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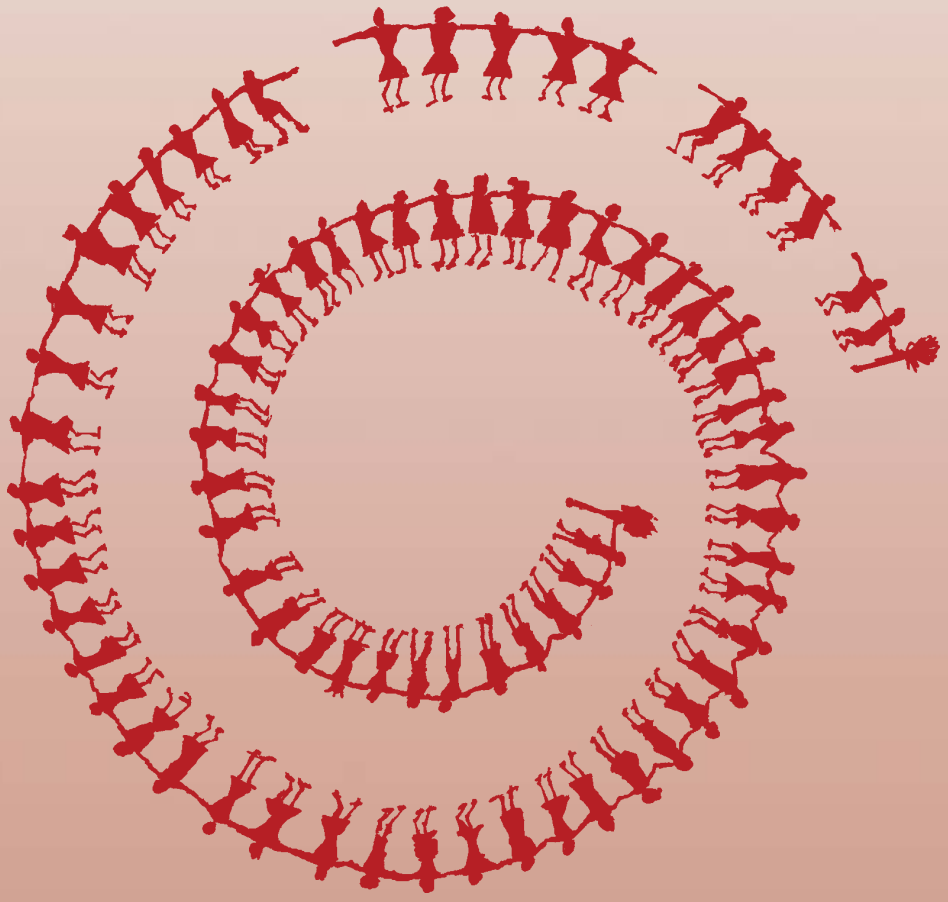
Report No. 44

South Asia Human Development Sector

Evolving Inequality of School Attainment Sri Lanka

August 2011



Discussion Paper Series

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South Asia: Human Development Sector

Evolving Inequality of School Attainment in Sri Lanka

August 2011

Discussion Paper Series

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EXECUTIVE SUMMARY

Disparities in school outcomes are an important source of income inequality, especially in rapidly developing and developed economies where the returns to schooling have been increasing. It is therefore important to document and understand the sources of schooling inequality. Using repeated cross-section household survey data from three rounds of the Sri Lanka Household Income and Expenditure Survey (HIES) we construct measures of schooling years for Sri Lankan adult males and females over the age of 20 years by their year of birth. We find that both men and women have made remarkable gains in schooling over time, with men born in 1976-85 having two times the schooling that men born in 1886-25 had and comparable women increasing their schooling threefold. Because of the more rapid increase in female schooling, the male schooling advantage, which was quite substantial in the early part of the 19th century, disappeared by 1956-65, and women in subsequent cohorts have higher levels of completed schooling than comparable men.

However, a comparison of increases in school attainment across different world regions over the period 1950-2005 suggests that Sri Lanka's achievements, while stellar in the earlier period, have not kept pace with schooling improvements in other parts of the world. While Sri Lanka had a significant advantage in school attainment over most other developing countries in 1950, by the late 1970s schooling levels in Latin America, East Asia and the Middle East/North Africa had caught up with – and even surpassed – schooling levels in Sri Lanka.

The intergenerational transmission of schooling is an important reason for the persistence of schooling disparities over time. More-educated parents are much more likely than less-educated parents to invest in the schooling of their children owing to different preferences, better financial circumstances, and their own greater human capital. In this paper, we explore whether the association between parental and child schooling has strengthened or weakened over time, using regression analysis on the pooled HIES data.

We find strong, but declining, effects of parental schooling on (male and female) child schooling over time, even after controlling for other variables. For instance, the marginal effect of mother's schooling on the completed schooling of her daughters fell by nearly two-thirds – from 0.126 in 1985-86 to 0.043 in 2006-07. When we conduct the analysis across age cohorts, we find a similar pattern – viz., that the estimated effects of father's and mother's schooling on the completed schooling of their adult males and female children have declined significantly over the cohorts. For the earliest cohort of children (i.e., those born before 1960), the estimated marginal effects of parental schooling were typically large (in the 0.25-0.5 range), but these have all fallen to nearly zero for the most recent cohorts. Further, we obtain the almost identical results when we limit the analysis to completion of high school and post-secondary education (as opposed to any schooling) by children. Thus, our results suggest that the declining intergenerational transmission of schooling we have observed in Sri Lanka over the decades and cohorts is real and not merely driven by the vast expansion of primary and lower secondary education in that country over the last few decades.

The fact that schooling has become more meritocratic over time in Sri Lanka is a reflection of the success of the educational reform process in Sri Lanka in promoting access and equity. The improved distribution of schooling would have likely played an important role in improving the distribution of income in the country had there not been other compensating changes.

Introduction

While there has been much attention paid in recent years to health disparities within and across developing countries, disparities in school attainment have received much less attention. With technological change and globalization, the returns to schooling, especially higher education, have increased significantly over time, both in developing and developed countries (Psacharapoulos and Patrinos 2002; Hanushek and Welch 2006; Colclough *et al* 2009). As such, disparities in schooling across individuals have become an important source of income inequality.

There are many reasons why schooling may be distributed unequally within a population. Schooling is an investment asset, especially one that requires large investments up front. Even if public schools are "free" of tuition and fees to students, households are nevertheless responsible for many other costs associated with public schools (e.g., uniform, textbooks, private tuition, and the opportunity cost of time of children). Household surveys in many developing countries show that households spend significant amounts on supposedly "free" primary and secondary schooling (Tilak 1996, World Bank 2005). Higher-income households are thus in a better position to offer more (and higher quality) schooling for their children than low-income households, which implies that the unequal distribution of income across households is an important cause of the inequality in schooling outcomes. Thus, income inequality drives disparities in schooling outcomes, which in turn reinforces the inequality in income over time.

