

THE INTERGENERATIONAL TRANSMISSION OF POVERTY: SOME CAUSES AND POLICY IMPLICATIONS

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(Paper for discussion, please do not quote)

By: Tarsicio Castañeda and Enrique Aldaz-Carroll*

I. Introduction and Summary

The intergenerational transmission of poverty (ITP)--the process by which poor parents transmit poverty and disadvantage to their children--appears to be a common problem in Latin America that lies behind its highly skewed income distribution. According to a recent study by CEPAL, only about 20% of children of poorly educated parents are able to finish secondary education, a level judged the minimum for a person to be able to move out of poverty. At the economy and societal level, the ITP process may be retarding growth, producing violence --as a result of lack of social cohesion and equality of opportunities--and may be a threat to major economic reforms that require government fiscal restraint and economic restructuring. The situation is particularly worrisome because under current inequality levels and predicted slow economic growth for the region (1.9% per year for 1995-2005), the predicted number of poor children will increase to 44 million for the year 2005.

The purpose of this report is to investigate the effects of family background factors in determining the intergenerational transmission of poverty in Latin America, drawing on a review of recent studies and empirical work done for this study. Based on the findings of this investigation, the report discusses policy implications and government programs to break the ITP process. The empirical results are based on a sample of Peruvian families that were interviewed in 1985 and 1994 and on the analysis of sixteen countries' cross-sectional data sets obtained from sample surveys in those countries.

The framework of analysis to select intervening factors and interpret the results of the empirical study was the quantity-quality interaction model of Becker-Lewis (1973) and Becker (1991) in which the number of children and the investments in them are jointly determined and bear an inverse relationship due to limited income and resource constraints. The effects of mother's education is critical because it acts by increasing productivity in the market place--and hence inducing higher labor force participation--and in home production inducing investments in education and other measures of child quality. What is important in this model is that it helps explain why even small changes in mother's education can result in great reductions in fertility and consequent great increases in child investments, thus, helping to break the ITP cycle.

The results and review of previous studies on the subject indicate that family background factors are very important in determining the chances of children completing secondary school--our threshold measure of whether a young person will continue or not being

poor as they parents were. Although this threshold level is high given the low levels of secondary school completion in LAC today--25%--it is nonetheless maintained to highlight education requirements that will be needed to survive high labor mobility and job requirements of technology and modernizing economies.

In all the sixteen countries studied the number of siblings, the mother's and father's education and income are variables strongly determining the chances of young children completing secondary education. It is important to note that the effects are similar among countries and occur even at low levels of mother's and father's education, indicating that there are also great opportunities for breaking the intergenerational transmission of poverty by educating, not only children, but young parents and adults.

The strong negative impact of the number of siblings on the chances of completing secondary education is consistent with the quantity-quality theory of fertility and education of children that emphasizes the roles played by parental time and resource constraints in raising a family. The more children couples have the more difficult it is for them to invest in their children's education, health and other human capital investments. Since fertility is rapidly declining in many poor families in LAC countries, and the cohort of working age population is increasing there is a window of opportunity for investments in children (Duryea-Szekely, 1998).

Although not investigated in our empirical analysis, the link between parents and children socioeconomic status may be also strong in indigenous populations whose children have lower levels of education and secondary school completion rates than non-indigenous children. This may be the result of a complex array of factors including low education of their parents, discrimination in the market place that reduces the value of education, high fertility levels, lack of access to land and natural resources, lack of school opportunities and bad quality of education, and malnutrition, among other factors, reviewed in the report.

The family background variables included in the statistical analysis explain, however, only a part of the chances children have for completing secondary education. Other variables reviewed in the report with statistically important influences in countries where they have been studied included early childhood education, mother's health and nutrition, domestic violence and teen pregnancy. While some situations such as domestic violence and teen pregnancy occur also in non-poor families, their presence in poor families may have serious consequences on children's well-being and their future prospects.

The effects of family background variables on investments in children such as in education indicate that demand-side factors play an important role in determining education outcomes. These demand-side factors include direct and indirect costs of investments and the benefits to be obtained from those investments. Most public policy, however, has focused on supply-side factors such as the provision of schools, albeit of a poor quality. In fact, the almost universal enrollment of children at the beginning of the school year may indicate that the lack of school places may no longer be a problem in many LAC countries.

In the design of effective programs to break the ITP cycle it is of utmost importance to focus programs on the family as to reinforce positive--and minimize negative--influences of parents on their children. Also it is important to consider the family formation cycle jointly with earnings and labor force cycles of parents in the market place. Young children come at a time when parents can have social mobility, skill improvement opportunities and increased earnings, as a result of occupational mobility, migration and other. Thus, early childhood intervention programs that provide good quality child-care and nutrition, in addition to helping children, are critical to help parents undertake those activities in the labor market. Primary and secondary school-aged children demand great direct family expenditures during a long period when parents face stagnant earnings and little social and labor mobility.¹ Integrated programs for these children, which include full scholarships (tuition and maintenance), school breakfast and lunch programs, textbooks and materials, help poor families pay for direct costs of education.

A few countries in LAC have started to design integrated programs with a family focus. Mexico's *Progres*a program integrates education, health and nutrition and income support. A major health and nutrition sub-component is reproductive health that will allow women to attain desired fertility and better health and nutrition for their children. Honduras' *Programa de Asignacion Familiar (PRAF)* program integrates education attendance and preventive health check-ups with income support for poor families. Recent innovations to this program also consider significant improvements in the education and health services supplied to the poor. There is no point in inducing poor people to attend schools and health clinics when the quality of those services is very poor. Other innovative programs introduced experimentally in a few countries include agricultural vouchers for poor farmers for purchases of modern input supplies and technical assistance conditional on early child care, school attendance by school-aged children, health check-ups for family members and reproductive health and nutrition education.

