive assortative mating and intergenerational correlation of economic status among families that are matched through marriage.

Table-4 presents the regression coefficients of intergenerational educational transmission. All the coefficients are positive and statistically highly significant. The effect of father's education on children's education is stronger than that of mother's education. Similar results hold good for in-laws educational background. The influence of mother-in-law's education on the daughter-in-law's education is slightly lower than the effect of mother's education on the education of daughters. However, in the case of son-in-law the mother-in-law's education effect much stronger than the influence of mother's education on son's education. In contrast, the effect of father in-law's education on the education of both daughter-in-law and son-in-law is lower compared to that of father. However, father-in-law's education has no significant effect on daughter-in-law's education. Further, with respect to spousal education the case for assortative mating has been strongly supported. Overall, the intergenerational transmission of education is stronger for both daughters and sons. The strong influence of in-laws also suggests significant intergenerational transmission of education via marriage market.

Table-5 presents the regression coefficients of intergenerational elasticity of income mobility. In all specifications the dependent variable is the logarithm of children's earnings, with various choice of independent variables. The results clearly demonstrate the existence of intergenerational transmission in income. All the explanatory variables are positive and statistically significant at 1 percent level. As shown in the first column of Table-5, the estimated income elasticity of daughter's earnings with parental income is 0.39 and that of male children is 0.38. Similarly, in the case of married daughters, the elasticity of daughter's earnings with respect to in-laws income is much greater (0.53) than the elasticity of son's earnings (0.39) with respect to in-laws earnings. The income elasticity of married daughter with respect to in-laws family income (0.37) is similar to that of with respect to parental income, where as in the case of son's income elasticity, it is much higher (0.30) than the own parental income (0.22). These results again reinforce the earlier observation that the family backgrounds are positively matched in the marriage market.

One of the main objectives of this paper is to explore the role of assortative mating in the intergenerational mobility of married children. Towards this end, we reestimated the model with married daughters only. As shown in the second column of Table-5, the intergenerational elasticity in family income for married daughters increases to 0.50. The intergenerational elasticity with spousal income has been 0.78 for daughters and 0.41 for male children. Thus, for both men and women nearly 40-80 percent of the covariance between the spousal earnings can be attributable to sorting in the marriage market, a result similar to that of Ermisch et al. (2006) for Germany. With this almost 50 percent of one's social position attributable to the process of who marries whom, assortative mating is a major factor in the intergenerational transmission of inequality. Further, this also indicates that there are larger income gains from assortative marriage.

All these results suggest a considerable degree of intergenerational transmission, especially among the daughters and daughters-in-law. Further, assortative mating appears to play a crucial role. For married couples, a major factor in the intergenerational transmission of income status is that the elasticity of spousal income with respect to the in-laws income is more than the elasticity of their own parental income.

5. Conclusion

This paper has estimated the intergenerational transmission of education and income, not only among daughters and sons, but also among daughters-in law and sons-in-law. The estimated intergenerational transmission is quite substantial, more pronounced in the case of daughters. The elasticity of children's income is also strongly positive with respect to in-laws income and education. The empirical results on spousal backgrounds also reveal strong positive assortative mating pattern. Among married children, spousal earnings appear just as elastic as the children's own earnings with respect to the parental income and education. This effect is driven by the strong spousal correlation of human capital. The intergenerational transmission of socioeconomic advantage appears to be much stronger for daughters compared to that for sons. The combined strength of socioeconomic advantage and assortative matching thus fosters inequality and produces a radically unequal chance for intergenerational mobility. The empirical findings indicate intergenerational transmission increases with parental investments, especially on human

capital and marriage. Policies that reduce the importance of family background for individual's failure or success are appropriate; two such policies might be public investments in human capital and bequest taxes.

Table-1. Distribution of Educational Status

Education Status	Total Sample			Married Sample					
	Daughter	Father	Mother	Daughter	Husband	Father	Mother	Father in law	Mother in law
Illiterate	-	3.2	27.0	-	-	3.9	36.5	4.7	38.8
Primary	7.7	27.9	35.2	11.1	2.3	35.7	34.3	36.5	39.7
Secondary	44.6	51.9	31.0	48.4	35.3	44.2	24.9	50.7	19.1
Diploma/ Certificate	4.2	4.2	2.7	3.4	3.2	2.1	1.7	1.8	0.7
UG	32.2	10.6	3.3	24.0	27.7	6.9	1.7	4.7	1.1
PG	10.4	1.6	0.6	12.0	28.8	1.1	0.9	1.6	0.6
Research	0.8	0.6	0.1	1.1	2.7	0.5	-	0.2	-
Total	100	100	100	100	100	100	100	100	100