The intergenerational transmission of schooling is an important reason why schooling inequalities persist, or even widen, over time. More educated parents tend to invest more heavily in the schooling of their children than less-educated parents for a number of reasons. First, more-educated parents are likely to have a stronger preference for education than less-educated parents. Second, more-educated parents typically have higher levels of income and can better afford to send their children to school and keep them longer in school. Third, better-educated parents can help their children more directly in the acquisition of education – say, by helping them with their schoolwork and homework.

In this paper, we focus on the intergenerational transmission of schooling disparities in Sri Lanka, a country that has performed well in average school attainment relative to its per capita income (Aturupane 2009; World Bank 2011). We examine the factors that weaken or strengthen the association between parental and child schooling, paying particular attention to the role of gender (i.e., the association between father's and mother's schooling on the one hand and male and female children's schooling on the other). Exploiting repeated cross-sections of household survey data, we also test if the intergenerational transmission of schooling disparities has narrowed over the last 3-4 decades. Finally, we examine whether temporal changes in the intergenerational transmission of schooling inequality differ systematically across socioeconomic groups.

Schooling outcomes through the 20th century

In this paper, we use pooled data from three rounds of the Household Income and Expenditure Survey (HIES) – 1985-86, 1995-96 and 2005-06 – to construct average years of completed schooling for individuals born as far back as the early 20th century. The pooling of the three survey rounds gives us a large sample of more than 150,000 individuals above the age of 20 years (viz., those that have completed their schooling); it also means that we have individuals born as early as 1886 and as late as 1985 in the sample. Below, we use these data to examine how school attainment has increased during the last century. Because of relatively few observations on the elderly, especially in the earliest (1985-86) sample, we have aggregated the data for all cohorts born prior to 1925. In addition, we should note that data on average schooling years for the oldest birth cohorts should be treated with caution owing to high rates of mortality for this group. If, as is likely, better-educated (and more affluent) individuals are more likely to survive in old age than less-educated (and poorer) individuals, average completed schooling years for a sample of surviving elderly individuals might be biased upwards.

Figure 1 shows average completed schooling years for males and females over the age of 20 years by their year of birth. The first observation from the chart is that both men and women have made remarkable gains in schooling over time, albeit from very low levels. While average completed schooling was only 4.3 years for males born in 1886-25, it was two times as large for males born in 1976-85 (who would have been 20-29 years of age in the 2005-06 HIES). Among women, average completed years of schooling increased more than three-fold – from 2.8 years in the oldest cohort to 9.3 years in the youngest cohort. Interestingly, the male advantage, which was quite substantial in the early part of the 19th century, disappeared by 1956-65, as schooling expanded more rapidly among women than among men. Indeed, among individuals born after this period, women have higher levels of completed schooling than men. As Figure 1 shows, the ratio of female to male schooling years increased from 66% in the oldest cohort to 107% in the youngest cohort – a remarkable achievement. Clearly, gender equality in schooling outcomes has improved tremendously in Sri Lanka over time.[1]

In a recent paper, Patrinos and Psacharopoulos (2011) have used data from Barro and Lee (2010) to show the evolution of mean years of schooling across world regions from 1950 to 2005. A natural question is: how does the evolution of schooling in Sri Lanka over this period compare to that in other parts of the world?

[1] While it would be interesting to compare the evolution of schooling inequality in rural and urban areas, it is not possible to do this with the data we have. The household surveys from which we have calculated levels of school attainment for the different birth cohorts only obtained information on the *current* (i.e., at the time of the survey) location of a respondent – and not his or her previous location. It is entirely possible that the respondent was in an entirely different location (province or sector) at the time of his or her schooling (which, in some cases, could have been decades earlier). An analysis of changes in school attainment over the years, disaggregated by location, would be misleading since it would implicitly make the assumption that people had obtained their schooling in the same location where they were residing at the time of the surveys.