As shown in Mexico's *Progres*a program, the more comprehensive set of government programs discussed in the report, which include income enhancing opportunities for parents and adequate support of pre-school and primary and secondary school children, will be much more expensive than current programs. It is thus, necessary that the most needy be clearly and properly identified for those targeted interventions. Targeting instruments can now be implemented in most countries taking advantage of advances in information technology and experience in mean testing and other targeting methods in a number of LAC countries.

The report contains five sections. The second that follows presents the conceptual framework and a review of relevant literature with results for LAC and non-LAC countries of the effects of family background variables on child schooling. The third section presents the empirical estimates for sixteen LAC countries of the effects of numerous family background variables on the chances of children completing secondary education. The fourth section reviews the results of our empirical work and those of the relevant literature to derive policy

¹Several useful definitions of social mobility are in Behrman (1998).

implications for reducing the intergenerational transmission of poverty in LAC countries. Finally, the fifth section summarizes the main results and policy implications derived therefrom.

II. Conceptual Framework and Brief Review of Literature

The process of the intergenerational transmission of poverty can be analyzed within the framework of the basic child quantity-quality interaction model introduced by Becker-Lewis (1973), and Becker (1991). In this model, families derive welfare from the number of children they have as well from the "quality" of their children --represented in better education, health and nutrition-- subject to their income and other resource constraints. Children and their quality characteristics require the use of parental time, money income and goods purchased in the market place as well as adequate public complementary supply of education, health facilities and other public services, which lower the costs of investments in children for parents. To be able to produce commodities such as food and other basic necessities parents need to work and earn income allocating their time, especially mothers', between the market place and the caring of children.

In this model, there are complex interactions between the number of children a couple has and the amount of investments made on children essentially because of the resource constraint. Thus, the number of children and the investments on those children have to be analyzed simultaneously given those interactions. In this model, as noted by Becker (1991), rapid fertility declines and corresponding rapid increases in children's human capital made by parents can be explained by even modest exogenous changes in the cost (shadow price) of children.² Changes in contraceptive availability, cost of schooling and mother's education by affecting relative costs of children and quality characteristics might similarly produce large changes in fertility and education of the children.

While the impact of many variables can not be determined ex-ante, the model provides nonetheless a useful ground for interpreting results and for tracing the multiple effects of changes in variables such as mother's and father's education, family income, wages, and other variables affecting the costs of children and investments in their human capital. Costs include direct costs of education, foregone earnings while in school and others. Public expenditures on education and health provision lower the private costs to parents of investing in human capital of their children.

In this model, the intergenerational transmission of poverty occurs because of the absence of adequate investments in children's human capital --education, health and nutrition-- by their parents so that children can surpass their lifetime income and consumption levels that bring them out of poverty. Why parents are unable to do that depends on several factors, including the number of children they have, parents education that increases home productivity in human capital, parental income, variables that relate to the costs of providing human capital,

²A recent application of the quantity-quality model for Brazil is found in Lam-Duryea (1998).

and contextual factors that constrain family incomes, aspirations and social development. Some of these variables will be analyzed in what follows emphasizing their effects on education of children, one of the most common measures of child quality in the previous model. As will be seen below, education of children --specifically if children have completed or not secondary education-- will be the key variable to judge if children continue in poverty as their parents did.

The model could be extended to include sequential decisions by the family under different circumstances along the family formation cycle. In reality, not all decisions are taken at one time and once and for all or last forever, but occur over a long period of time within a social framework composed of institutions, social interactions, incentives and moral values. Many of these values and mores shape and determine intellectual and social development of children early in life through stimulation, affection, nutrition and other family influences. Also, families in their life courses learn from experiences of their own and those of others for future decisions regarding their children's education, occupation, family relations, among other things. One important aspect is that of the allocation of time and other resources within the household and the implications this has for mothers labor force participation in the market place, the opportunities and well-being of children, the control of resources among family members and the uses of family resources. Empirical investigation of some aspects of this extended model would require, however, good quality longitudinal data sets not available in Latin American countries. As seen below, a limited longitudinal data set is available for Peru but the sample size is small and lacks many critical household variables.

The following is a description of likely effects of a number of family background variables on education completion of children and a brief review of empirical findings for LAC countries. In the following section, the results of an econometric analysis for sixteen LAC countries with a number of family background variables will be presented.

Family Size (Number of Children)

A large number of children has implications for the burden of parental responsibilities and for the level and distribution of family support for, and investment in, children. Parental time and resources are also more constrained, limiting the resources available for investments in each child and reducing parents' ability to assist their children in taking advantage of new opportunities. These family resource constraints have negative implications for children's health and educational attainment and increase children's current and future obligations to their families.

The effects of family size on a child's progress through school, in terms of enrollment, years attended, completion of critical levels, and educational quality have been investigated worldwide. Out of fourteen analyses of children's current school enrollment, twenty-eight analyses of educational attainment, and seven analyses of dropout or completion rates, measures of children's educational participation or progress in school and the level of parental investments in schooling (in terms of expenditures) were often negatively associated with numbers of siblings (Psacharopoulos & Arriagada 1989; Behrman & Wolfe 1987; Birdsall 1980).