Table-2. Descriptive Statistics of the Variables

Variable	Mean	S.D.
Daughter's education (yrs)	12.29	3.46
Husband's education (yrs)	14.42	3.14
Father's education (yrs)	9.40	3.34
Mother's education (yrs)	7.99	3.17
Father in law's education (yrs)	9.11	2.98
Mother in law's education (yrs)	7.15	2.97
Daughter's earnings (Rs./day)	229.10	155.97
Husband's earnings (Rs./day)	341.65	201.08
Father's earnings (Rs./day)	261.38	195.53
Mother's earnings (Rs./day)	214.97	136.59
Father in law's earnings (Rs./day)	246.87	178.25
Mother in law's earnings (Rs./day)	185.11	143.42
Combined spousal earnings (Rs./day)	557.69	297.30
Daughter's parental income (Rs./annum) (x100)	502.52	381.82
Husband's parental income (Rs./annum) (x 00)	588.06	480.42

Table-3. Correlation between Education and Earnings of Child and Parents and in-Laws

	Hus. Edu	Father Edu.	Mother Edu.	Fa. in law Edu.	Mo. in Law Edu.	Dau. Earn.	Hus. Earn.	Fa. Earn.	Mo. Earn.	Fa. in Law Earn.	Mo. in Law Earn.	Combined Earn.
Dau. Edu.	.818*	.546	.224	.535	.527	.633	.537	.264	.644	.165	.402	.597
Hus. Edu.	1.00	.712*	.410	.678	.556	.543	.620	.306	.797*	.273	.419	.594
Father Edu.		1.00	.862*	.700*	.784*	.722*	.874*	.576	.775*	.637	.601	.817*
Mo. Edu.			1.00	.575*	.804*	.609*	.729*	.715	.676	.530	.574	.685
Father in law Edu.				1.00	.860*	.335	.488	.242	.639	.353	.700*	.421
Mo. in law Edu.					1.00	.530	.617	.437	.730*	.398	.818*	.587
Dau. Earn.						1.00	.914*	.565	.714*	.684	.476	.978*
Hus. Earn.							1.00	.488	.733*	.805*	.612	.979*
Father Earn.								1.00	.561	.105	.005	.538
Mo. Ear									1.00	.346	.480	.740
Fa. in law Ear										1.00	.618	.762
Mo. in law Ear											1.00	.556

Table-4. Intergenerational Elasticity of Educational Mobility

Dependent Variable: Education of Child

Independent Variable	Total Sample	Married Sample				
		Daughter		Husband		
Mother's Education	0.245* (10.27)	0.251* (10.64)	0.210* (4.45)	0.318* (6.35)	0.361* (6.88)	0.418* (8.07)
Father's Education	0.253* (9.55)	0.256* (9.80)	0.085* (2.94)	1.064* (28.16)	1.048* (27.50)	1.003* (26.66)
Father in Law Education	-	-	0.017 (0.72)	-	-	0.146* (3.15)
Mother in Law Education	-	-	0.101* (3.78)	-	-	0.168* (3.94)
Spousal Education	-	0.055* (5.37)	0.613* (17.02)	-	0.117* (2.65)	0.418* (8.07)

* Significant at 1 per cent level.

Table-5. Intergenerational Elasticity of Income Mobility

Dependent Variable: Ln (Earnings of Child)

Independent Variable	Total Sample	Married Sample							
		Daughter				Husband			
ln(parental Income)	0.390* (13.58)	0.501* (11.46)	-	0.372* (7.60)	0.142* (3.26)	0.383* (10.81)	-	0.224* (9.37)	0.051 (1.57)
ln(in-laws Income)	-	-	0.525* (10.23	0.367* (6.70)	0.212* (4.46)	-	0.394* (13.58)	0.304* (9.37)	0.149* (4.52)
Ln(Spousal Income)	-	-	-	-	0.784* (11.84)	-	-	-	0.410* (11.84)

* Significant at 5 per cent level

References

Altonji, J.A. and T. Dunn (1992) "Relationships among the Family Incomes and Labor Market Outcomes of Relatives", *Research in Labor Economics*, 12, 269–310.

Becker, G.S. (1991) *A Treatise on the Family*, Cambridge: Harvard University Press.

Becker, G.S. and N. Tomes (1979) "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility", *Journal of Political Economy*, 87, 6, 1153–1189.

Becker, Gary S. and Nigel Tomes (1986) "Human Capital and the Rise and Fall of Families", *Journal of Labor Economics*, 4, 3, Part 2, S1–S39.

Behrman, J.R. and M.R..Rosenzweig (2002) "Does Increasing Women's Schooling Raise the Schooling of the Next Generation?", *American Economic Review*, 91, 1, 323–334.

Black, S.E., P.J. Devereux and K.G. Salvanes (2003) "Why the Apple Doesn't Fall Far: Understanding the Intergenerational Transmission of Human Capital", NBER Working Paper No. 10066.