Figure 2

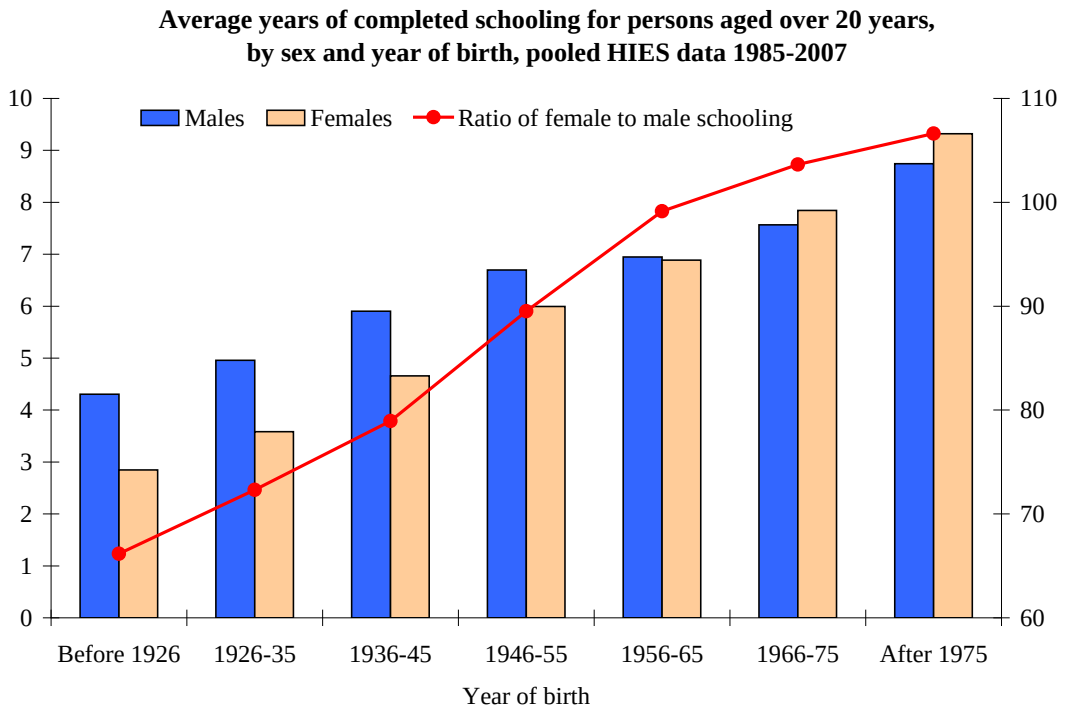
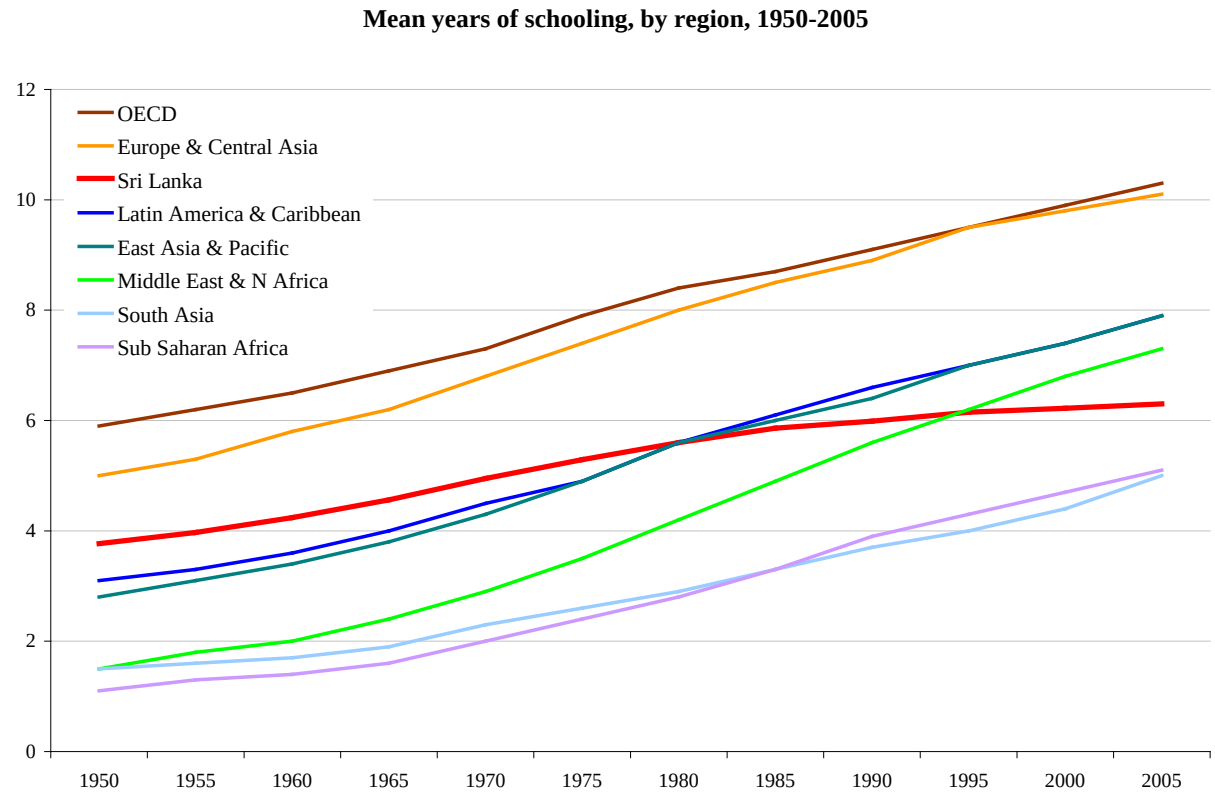


Figure 1



While our data are not strictly comparable to the data collected by Barro and Lee, we have approximated mean years of schooling for the population in of the years 1950-2005 by averaging schooling years over all individuals who were born at least 20 years prior to that date. While not perfect, the number is roughly comparable to the Barro and Lee averages. Figure 2 shows that while mean years of schooling in Sri Lanka were significantly above the levels for any other developing world group in 1950 (and exceeded only by Europe and the advanced economies), by the late 1970s schooling levels in Latin America, East Asia and the Middle East/North Africa had caught up with – and even surpassed – schooling levels in Sri Lanka. However, Sri Lanka continues to be well ahead of South Asia and Sub Saharan Africa in terms of school attainment. Thus, the growth of school attainment in Sri Lanka relative to other world regions has definitely slowed over the decades.

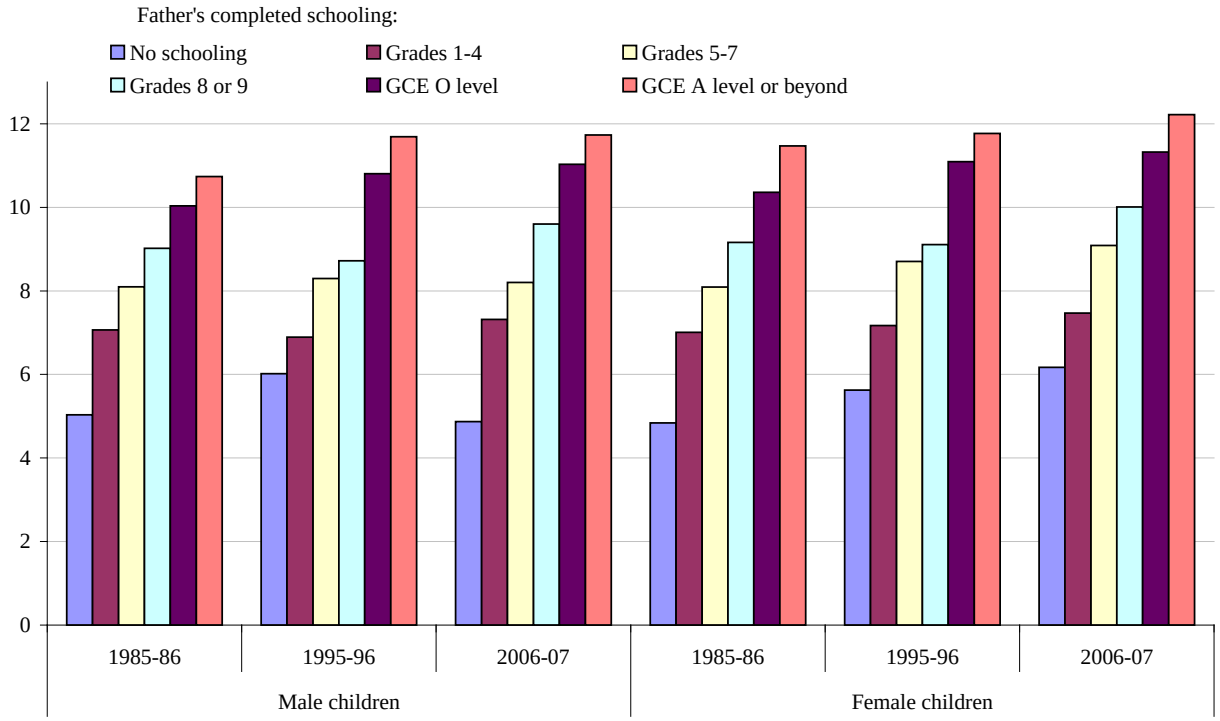
Intergenerational Inequality in School attainment

As noted earlier, the intergenerational transmission of schooling is an important reason for the persistence of schooling disparities over time. For a variety of reasons, more-educated parents are much more likely than less-educated parents to invest in the schooling of their children. As such, a declining association between parental and child schooling over time will, *ceteris paribus*, ultimately result in an improved distribution of schooling within a population.