The number of siblings may affect children's schooling not only directly but also indirectly through its effects on nutrition and health, which are prerequisites for effective learning and progress in school. In Nicaragua, for example, children's nutritional status was strongly linked to mean years of educational attainment (Wolfe and Behrman 1982). Data from across the region provide evidence that young children with many siblings have poorer long-term nutritional outcomes than children who have fewer young siblings, even after differences in birth order and birth spacing are accounted for. Furthermore, a greater number of siblings is more likely to be associated with shorter birth spacing and thus lead to malnutrition because of a shorter breastfed period.

Parental Education

Mother's education attainment is critical in determining the education of their children. Directly, more educated mothers can provide better support and motivation and indirectly better resources and productivity in investments in children. In LAC econometric studies have found significant effects of mothers and fathers education on the school performance, measured by the education gap, of their children (Behrman-Birdsall-Szekely, 1998, Castañeda, 1979). In Brazil, it was found that parental education even at low levels led to large increases in parent's ability to produce better educated and healthier children. Parents responded to the greater productivity produced by their increase in education by increasing investments in child quality and reducing their number of children (Lam-Duryea, 1998).

In fact, the importance of education has been frequently pointed out in empirical studies (World Bank 1998, Schultz 1998). According to the World Bank,

Mother's education is an important predictor of children's educational opportunity, and especially of girl's educational opportunities. A mother with even a few years of formal education is more likely to send her children to school. Research in many countries indicates each additional year of formal education completed by a mother raises her children's educational attainment by an additional one third to one-half year (1998:2).

Family Income

Parents influence children's learning and retention in school not just by relieving them of other family obligations, spending time with them, and helping them learn, but also through financial contributions to children's schooling. High levels of expenditures reflect greater investment in complementary educational inputs such as books and tutors and/or better-quality private schools. The few studies of the relationship between numbers of siblings and parental expenditures in complementary educational inputs have found consistently negative and statistically significant effects.

In the US parents' earnings contribute to increase sons' and daughters' education --and earnings-- significantly. Recent studies using panel data have found strong correlations between the permanent earnings of fathers and those of their sons and daughters. The

magnitude of the coefficients are high—between 0.40-0.70 depending on the econometric model used—showing a high degree of intergenerational link, and parents and sons are highly likely to attain the same economic status (Lillard-Kilburn, 1997, Berhman, 1998, among others).³ In Latin America, because of the lack of longitudinal data, similar studies have not been done.

Health and Nutrition of Mothers

Children born to unhealthy and undernourished mothers in the absence of adequate pre and post-natal care have been found to have low birth weight and suffer from debilitating diseases that can have serious detrimental effects on child health and development in their lives (Myers, 1995, others). Also, adolescent mothers have been found to give birth to children who face greater mortality and nutritional risks and tend to do poorly at school (Buvinic et al. 1997).

Early Child Education and Nutrition

Investments in children's human capital --quality--should start at early ages. Early Child Intervention (ECI) that combine early stimulation, health and nutrition and education for young children have shown great benefits. These benefits include direct benefits such as improved health, nutritional, and developmental status of participating children. They also include indirect benefits for non-participants, such as increased labor force participation and earnings possibilities for the parents (usually mothers) of children who participate in child care programs and the substitution effects that child care programs can have in increasing the schooling of older children in the household. The longer-term benefits of early childhood interventions include program participants' improved school performance and earnings opportunities in later years, and a reduced probability for program participants to later engage in criminal or violent acts. These longer-term effects benefit not only the individual participants and their families, but society at large. These social benefits include the contribution that healthy, educated, citizens can make to economic growth, and the fiscal savings derived from intervening early on to help avoid future, more costly, problems (Deutsch, 1998).

Most of these benefits have been confirmed by empirical investigations (Deutsch, 1998). In the short term, participating children have higher levels of well-being as measured by nutritional, health status, cognitive and emotional development indicators. Labor force participation rates and earnings streams do increase for participating mothers; and although not directly measured, there is evidence to suggest that ECI programs also free up the time of older siblings, allowing them to continue with their education. The body of evidence on the longer-term benefits of ECI programs is not as substantial, due to the lack of longitudinal studies that employ control-group or matched-comparison methodologies. Nonetheless, the few studies that have been undertaken do provide strong evidence on better rates of learning

³ In these models of regression to the mean the value of the coefficient ranges from zero to one, If zero, then there is no intergenerational link and there is a high degree of intergenerational social mobility. If one, there is a high intergenerational link and there is very little social mobility.

and earning for program participants across their life span. They also indicate lower rates of anti-social and criminal behavior for program participants and net government savings arising from the fact that initial investments in preventive services help to avoid more costly remedial social services later in life.

In LAC countries few studies have been done on the long term effects of child programs. In Peru, it was found that the proportion of children completing primary school is nearly 60% higher for poor children attending "nido" (child care) than for poor children not attending child care (Aldaz-Caroll, 1999).

Urban Residence

Urban residence is generally related to the availability of public services—water, sanitation and essential social services such as schools and health facilities. Children born in rural areas are exposed to greater health risks and to have lower quality and inadequate supply of education services as compared to urban areas. Poor urban areas may, however, pose special difficulties for young children trying to break the ITP cycle not only because of poor infrastructure but also because of possible bad influences, the formation of gangs, juvenile delinquency and drug abuse.

Other Family and Ethnic Factors

Adolescent Motherhood

Adolescent motherhood has significant negative effects on child nutrition and education attainment. Buvinic et al (1992) found evidence that adolescent motherhood has a negative impact on children's health status and educational performance in Santiago, Chile. Buvinic (1998), reporting results from the same data for first-time mothers in Chile, also found an important interaction between poverty and adolescent motherhood on child health. Poor adolescent women were much more likely to have malnourished children than were poor women who gave birth at a later age. A new analysis of the Chilean data made for this study indicates that adolescent motherhood and parental education are important determinants of nutrition status. As before, the children of adolescent mothers are more likely to suffer from malnutrition than children of older mothers.