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

Bjorkland, A., T.Eriksson, M. Jantti, E. Osterbacka and O.Raaum (2002) "Brother Correlations in Earnings in Denmark, Finland, Norway and Sweden Compared to the United States", *Journal of Population Economics*, 4, 757–772.

Blanden, J. (2005) "Essays on Intergenerational Mobility and Its Variation over Time, Place and Family Structure", Unpublished Ph.D. Thesis, University college, London.

Blanden, J., P. Gregg and L. Macmillan (2007) "Accounting for Intergenerational Income Persistence: Noncognitive Skills, Ability and Education", *Economic Journal*, 117, C43–C60.

Bratberg, E., O. Nilsen and K.G. Vaage (2002) "Assessing Changes in Intergenerational Earnings Mobility", University of Bergen, mimeo.

Bratberg, E. O.A. Nilsen and K.G. Vaage (2005) "Intergenerational Earnings Mobility in Norway: Levels and Trends", *Scandinavian Journal of Economics*, 107, 3, 419–435.

Bratberg, B., K. Roed, O. Raaum, R. Naylor, M. Jantti, T. Eriksson and E. Osterbacka (2007) "Nonlinearities in Intergenerational Earnings Mobility: Consequences for Cross-Country Comparisons", *Economic Journal*, 117, C72–C92.

Chadwick, L. and G. Solon (2002) "Intergenerational Income Mobility among Daughters", *American Economic Review*, 92, 1, 335–344.

Chevalier, A. (2003) "Parental Education and Child's Education: A Natural Experiment", University College Dublin, mimeo.

Corak, M. (2004) "Do Poor Children Become Poor Adults? Lessons for Public Policy from a Cross Country Comparison of Generational Earnings Mobility", in M.Corak (ed.): *Generational Income Mobility in North America and Europe*, Cambridge, Mass.: Cambridge University Press.

Couch, K.A. and T.A. Dunn (1997) "Intergenerational Correlations in Labor Market Status: A Comparison of the United States and Germany", *Journal of Human Resources*, 32, 1, 210–232.

Deardon, L., S.Machin and H.Reed (1997) "Intergenerational Mobility in Britain", *Economic Journal*, 107, 47–66.

Eide, E.R. and M.H. Showalter (1999) "Factors Affecting the Transmission of Income Across Generations: A Quantile Regression Approach", *Journal of Human Resources*, 34, 2, 253–276.

Ermisch, J., M. Francesconi and T. Siedler (2006) "Intergenerational Mobility and Marital Sorting", *Economic Journal*, 116, 659–679.

Fernandez, R., A. Fogli and C. Olivetti (2004) "Mothers and Sons: Preference Formation and Female Labor Force Dynamics", *Quarterly journal of Economics*, 116, 1249–1299.

Grawe, N. and C.B. Mulligan (2002) "Economic Interpretations of Intergenerational Correlations", *Journal of Economic Perspectives*, 16, 3, 45–58.

Goldberger, A.S. (1989) "Economic and Mechanical Models of Intergenerational Transmission", *American Economic Review*, 79, 3, 504-513.

Holmlund, H. (2007) "Intergenerational Mobility and Assortative Mating: Effects of an Educational Reform", London School of Economics, mimeo.

Horvonen, L. (2007) "Intergenerational Income Mobility: The Role of Education as an Income Transmission Mechanism", Swedish Institute for Social Research, Stockholm University, mimeo.

Lam, D. and R.F. Schoeni (1993) "Effects of Family Background on Earnings and Returns to Schooling: Evidence from Brazil", *Journal of Political Economy*, 101, 4, 710–740.

Lam, D. and R.F. Schoeni (1994) "Family Ties and Labor Markets in the United States and Brazil", *Journal of Human Resources*, 29, 4, 1235–1258.

Mulligan, C.B. (1999) "Galton vs The Human Capital Approach to Inheritance", *Journal of Political Economy*, 107, 184–224.

Plug, E. (2002) "How Do Parents Raise the Educational Attainment of Future Generations?", IZA Discussion Paper No. 52.

Raaum, O., K.G. Salvanes and E.O. Sorensen (2006) "The Neighborhood is Not What It Used to Be", *Economic Journal*, 116, 278–300.

Raaum, O., B. Bratberg, K. Roed, E. Osterbacka, T. Eriksson, M. Jantti and R. Naylor (2007) "Marital Sorting, Household Labor Supply, and Intergenerational Earnings Mobility across Countries", IZA Discussion Paper No.3037, Bonn.

Sacerdote, B. (2002) "The Nature and Nurture of Economic Outcomes", *American Economic Review*, 92, 2, 344–348.

Solon, G. (1999) "Intergenerational Mobility in the Labor Market", in O. Ashenfelter and D. Card (eds.): *Handbook of Labor Economics, Volume 3A*, Amsterdam: North-Holland, 1761–800.