Data from the three rounds of the HIES show a definite decline in overall schooling inequality over time. The coefficient of variation (CV) of schooling years fell from 0.59 in 1985-86 to 0.57 in 1995-96 to 0.52 in 2006-07. The Gini coefficient for inequality in schooling years declined from 0.33 to 0.32 to 0.29 over the same period.

Figure 3

Average completed schooling years, by father's schooling, 1985-86 to 2006-07, children aged 26-50 years



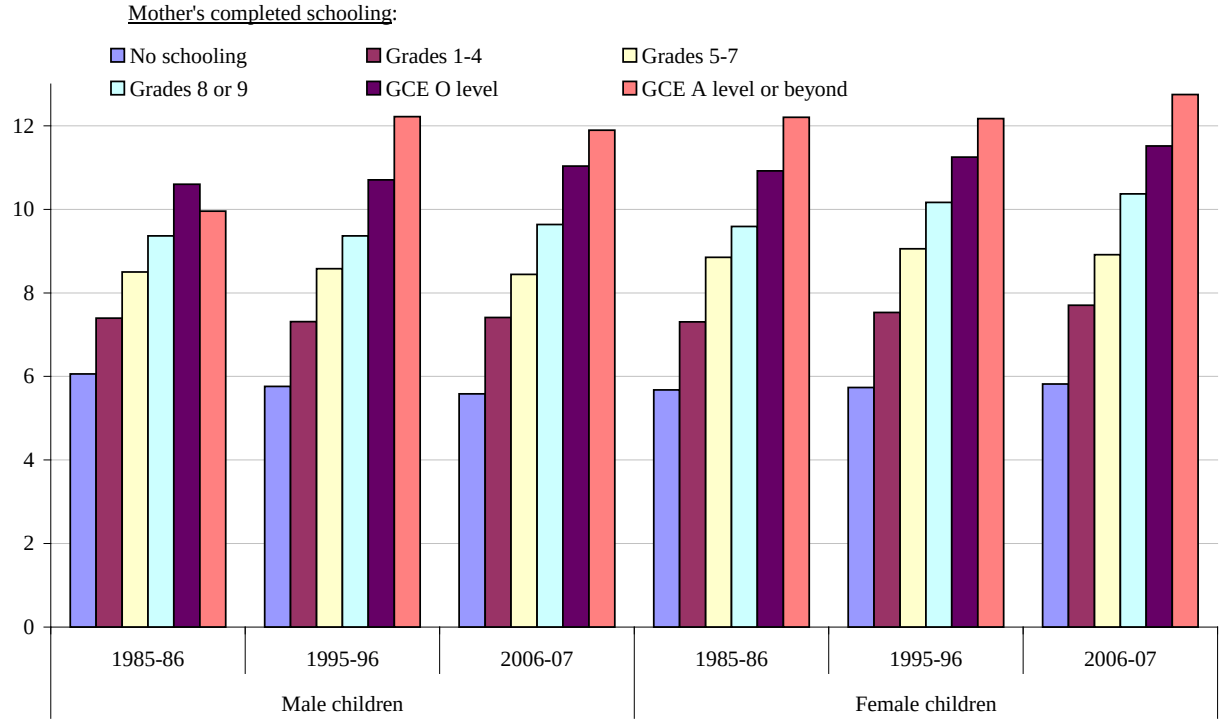
How has the intergenerational transmission of schooling inequality – i.e., the extent to which parents' schooling influences children's schooling – changed over time? Figure 3 shows mean completed schooling years for grown male and female children aged 26-50 years (co-residing with their parents) in 1985-86, 1995-96, and 2006-07, disaggregated by their father's completed schooling level. Figure 4 shows the same graph by the mother's completed schooling level. With hardly any exception, mean school attainment for both male and female children increases with the level of parents' schooling. For females, especially, the association between parents' and

children's schooling has become stronger over time (i.e., from 1985-86 to 2006-07). However, since there is no control for other variables that influence children's schooling, the associations shown in Figures 3 and 4 may be spurious.

We therefore use a more rigorous regression framework to examine whether the intergenerational transmission of inequality in school attainment has narrowed over time. In particular, we estimate the following reduced-form (demand) equation for child schooling:

Figure 4

Average completed schooling years, by mother's schooling, 1985-86 to 2006-07, children aged 26-50 years



$$(1) \quad S^{C}_{it} = a(t) + b(t)\, S^{F}_{it} + d(t)\, S^{M}_{it} + \mathbf{f}\, \mathbf{Z_{it}} + u_{it}$$

$$(2) \quad a(t) = a_0 + a_1 t,$$

$$(3) \quad b(t) = b_0 + b_1 t,$$

$$(4) \quad d(t) = d_0 + d_1 t,$$

where S^C is completed schooling (in years) of the i^{th} school-aged (ages 6-25) child in year t, S^F is schooling of the father (also in years), S^M is schooling of the mother (in years), **Z** is a vector of child and parental characteristics, and u is an i.i.d. error term. **Z** includes, among other things, the age and sex of the child and the ethnicity, religion and residence (rural, urban, estate) of the household. (Since we use repeated cross-sectional – not longitudinal – data, it is not possible to

have an individual intercept or fixed effect in the equation.) Because schooling completion depends strongly on age, we use single-year age dummies for each age between 6 and 25. To allow for differences in the socioeconomic determinants of schooling across gender, we estimate equations (1)-(4) with gender slope dummies, which is equivalent to estimating the equations separately for each sex. Finally, we include district fixed-effects in all of our estimates to control for unobserved regional heterogeneity in schooling.

We estimate equations (1)-(4) by pooling data for school-aged children (ages 6-25) from three rounds of the HIES from 1985-86, 1995-06, and 2006-07. By allowing the effect of parental schooling to vary over time, we can test whether the associations between parental and child schooling (i.e., the estimated coefficients b and d) have fallen over the three years.