Domestic Violence

There is a clear link between domestic violence and education performance of children. In Chile, for instance, the probability of being involved in disciplinary problems at school is two times higher for children whose mothers suffer from domestic violence than for those who do not (Morrison-Orlando, 1997). In Nicaragua, it has been found that there is a high correlation between the incidence of repetition and dropouts and domestic violence.⁴

⁴Information provided by Mary Ellsberg.

Indigenous Populations

The ITP phenomenon may be also strong in indigenous peoples. Whereas 36% of the non-indigenous children of the poor completed secondary education, only 22.8% of the indigenous children of the poor completed secondary in Peru in 1994. However, understanding the factors behind the ITP phenomenon in indigenous peoples is particularly difficult. Data availability is a problem. Despite the high proportion of indigenous populations in Latin America (8% usually based on language or self-identification), their representation in the surveys is much lower, for a number of factors including underreporting for fears of discrimination. Also contextual, cultural factors may be more important than traditionally family factors in determining the transmission of poverty across generations among indigenous peoples.

In addition, education may not be a good proxy for socio-economic well-being for these peoples. Because of discrimination in the labor market or in quality education opportunities, the effect of education is lower for indigenous than for non-indigenous peoples. If indigenous peoples were endowed with the same level of education and of productive characteristics, the earnings differential with respect to non-indigenous people would only be cut by about 50 percent. That is, there would be still a 50% gap between indigenous and non-indigenous peoples which would be left unexplained and which would reflect discrimination or unaccounted factors such as quality of education, labor force participation, culture or measurement errors (Patrinos 1998).

However, discrimination has significant costs to indigenous as well as non-indigenous individuals (Patrinos, 1998). In countries where indigenous peoples comprise a large portion of the country, like Guatemala, Bolivia and Paraguay, the impact of discrimination affects non-indigenous and indigenous negatively as the skill bottlenecks restrains growth (Patrinos, 1998).

Another factor that may be contributing to the ITP process in indigenous populations is malnutrition. Indigenous peoples are twice as likely to be malnourished than the rest of the population in Latin America and the Caribbean. In Peru, for instance, the proportion of stunted children less than 5 years of age was 46.7% for the indigenous while that for non-indigenous children was 22.3% in 1996 (McGuire, 1998). Malnutrition of mothers was also higher for indigenous than for non-indigenous populations. Malnutrition of mothers is known to result in low birth weight of their children. These children are at risk for later malnutrition, poor health, late school enrollment and reduced school performance (McGuire, 1998).

III. Empirical Investigation of Determinants of Completion of Secondary Education

Determining ITP requires the use of life-long measures of intergenerational income and poverty. As an approximation to life-long earnings we have selected education, following a long tradition in the literature. In this case we have chosen completion of secondary education by children as a key threshold level for breaking up the intergenerational transmission of

poverty cycle. This threshold level appears too high when it is realized that the proportion that completes secondary education is only about 25% of relevant age cohort in most LAC countries. It was nonetheless chosen in view of rapid changing technology and labor needs in a modernizing economy. Additionally, poverty studies indicate that the probability of being poor is low when people have completed secondary education (World Bank, 1995).

The Results

This section presents two sets of regression results. The first are those obtained using a panel data set built for Lima Peru on the basis of household surveys for 1985 and 1994.⁵ The second is based on one-time cross section surveys of sixteen LAC countries--Peru, Costa Rica, Ecuador, Honduras, Paraguay, Venezuela, El Salvador, Chile, Nicaragua, Colombia, Uruguay, Panama, Mexico, Brazil, Bolivia and Argentina. Both regression sets estimate the probability of children completing or not secondary education as a function of a limited number of the independent variables discussed in the previous section. Many variables such as domestic violence, ethnicity, child-care attention and other non-family background variables were not included for lack of information.

A. Results of Panel Data Set for Peru

Table 1 shows logit estimates based on a longitudinal sample of Peruvian families interviewed in 1985 and 1994. The dependent variable is one if a young person 16-26 years old reported completed secondary education in 1994. This wide age range was chosen to maximize sample size for the statistical analysis. The normal age at which children complete secondary education in Peru is 17 years of age so that most people in the sample have the age for secondary school completion. The independent variables are family characteristics of that young person in 1985 when that person was attending some year of primary or secondary education. The assumption is that the situation at one point in time (1985) during the school formation period is representative of the whole period. Unfortunately due to the small sample size (294 households) and lack of some important family and contextual variables, only a limited analyses could be made of the longitudinal data set. In the regression equations for the panel and cross sections, most independent variables are multiplied by a dummy variable indicating whether father's education--our measure of permanent income--was lower or higher than completed primary education. This allows distinguishing of effects of the variables in low as well as high-income families.

The number of siblings has a negative and significant impact on the probability of completing secondary education, as expected. The more brothers and sisters the child has, the more likely it is that s/he will not complete secondary education. This result is consistent with what expected in our previous discussion. Parent's time and household resources have to be divided amongst a larger number of children and the child is thus less likely to complete

⁵The sample was constructed from a panel data set assembled by Martin Cumpa using the 1985 and 1994 CUANTO surveys of Perú. More details on sample size, demographic characteristics and possible biases are in Aldaz-Carroll (1999).

secondary education in the quality-quantity model discussed above. The negative effect on school completion is, however, less severe for non-poor households than is the case for children of poor households, as was also expected.⁶ This is shown in the effect of the interaction variable, Siblings*DR, which shows the additional effect on the coefficient for well-off families. Thus, it is less likely that a child will have to terminate her/his studies because there are not enough resources per child in non-poor households than in poor households.