Our analysis can be extended further. Since we use multiple rounds of the HIES surveys over a 20-year period and since the HIES surveys include information on completed schooling years of all children residing at home irrespective of their age, we can extend our analysis of intergenerational schooling inequality significantly before 1985-86 (the year of the earliest HIES sample we use). Indeed, our sample of resident children and parents includes children born as early as 1936, so we can analyze the intergenerational transmission of schooling inequality for cohorts born between 1936 and 2001. Our estimating equations can thus be rewritten as:

$$(5) \quad S^{C}_{ic} = a(c) + b(c)\, S^{F}_{ic} + d(c)\, S^{M}_{ic} + \mathbf{f}\, \mathbf{Z_{ic}} + u_{ic}$$

$$(6) \quad a(c) = a_0 + a_1\, c,$$

$$(7) \quad b(c) = b_0 + b_1\, c,$$

$$(8) \quad d(c) = d_0 + d_1\, c,$$

where c is the birth year (or cohort) of child i, and i includes all resident children irrespective of age. As with equations (1)-(4), we allow all coefficients in equations (5)-(8) to vary across the gender of a child. We control for age-dependence in school attainment in two ways: first, as in equations (1)-(4), we include single-year age dummies for children aged 6-25. To capture age differences in the schooling of children older than 25 years of age, we include linear and quadratic terms in age in the equations. Note that the effect of parents' schooling on children's schooling varies by age cohort in equations (5)-(8). Finally, as with equation (1), we include district fixed-effects in estimating equation (5) so as to control for unobserved regional heterogeneity.

Empirical Results

We estimate equations (1)-(4) and (5)-(8) using ordinary least squares. The estimated results for equations (1)-(4) are presented in Table 1, while those for equations (5)-(8) are presented in Table 2. Reported standard errors are corrected for a general, unknown form of heteroscedasticity using the Huber-White method in both sets of equations.
One of the most interesting – and expected – results from Table 1 is that, even after controlling for other variables, male and female schooling have increased solidly over the 20-year period. The results suggest that average schooling increased by more than two years between 1985-86 and 2006-07.

Because the model contains so many interaction variables, it is not easy to tell from Table 1 the corresponding marginal effects of parental schooling on male and female children's schooling in each of the three survey periods. These are calculated and presented below in Figure 5.

The results show significant positive effects of both father's and mother's schooling on the schooling of their sons and daughters. But the striking finding is the sharp decline in these estimated effects over time. For instance, the effect of mother's schooling on the schooling of her sons fell by nearly one-half between 1985-86 and 2006-07 (from 0.13 to 0.07). The marginal effect of mother's schooling on the schooling of her daughters fell by nearly two-thirds. The declines are roughly comparable for father's schooling. What this suggests is that the positive association between parental and child schooling has weakened dramatically over time.

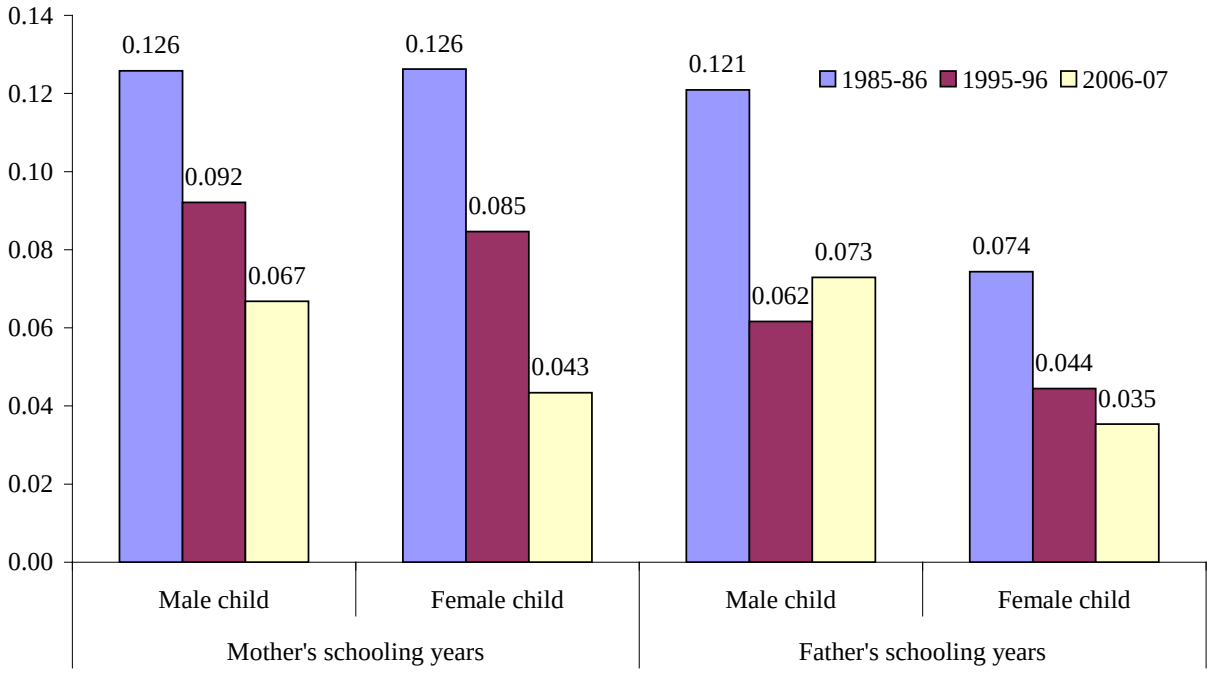
The second important finding from Table 1 is the difference between how father's and mother's schooling affects their sons' versus daughters' schooling, especially in the earlier two periods. While increases in maternal schooling "benefited" boys and girls roughly equally in 1985-86 and 1995-96, paternal schooling was associated much more strongly with sons' schooling than with daughters' schooling. This seems to suggest that while educated mothers treated their sons and daughters (in terms of schooling) more-or-less equally, fathers tended to favor their sons. Interestingly, this result is broadly similar to Duncan's finding that the education of the mother had a bigger effect on her daughter's height while paternal education had a larger impact on his son's height in such diverse countries as Brazil, Ghana, and the United States (Thomas 1994).

However, by 2006-07, the "discrimination" in favor of sons had spread to mothers as well, with the marginal effect of mother's schooling on sons' schooling being more than 50 percent greater than the marginal effect on daughters' schooling.[2] Of course, the extent of discrimination by fathers was much greater than that by mothers.

[2] Of course, it is not clear that the observed son-daughter difference in the marginal effects of parental schooling reflects parental discrimination against girls.