The impact of mother's education on the child's completion of secondary schooling is also positive and greater in the case of a child of a poor household than in the case of a child of a non-poor household. Mother's education appears insignificant in the regression. This may be due to its strong correlation with father's education. Also, the lack of statistical significance of mother's education in this regression may be due to data problems and is not at all consistent with the cross-sectional estimates reviewed later.

The impact of father's education on the child's secondary education completion is positive and significant for children born in poor households. The impact of father's education on the child's probability of completing secondary is not as strong in the case of children of non-poor households as it is for children of poor households. More educated parents have greater aspirations for their children and for that reason encourage them to achieve a greater level of education, and are more capable to assist their children with their schools tasks and homework. The education of the father may also be capturing the permanent income of the family.

The regression results show girls to be significantly more likely to complete secondary education than boys. This result is consistent with that of other studies in Latin America (CEPAL, 1997). The implications of this outcome should be analyzed with caution. Although the non-economic well being of the girls may be higher resulting from their higher education it does not necessarily translate into greater economic well being as women tend to get lower wages than men for the same level of qualification. However, the potential benefits for girls of greater equalization of work roles by gender will depend on whether girls are able to benefit through greater access to and control over resources in the future not only in the household but also in the market.

As expected, household income in 1985 had a positive and significant effect on a child's chances of completing secondary education. Children in households with low income in their schooling years are more likely to have had to interrupt their studies because there were not enough resources to maintain their studies –both the direct costs of studying such as books, clothes and the indirect costs-- and had probably to look for a job.

Children who have migrated from the rural area to Lima are less likely to complete secondary than those in the city as it is very likely that they will have to work early in their

⁶Here the definition of poor household is when the father has not completed primary education. This is rather arbitrary but it is believed that parents with only primary education have not passed the poverty threshold. This poverty threshold is thought to approximate the poverty line where family income is barely enough to buy a basket of food and basic necessities.

lives to help their parents. Migration has less of an impact, though statistically insignificant, over the children in non-poor households, as it is less likely that they will have to interrupt their studies in order to help out economically.

The variable *indigenous* was not included in the regression results shown in Table 1 because there were only five indigenous people out of the 294 observations--the low proportion of indigenous people in our sample is not surprising as the sample pertains to Lima, where the percentage of indigenous people was only 4% in the 1994 survey--and the coefficient was insignificant.

The gender of the household head was also considered initially in the regression but it did not show statistically significant coefficients. One possible reason for this is the small proportion of female-headed households in the sample. This is a problem that has occurred in previous studies such as that of Lopez (1995).

B. Cross Section Results for Sixteen Countries

Table 2 shows logit estimates for cross-sections of sixteen LAC countries circa 1995. The dependent variable is whether or not a young person aged 20-24 years of age has completed secondary education. The explanatory variables are the same family background variables included in the panel data study -number of siblings, mother's and father's education, gender, household income, migration--plus some additional variables such as women headship, area of residence and women labor force participation in the market place. The cross-sectional logit regressions were run using the database managed by the Office of the Chief Economist of the IADB.⁷

The results of the cross-section regressions coincide with those of the panel. The coefficients of those independent variables that were used in the panel and are included in the cross-sectional regressions have the same signs and similar significance in the cross-sectional regressions than in the panel, except for education of the mother. Since the impact of such variables on secondary education completion has already been commented on in the panel study, comments regarding these variables will be brief.

The *number of siblings* has a statistically significant negative effect on the completion of secondary education in all sixteen countries. In most countries the effect is similar for low and high-income households. In other countries such as Paraguay, El Salvador, Bolivia and Mexico, there is not a detrimental effect on the probability of completing secondary education of the number of siblings for children of high-income households. Like in the panel, the effect of the number of siblings tends to be smaller for children in non-poor households (except in Costa Rica where it is significantly greater).

⁷A description of the data and samples used is in Aldaz-Carroll (1999). Special processing and analysis of the database for use in this study was provided by staff from the Office of the Chief Economist.

Mother's education has a very significant positive effect on secondary completion for children even at low levels of mother's education attainment for all sixteen countries, except Nicaragua. In all sixteen cases, except Costa Rica, the effects of mother's education are similar for low and high income households. These results are consistent with the interpretation that increasing mother's schooling even at low levels can lead to large increases in parent's ability to produce better educated and healthier children.⁸ Parents responds to this greater productivity by increasing investments in child quality and reducing fertility (Lam-Duryea, 1998). Another striking feature of the results is the great similarity in the size of the coefficients across all sixteen countries.

Father's education appears statistically significant in only ten of the sixteen countries and the coefficients have the expected signs. The coefficients are also much lower than mother's education as has been found in other studies. This implies that father's education--a common measure of permanent income--is less important in determining secondary school completion than mother's education is, and in probably breaking the ITP cycle.

The large positive and strongly significant coefficient of *gender* in all sixteen countries--except Bolivia--indicates that girls complete secondary education more than boys do. As mentioned previously in the panel study, the sign of the *gender* variable is consistent with that of previous empirical studies in the region. Although the levels of secondary school completion in LAC countries are very low--25%-- as compared with Asian countries, 36% (BID, 1998)--this finding is encouraging given the results of mother's education on that of their children.

Household income has a positive and very significant impact on the probability of children's completion of secondary education. However, the size of the coefficient is quite small. It is necessary to say, however, that the income information captured herein is the one corresponding to the moment of the sample and not to the time when children were attending primary and secondary education.

The *area of residence* variable is significant in all thirteen countries where it could be included. Children who reside in urban areas are more likely to complete secondary education than children in rural areas. The probability of completing secondary is over two times higher in urban than in rural areas in most countries. As expected, the urban/rural effect is smaller for the children of non-poor households than for poor households (as indicated by the interaction term with DR). The low probabilities of completion of secondary education in rural areas seem to contradict the large returns to secondary education found in these areas (Lopez, 1995). It might be that parents value the opportunity cost of children as farm workers much higher than the present value of the future returns to secondary education. Finally, another plausible explanation is that there may not be an adequate supply of quality secondary school facilities in rural areas and children willing to continue to secondary education have to migrate to urban areas. As in the case of household income measures residence in urban/rural area at the moment of the survey may not correspond to residence during attending school.

⁸ Since there is a strong correlation between father's and mother's education, poor households—measured by low father's education—have also mothers with low education levels.

[Editor's note: Although the variable single mother head of household is available for three countries (and was included in the regressions reported in Table 2 for those three countries) Peru, Costa Rica and Venezuela, reported single mother headship in the samples corresponds to the time of the survey. Since that condition is likely to be different from the time the children were attending primary or secondary school in large proportion of the cases, statistical results for this variable are not meaningful. The same problem arises in respect to the variable mother's labor force participation..]

In summary, these results seem to indicate that the children of the poor who complete secondary education tend to have better family background conditions: fewer number of siblings, more educated parents, more household income, and tend to be located in urban areas. However, as with other statistical studies, our results should be treated with caution since problems such as sample attrition are present in this study. Those individuals who had left their home at the time of the survey could not be included in the sample. In the Peru data, for instance, these individuals complete secondary in a smaller proportion (26.8%) than those captured in the sample used for the regressions (33.8%). It is expected, however, that the inclusion of these individuals would have increased the significance of family background factors as determinants of secondary education completion, thus, reinforcing the results.

IV. Policy Implications

The empirical results in this paper and the review of literature suggest that family background characteristics play an important role in the educational and future economic performance of poor children. The regression results indicate that those children of the poor who do manage to complete secondary education and very likely break the ITP cycle are those with fewer siblings, greater education level of the mother and father, larger household income, and are more likely to reside in urban areas. While these results are not new, it is important to point out the similarities in the effects of the variables across countries and the great impact of mother's education on children's completion of secondary education even at low levels of mother's and father's education.

Most family background variables affect the "demand-side" of educational investments on children --and other child quality indicators--that help break the ITP cycle. Despite their importance, as shown in the regression analysis, most public policy and programs focus on "supply-side" factors (public schools, health facilities) which are very important for poor families but may not fully overcome family constraints. In fact, public education, especially if of poor quality, may not reduce the cost of child quality sufficiently so as to increase the demand for investments in children and reduce fertility.

Direct and opportunity costs of education appear to be very important in LAC countries, especially for secondary education. In Colombia, for instance, a study done in 1992 found that when attending public school, households in the top quintile spent 1% of average income on primary education, while those in the bottom quintile spent 4.4%--in part because these

families have a larger number of children. For children attending secondary school, families in the top quintile spent 1.7% of their income compared to the bottom quintile who spent 10.9% (Molina, C. cited in BID, 1998). In terms of opportunity costs, it was found that children in rural Peru 10-18 years old worked 37.2 hours per week if they were not in school and only 20.3 hours if they attended school (Gertler and Glewwe, 1989).

Support Families Comprehensively

Government policy to combat poverty has overlooked the role of parents to transmit poverty or wealth to their children and has not taken advantage of the impetus that parents can provide to their children. The tendency has been to concentrate on children as if they were or could be separated from their families and the economic environment in which they live. Yet, poor parents if adequately supported can provide a tremendous impetus to their child investments in human capital and their better prospects for the future. In fact, poverty reductions of next generations can be made faster and more efficiently if parents can be adequately supported. In what follows we discuss some ways in which parents and the whole family can be supported by programs that can improve the well being of parents and of children thus reducing the ITP process.

Low-income parents need support from two places. The labor market that provides them with employment opportunities and from skill upgrading institutions such as firms for on the job training or the formal/informal education systems. Nothing is more important to poor families than economic growth that provides them with working opportunities to support and maintain their families. By increasing incomes of poor families, economic growth is a strong force out of poverty for current and next generations. This may be, however, a slow process or may not reach the poorest families who lack minimum skills to take advantage of working opportunities. These families can be helped with social programs that benefit parents and their children.

Reproductive Health Services and Education

The links between high fertility and poverty, and sibling inequality and gender role differentiation suggests some possibilities for breaking the intergenerational cycle that persistent high fertility engenders. These possibilities include the universal provision of high-quality family planning and other reproductive health services to women and men regardless of age or marital status; measures to reduce forms of discrimination against women. Such measures would reduce the number of unwanted births, increase the desirability of smaller families, and strengthen the positive impact of fertility decline on the level of child investment, thus postponing the start of childbearing and reducing its pace among the next generation of adults.

Parental education must go, however, beyond traditional family planning to include larger issues of parental responsibilities, children rights, adequate social and economic

protection for children and women when parents are separated or divorced, among other things. This can be given as part of high school curriculum and continued mass media campaigns.

Education and Training for Young Parents, Especially Mothers

Adult literacy programs. As shown in the regression results mother's education even at low levels is critical for increasing the probabilities of children completing secondary education in all countries. So adult literacy programs, especially of young mothers, have significant payoffs for this and subsequent generations. Many adult literacy programs have been, however, failures because of a top-down approach. Recently, agencies such as the World Bank and other agencies are supporting the scale-up of new and successful approaches to adult literacy, with curricula locally developed by the adult learners themselves to respond to local aspirations (World Bank 1998, Business Partners for Development).