Figure 5

Estimated marginal effects of parental schooling years on child schooling years, children aged 6-25 years, 1985-86 to 2006-07



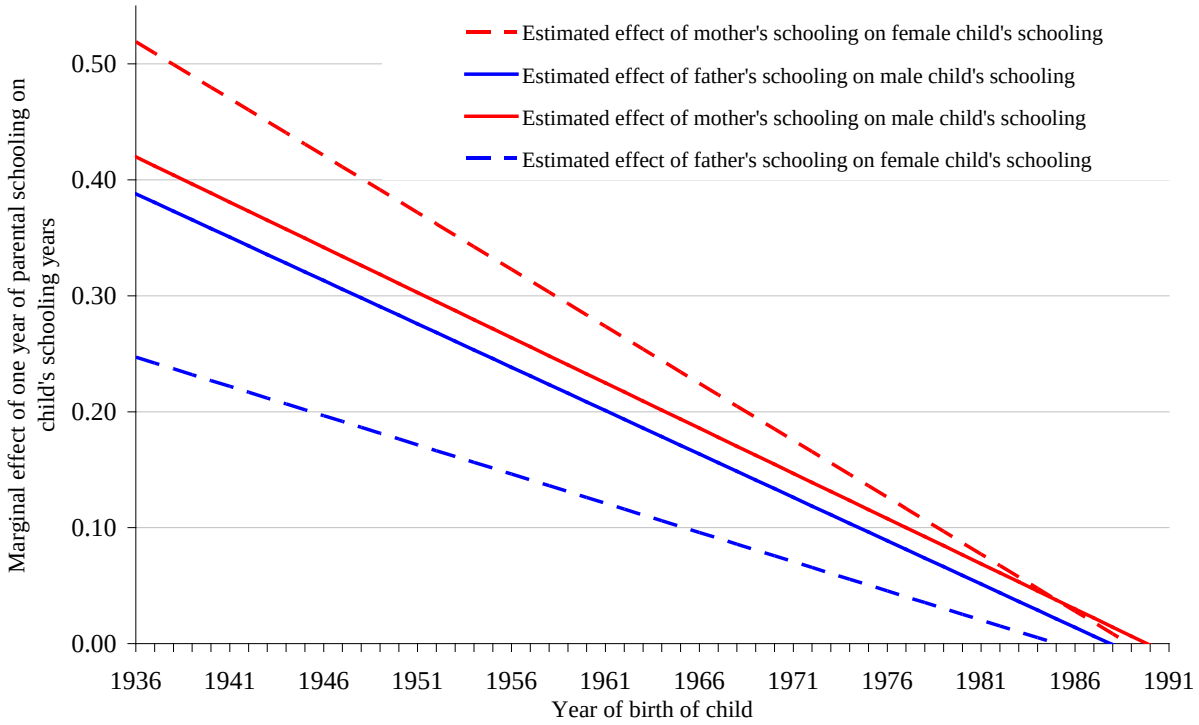
A diminished association between parental and child schooling can reduce inequality significantly. Our simulations show that a decline in the marginal effect of parents' schooling on their children's schooling from 0.12 to 0.06 would reduce the coefficient of variation of children's schooling from 0.60 to 0.44 and the Gini coefficient of schooling from 0.33 to 0.25, assuming no compensating changes in other factors influencing children's schooling. This amounts to a very large reduction in schooling disparities. A reduction in schooling inequality is likely to result in a reduction in income inequality, given that schooling is an important determinant of earnings and income (assuming, of course, no compensating changes in other factors).

Among the other salient results in Table 1 is the sharp decline in school attainment experienced by Tamil women in 1995-96 – a peak year of the ethnic conflict that has been raging in Sri Lanka's northeastern provinces for the last 20 years. The regressions also show that individuals living in the estates had significantly lower school attainment than those living in the rural and urban areas in 1985-86, but that this disadvantage largely disappeared by 1995-96 and 2006-07. Finally, the results show that the strong positive association between child schooling and household living standards, proxied by per capita household consumption expenditure, increased from 1985-86 to 1995-96, particularly for men, but then declined from 1995-96 to 2006-07. This latter decline would have resulted in a further improvement in the distribution of children's schooling over that period.

OLS estimates of equations (5)-(8) are shown in Table 2. As would be expected, mean school attainment among cohorts has increased sharply over the cohorts, albeit at a diminishing rate. More importantly, the effects of parental schooling on child schooling vary significantly across the gender of the parent and the child, as well as across birth cohorts. Figure 6 plots the four estimated coefficients (viz., the marginal effects of father's schooling on boys' and girls' schooling and the marginal effects of mother's schooling on boys' and girls' schooling) for each birth cohort since 1936. The most striking observation is that all four effects have declined over time – approaching zero for the most recent birth cohorts. For the earliest cohorts (i.e., those born before 1960), there were large gender differences in the association between parental and child schooling. The largest difference was in the estimated effects of mother's and father's schooling on the schooling of their daughters. For instance, in the cohort born in 1950, an increase of one year in the schooling of a father was associated with an increase of 0.18 years in the schooling of his daughter. However, an equivalent increase in the mother's schooling was associated with an increase of more than twice as much in the daughter's schooling (0.38 years). (Interestingly, for male children in the same cohort, there was hardly any difference between the marginal effects of mother's and father's schooling.) As the schooling of both mothers and daughters has expanded rapidly over time, not only has the magnitude of the parental schooling effects declined but the gender difference in parental schooling effects has also narrowed significantly.

Figure 6

Estimated effects of parental schooling years on child schooling years, across birth cohorts



There are other interesting results observed in Table 2. The positive association between mother's (but not father's) and child schooling is greater among Tamils than among the

Sinhalese, probably reflecting the fact that education is not as widespread among Tamils as it is among other communities in Sri Lanka. The association between both parents' schooling and child schooling is lower among urban households than among rural households,. The estimated effect of father's (but not mother's) schooling on child schooling is larger at higher levels of per capita consumption expenditure.

It is possible that the association between parental and child schooling has weakened over time simply because of the huge expansion in primary and middle schooling in Sri Lanka over the last several decades. Once there is universal primary enrollment, no relationship will be observed between primary school completion by children and their parents' schooling. However, a positive association between parental and child schooling might still be observed at higher (non-universal) levels of education.

To test whether this possibility is driving our results, we estimate the relation between the completion of high school and post-secondary education by children and the completion of the same level of education by their parents, again using data over a number of birth cohorts. The equation estimated is similar to equations (5)-(8), but with the earlier dependent variable – viz., schooling years – being replaced by a dichotomous variable indicating completion of at least the 10^{th} grade of high school (viz., completion of O levels, A levels, or college) by resident children aged 16 years and older. In addition, the right-side variables in equations (5)-(8) – viz., father's and mother's schooling years – are replaced by the completion of at least 10^{th} grade by the child's father and mother. As the dependent variable is a dichotomous variable, the equation is estimated by maximum-likelihood probit.