Skill Training for Young Adults

Most adult skill training of poor people stops at 25-30 years of age when most of them are young parents beginning the family formation cycle. There are relatively few job training programs private or public for poor people older than 30 years of age trapping these people into low paying occupations for the rest of their lives. Life expectancy has, however, increased considerably in the last 30 years, making it attractive to pursue investments in human capital for longer periods. Yet, labor markets in Latin America are biased to the young due, to a large extent, to young retirement ages of pension systems of many Latin American countries. This provides little incentives for employees and firms to engage in specific on the job training activities.

Special Support Policies for Indigenous People⁹

Indigenous communities and families should be specifically targeted by public programs and the content and language of the programs needs to be tailored to the needs and constraints of indigenous people. Extra efforts need to be made to reach indigenous communities -- it will probably be more costly to reach them but one could argue that they merit this extra expenditure. Countries with significant populations of indigenous peoples should extend coverage of all public services to them as a high priority and disaggregate both service statistics and social indicators by ethnic group to track progress. In Mexico, the poverty map includes the proportion of indigenous people as a criterion and it's not surprising that the very high marginality communities are predominantly small indigenous communities. This map is now being used to target poverty and nutrition programs.

Also and most importantly: "Securing access to the lands they have traditionally occupied, and improving their education, training and local institutions, are effective means of

⁹This section draws heavily on McGuire (1998).

raising the economic and social conditions of indigenous communities, and protecting their cultural heritage and ethnic identity". (IADB 1998, *The Path out of Poverty*:23).

Malnutrition among indigenous people is unacceptably high. They are twice as likely to be malnourished as the rest of the population. Their malnutrition is far more serious than one would expect from rural residence alone. These nutrition data, along with supporting data on poverty, social infrastructure, child development, and disease show the depth of disadvantage among the indigenous peoples (Psacharopoulos and Patrinos, 1994). Addressing malnutrition among indigenous peoples over the long term requires improving food security which means addressing poverty and land tenure issues. In the short term, however, efforts to improve nutrition need to reinforce the positive knowledge and practices in the community (and try to change the negative ones), to provide the necessary social infrastructure (roads and water and sanitation in particular), and to facilitate access to schools, health care, and social safety nets. Indigenous households and communities need to be active partners in designing these programs.

It is not so easy to solve these problems, however, either from the supply or the demand side. Indigenous communities are often understandably distrustful of the government and they are frequently isolated geographically as well as socially and linguistically. In addition, public servants are often disdainful of indigenous people and treat them with disrespect in schools and health clinics and other agencies that manage social and economic programs, including land titling and distribution agencies.

Dealing with Domestic Violence

While domestic violence is not exclusive of poor families, domestic violence in poor families make the situation worst for parents and children. However, decreasing domestic violence requires working with and counseling aggressors, and an efficient police and judicial system. Although most LAC countries have adequate laws, most laws have not been implemented. Governments need to adequately train judges on application of the laws and knowledge of international agreements on the matter. Police also needs training and sensibility about the problem. Emergency lines connected to police stations can reduce the incidence of domestic violence and its consequences.

The health system has also to give adequate attention to the problem. Detection of cases and referrals are significant measures that can be taken by health systems but are not generally taken for lack of resources or training. Psychological treatment, group therapy and other measures for victims of domestic violence can be included in health system's responsibilities.

Education measures are the most effective prevention tools. Sensitization, early detection workshops for parents, teachers and children can go a long way in preventing and reducing

domestic violence and lessening its affects on children. An effective tool can also be introducing conflict resolution techniques and approaches in school curriculum.

Communication campaigns are an effective tool against domestic violence to sensitize the public and inform about existing controlling and help mechanisms for victims and their children.

Reducing Rural/Urban Differences

Poor rural areas lack not only adequate infrastructure of social services but also productive services, such as infrastructure, technical assistance, credit and marketing services among others. Lack of schools, bad quality of education and the need for family work in backward agricultural activities is a powerful combination for low educational attainment of rural children. As shown in the regression analysis, in all sixteen countries studied children in rural areas have significant lower probabilities of completing secondary school than children in urban areas.

Programs to address poverty in rural areas to increase educational attainment and reduce the ITP cycle, need thus to address demand-side as well as supply-side factors that affect investment in children. Some policies to increase the physical assets of poor families include land titling and distribution programs, improving access to credit markets and modern inputs discussed widely in agriculture reforms programs and sector studies (Lopez-Valdez, 1998). Others include providing selected housing subsidies of those that have been provided to urban households in a number of Latin American countries in recent years.

Programs for Small Children

Early Child Care and Development (ECCD) programs have been found to provide many benefits to parents, children and society at large.¹⁰ Parents, especially mothers, can increase their labor force participation in the market and earnings as a result of accumulation of work experience and more hours of work. Children benefit from improved health and nutrition care, early stimulation and other development activities provided by most of these programs. They also benefit from higher educational attainment and greater earnings later on their lives. Older primary and secondary school aged children benefit because they will have to provide less child care for their younger brothers or sisters (time substitution effect) and have more resources available to them and their parents as a result of more government expenditure in their younger siblings (income effect).¹¹ Society benefits from lower incidence of antisocial behavior and juvenile delinquency, as have been found in early child development programs in the US (Karloly et al. 1998).

Despite the many benefits provided by early childhood intervention programs, coverage is still very small in Latin American countries. It has been estimated that only about 15-20% of children less than six years of age of very poor urban families are covered by some kind of child care program. Coverage is even lower in needy rural areas and for indigenous populations where child care models have not been adequately developed or tested, in most countries.