The empirical results, shown in Table 3, are similar to those reported in Table 2. The children of mothers and fathers with high school or college education are much more likely than the children of parents with less-than-high-school education to complete high school or college education themselves. However, this strong positive association between parental and child completion of high school has declined significantly over time. Interestingly, for mother's high school completion, there is no significant difference between boys and girls, but father's high school completion is associated much more strongly with boys' high school completion than with girls' high school completion. Thus, the results are almost identical to those obtained with years of schooling, and suggest that the declining intergenerational transmission of education is real and not merely driven by the vast expansion of primary and lower secondary education in Sri Lanka over the last few decades.

Conclusions

Sri Lanka has made enormous gains in school attainment in the last century. Mean years of schooling have doubled for men and trebled for women, over the cohort of individuals born in 1886-25 compared to the cohort born in 1976-85. The faster rate of increase in female relative to male schooling has meant that women born after the late 1950s have higher school attainment than men. However, a comparison of increases in school attainment across different world regions over the period 1950-2005 suggests that Sri Lanka's achievements, while stellar in the earlier period, have not kept pace with schooling improvements in other parts of the world. While Sri Lanka had a significant advantage in school attainment over most other developing countries in 1950, by the late 1970s schooling levels in Latin America, East Asia and the Middle East/North Africa had caught up with – and even surpassed – schooling levels in Sri Lanka. Of course, Sri Lanka continues to have a lead in school attainment over other countries in South Asia and those in Sub Saharan Africa.

An important focus of this paper is to estimate the association between parental and child schooling, and examine how this association has evolved over time. The association between parental and child schooling is important because it is an important vehicle for the intergenerational transmission of inequality in schooling outcomes. Increased inequality in schooling outcomes, in turn, is an important source of income inequality. As such, an increasingly stronger association between parental and child schooling over time will, *ceteris paribus*, result in a worsening distribution of schooling and income within a population, while a diminishing association will have the opposite effect. For Sri Lanka, we find that the association between parental and child schooling has fallen significantly over time. For instance, the strong positive effect of both paternal and maternal schooling on children's schooling fell by nearly one-half between 1985-86 and 2006-07 among male children and by two-thirds among female children.

The large expansion in primary schooling in Sri Lanka over the last several decades may be one reason why the association between parental and child schooling has weakened over time. Once there is universal primary enrollment, no relationship will be observed between primary school completion by children and their parents' schooling. However, a positive association between parental and child schooling might still be observed at higher levels of education. However, our empirical results show a significant decline in the association between parental and child schooling even at higher levels of education. Thus, all the evidence points to a real reduction in the intergenerational transmission of schooling in Sri Lanka over the last few decades. The fact that schooling has become more meritocratic over time is a reflection of the success of the educational reform process in Sri Lanka in promoting access and equity.

Table 1: District fixed-effects regressions of completed schooling years, children aged 6-25 years, 1985-86, 1995-96 and 2006-07

Independent Variable	*Coefficient*	*T-ratio*
Intercept	**5.724**	46.1
Female*	**1.369**	7.5
Mother's schooling years	**0.126**	18.7
Mother's schooling years x 1995*	**-0.034**	-3.7
Mother's schooling years x 2006*	**-0.059**	-4.5
Mother's schooling years x Female*	0.000	0.1
Mother's schooling years x Female* x 1995*	-0.008	-0.6
Mother's schooling years x Female* x 2006*	-0.024	-1.3
Father's schooling years	**0.121**	17.3
Father's schooling years x 1995*	**-0.059**	-6.4
Father's schooling years x 2006*	**-0.048**	-3.6
Father's schooling years x Female*	**-0.047**	-4.7
Father's schooling years x Female* x 1995*	**0.029**	2.2
Father's schooling years x Female* x 2006*	0.009	0.5
Tamil*	**-0.533**	-3.0
Tamil* x 1995*	0.118	0.5
Tamil* x 2006*	0.056	0.2
Tamil* x Female*	0.013	0.1
Tamil* x Female* x 1995*	-0.233	-0.7
Tamil* x Female* x 2006*	0.057	0.1
Hindu*	0.065	0.3
Hindu* x 1995*	**-0.587**	-2.2
Hindu* x 2006*	-0.412	-1.2
Hindu* x Female*	**-0.529**	-1.8
Hindu* x Female* x 1995*	0.313	0.8
Hindu* x Female* x 2006*	0.411	0.9
Muslim*	0.024	0.3
Muslim* x 1995*	**-0.282**	-2.8
Muslim* x 2006*	**-0.314**	-2.8
Muslim* x Female*	**-0.355**	-3.4
Muslim* x Female* x 1995*	0.040	0.3
Muslim* x Female* x 2006*	**0.230**	1.5
Christian*	-0.112	-1.6
Christian* x 1995*	0.082	0.8
Christian* x 2006*	0.033	0.3
Christian* x Female*	**-0.315**	-3.4
Christian* x Female* x 1995*	0.197	1.4
Christian* x Female* x 2006*	0.187	1.2
Urban*	0.060	1.4
Urban* x 1995*	-0.027	-0.4
Urban* x 2006*	-0.019	-0.3
Urban* x Female*	-0.067	-1.2
Urban* x Female* x 1995*	0.107	1.2
Urban* x Female* x 2006*	0.085	0.8
Estate*	**-1.077**	-7.7

Table 1: District fixed-effects regressions of completed schooling years, children aged 6-25 years, 1985-86, 1995-96 and 2006-07

Independent Variable	*Coefficient*	*T-ratio*
Estate* x 1995*	**0.967**	5.4
Estate* x 2006*	**0.979**	4.6
Estate* x Female*	-0.262	-1.3
Estate* x Female* x 1995*	0.132	0.5
Estate* x Female* x 2006*	**0.230**	0.8
Log per capita monthly cons. exp.	**0.242**	13.8
Log per capita monthly cons. exp. X 1995*	**0.254**	7.6
Log per capita monthly cons. exp. X 2006*	**-0.132**	-5.3
Log per capita monthly cons. exp. x Female*	-0.032	-1.5
Log per capita monthly cons. exp. x Female* x 1995*	**-0.068**	-2.8
Log per capita monthly cons. exp. x Female* x 2006*	0.017	0.9
Number of observations	60,246	
F-ratio	1,686.88	
R-squared	0.6533	

Notes: Data pooled from 1985-85, 1995-96 and 2006-07 HIES rounds.

*Dichotomous variable. Bold coefficients indicate significance at 5% or better level.
District and survey year fixed effects are included but their coefficients are not shown owing to space considerations. Likewise, a full set of single-year age dummies (from age 6 to 24 years) and single-year age dummies interacted with a female dummy are included. Robust standard errors have been calculated using the Huber-White heteroscedasticity correction. Data for Eastern and Northern provinces are not included in the regression.

Table 2: District fixed-effects regressions of completed schooling years, children aged 6-50 years, pooled HIES 1985-86, 1995-96 and 2006-07 samples

Independent Variable	*Coefficient*	*T-ratio*
Intercept	**3.622**	2.7
Age	0.152	1.8
Age squared	**-0.004**	-3.1
Female*	**4.209**	2.1
Female* x Age	-0.187	-1.5
Female* x Age squared	0.002	1.1
Mother's schooling years	**15.518**	18.5
Mother's schooling years x Year of birth	**-0.008**	-18.4
Mother's schooling years x Female*	**4.017**	3.5
Mother's schooling years x Female* x Year of birth	**-0.002**	-3.5
Father's schooling years	**14.870**	17.3
Father's schooling years x Year of birth	**-0.007**	-17.3
Father's schooling years x Female*	**-4.866**	-4.2
Father's schooling years x Female* x Year of birth	**0.002**	4.1
Tamil*	-6.854	-0.5
Tamil* x Year of birth	0.003	0.4
Hindu*	**-28.621**	-1.9
Hindu* x Year of birth	0.014	1.8
Muslim*	-2.839	-0.5
Muslim* x Year of birth	0.001	0.4
Christian*	**-27.041**	-4.2
Christian* x Year of birth	**0.014**	4.2
Urban*	2.418	0.6
Urban* x Year of birth	-0.001	-0.5
Estate*	**-141.305**	-13.1
Estate* x Year of birth	**0.071**	13.0
Log per capita monthly cons. exp.	1.419	1.2
Log per capita monthly cons. exp. X Year of birth	-0.001	-0.9
Tamil* x Mother's school years	**0.147**	5.2
Tamil* x Father's school years	0.027	1.0
Hindu* x Mother's school years	-0.044	-1.5
Hindu* x Father's school years	**0.078**	2.7
Muslim* x Mother's school years	**0.054**	4.5
Muslim* x Father's school years	0.015	1.3
Christian* x Mother's school years	0.002	0.2
Christian* x Father's school years	0.013	1.1
Urban* x Mother's school years	**-0.023**	-3.1
Urban* x Father's school years	**-0.021**	-2.9
Estate* x Mother's school years	0.003	0.2
Estate* x Father's school years	-0.004	-0.2
Log per capita monthly cons. exp. X Mother's school years	0.001	0.5
Log per capita monthly cons. exp. X Father's school years	**0.005**	3.0
Number of observations	68,547	
F-ratio	2,715	
R-squared	0.639	

Table 2: District fixed-effects regressions of completed schooling years, children aged 6-50 years, pooled HIES 1985-86, 1995-96 and 2006-07 samples

Independent Variable	*Coefficient*	*T-ratio*

Notes: Data pooled from 1985-85, 1995-96 and 2006-07 HIES rounds.

*Dichotomous variable. Bold coefficients indicate significance at 5% or better level.
District and survey year fixed effects are included but their coefficients are not shown owing to space considerations. Likewise, a full set of single-year age dummies (from age 6 to 24 years) and single-year age dummies interacted with a female dummy are included. Robust standard errors have been calculated using the Huber-White heteroscedasticity correction.

Table 3: Maximum-likelihood probit estimates of whether an individual aged 16-50 years has completed 10th grade or higher, pooled HIES 1985-86, 1995-96 and 2006-07 samples

Independent Variable	*Coefficient*	*z-ratio*
Age	**0.034**	4.1
Age squared	**-0.001**	-4.2
Female*	**0.917**	6.4
Female* x Age	**-0.068**	-5.6
Female* x Age squared	**0.001**	5.1
Whether mother completed 10th grade or higher*	**0.997**	2.9
Whether mother completed 10th grade or higher* x Year of birth	**-0.003**	-2.7
Whether mother completed 10th grade or higher* x Female*	-0.435	-0.4
Whether mother completed 10th grade or higher* x Female* x Year of birth	0.001	0.4
Whether mother completed 10th grade or higher*	**0.999**	3.4
Whether mother completed 10th grade or higher* x Year of birth	**-0.004**	-3.2
Whether mother completed 10th grade or higher* x Female*	**-0.758**	-2.1
Whether mother completed 10th grade or higher* x Female* x Year of birth	**0.003**	2.1
Tamil*	0.945	1.2
Tamil* x Year of birth	-0.002	-1.2
Hindu*	0.817	0.6
Hindu* x Year of birth	-0.001	-0.6
Muslim*	-0.568	-1.5
Muslim* x Year of birth	0.001	1.4
Christian*	-0.495	-1.1
Christian* x Year of birth	0.001	1.0
Urban*	-0.744	-1.3
Urban* x Year of birth	0.001	1.4
Estate*	**-0.999**	-6.4
Estate* x Year of birth	**0.010**	6.3
Log per capita monthly cons. exp.	-0.056	-0.5
Log per capita monthly cons. exp. X Year of birth	0.000	0.8
Tamil* x Whether mother completed 10th grade or higher*	0.093	1.3
Tamil* x Whether mother completed 10th grade or higher*	**0.137**	2.1
Hindu* x Whether mother completed 10th grade or higher*	-0.002	0.0
Hindu* x Whether mother completed 10th grade or higher*	-0.012	-0.2
Muslim* x Whether mother completed 10th grade or higher*	0.049	1.5
Muslim* x Whether mother completed 10th grade or higher*	0.008	0.3
Christian* x Whether mother completed 10th grade or higher*	-0.001	0.0
Christian* x Whether mother completed 10th grade or higher*	-0.044	-1.7
Urban* x Whether mother completed 10th grade or higher*	**-0.039**	-2.4
Urban* x Whether mother completed 10th grade or higher*	0.008	0.5
Estate* x Whether mother completed 10th grade or higher*	-0.082	-1.0
Estate* x Whether mother completed 10th grade or higher*	**0.230**	3.5
Log per capita monthly cons. exp. X Whether mother completed 10th grade or higher*	-0.001	-0.2
Log per capita monthly cons. exp. X Whether mother completed 10th grade or higher*	**-0.008**	-2.2
Number of observations	53,470	
Wald Chi-squared ratio	9,301	

Table 3: Maximum-likelihood probit estimates of whether an individual aged 16-50 years has completed 10th grade or higher, pooled HIES 1985-86, 1995-96 and 2006-07 samples

Independent Variable	*Coefficient*	*z-ratio*
Pseudo R-squared	0.188	

Notes: Data pooled from 1985-85, 1995-96 and 2006-07 HIES rounds.

*Dichotomous variable. Bold coefficients indicate significance at 5% or better level.
A full set of single-year age dummies (from age 16 to 24 years) and single-year age dummies interacted with a female dummy are included. Robust standard errors have been calculated using the Huber-White heteroscedasticity correction.

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