Programs for Primary and Secondary Students

Education investments are very expensive. Because of their long duration and the need for a continuous infusion of money, poor people find it very hard to finance those investments, even if they have great rates of return. Furthermore, unlike other long duration investments, accumulated human capital can not be put as collateral for investment loans.¹² Yet, government support for investments in education by the poor is very limited. Most support is limited to tuition waivers in public pre-school, primary and secondary education. Other expenditures (food and shelter, uniforms, school supplies, transport), which may account for a significant part of investment costs, are borne by parents, other family members or students directly. Moreover, these direct costs of investment have most likely increased in recent years as a result of urbanization, urban segregation, and the spread of basic social services, among other factors.¹³

¹⁰ An excellent review of these programs is in Deutsch (1998) and a detailed outline of messages for an ECCD strategy dialog is in Moran-Haefeli (1998).

¹¹ See Castañeda 1979.

¹² Even in cases where investments can be put as collateral, cash flow problems can be a great obstacle to profitable investments by the poor, as has been shown in reforestation projects in many LAC countries. Poor families do not have the money to pay for recurrent costs needed to support such projects and can not wait for long periods to reap the returns of investments.

¹³The spread of social services has undoubtedly provided great benefits--increased home productivity and other benefits--for poor families (BID, 1998). At the same time, however, families need to earn more cash income in the market place to pay for those services.

There are several ways in which government programs can help the poor ease budget constraints posed by education investments. First is to provide scholarships that finance not only tuition costs but also maintenance and transportation costs for the poorest high performing students. In Honduras, for instance, the Bono Escolar program, which provides about \$ 4 dollars per month per child attending primary schools in selected poor areas of the country has been found to increase enrollment and reduce drop-outs significantly (Castañeda, 1998). Mothers have used those additional resources to supplement family income and provide for basic food and school supplies for their children. The second is to provide school aids such as books and breakfast and lunches for the poorest students. Formal school lunch programs, for instance, are rare in Latin America, with a few notable exceptions, such as Chile and Costa Rica.¹⁴ School breakfast programs are less common than school lunches but their effects on school performance may be as great as that of school lunches. A recent study in the US found that poor children who were given free school breakfast did better at school, felt happier and found it easier to learn (cited by The Economist, September 19-25, 1998). It has been estimated that in the US's inner cities, between one-third and two-thirds of children go hungry at least some of the time (ibid.). This proportion is surely much higher for Latin America's poor children.

The third is programs for adolescent reproductive health and family planning information. Reducing adolescent pregnancy, drug abuse and violence will go a long way to reduce the transmission of poverty across generations. As indicated previously in this report, teen pregnancy is known to result in teen drop outs of school and in children with ill health and deprivations that will affect learning at school and the way out of poverty (Buvinic 1998; Robin Hood Foundation 1996, among others).

Recent efforts are underway to improve the quality of the supply of education by introducing better teacher training and technology in schools. These efforts will surely go a long way to improving quality of public schools and reducing private-public quality gaps. However, this will not increase retention and reduce drop out of poor children unless these quality enhancing investments in public education are accompanied by direct income support to parents and children that increase their effective demand for education and can ease budget constraints.

Integrating Programs Around the Family

Integrating programs around the family is critical to take advantage of complementarities among programs and to support parents in making investments in their children. Yet, in practice, integrating programs is difficult because each separate program is the responsibility of a different agency and the "family" has not been the center of public policy. There are,

¹⁴ In many countries there are a number of formal or informal school meals programs. These include glass of milk programs, enriched cookies or school lunches prepared at school with donated foods from international donors. In many cases, these programs provide only a small fraction of required calories and proteins by students, and foods are not provided regularly for lack of regular budgets or adequate food supplies.

however, a few recent examples of coordinated social programs that are being implemented in a few countries and that are worth mentioning in some detail.

Mexico introduced the Progresa program in mid-1997 to combat poverty through integrated family interventions on education, health and feeding programs. In education, Progresa provides money assistance to families to purchase food and school supplies for young children attending from the third grade of primary school to the third grade in secondary school, which were found to present the highest levels of drop outs. Girls get a premium in their allocations to reduce their higher drop out rates than those of boys. The value of the money transfer to parents and children amounts to about 15% of the estimated income produced by children who drop out of school (GOM, 1998). School upgrading and teacher training is also part of the program.

In health, a basic health care package containing mother-child pre-natal and well-baby care, food supplementation for pregnant mothers and children malnourished or at risk of malnourishment, and nutrition and hygiene education is provided to poor enrolled families. In-kind food supplements to meet about 20% of caloric needs and up to 100% of micronutrient (iron, zinc, vitamins B12, C, D, among others) needs are also provided to undernourished mothers and children. The program also includes improvement of public health primary care infrastructure especially in rural areas where the program started.

In family food subsidies, Progresa provides an income transfer in the form of a check or wire transfer where no banks are nearby, to complement family income. An accompanying program of nutrition education and community participation seeks to ensure that additional income improves food intake and nutrition of family members, especially children and pregnant and lactating mothers. By the end of 1998 Progresa is expected to have covered 1.9 million of the poorest families in 48,000 localities in 28 (out of 31 States). To be able to receive the income support, families are required to show that they have attended health centers and clinics for required health checkups of all family members (according to established age-gender frequencies) and nutrition and hygiene education, and that school age beneficiary children are attending school regularly.

In summary, Progresa provides direct cash income and in-kind food support to the poorest families to help them meet their basic food needs and get critical health and education services to enhance human capital investments. Direct cash assistance is destined to supplement family income and can be spent on any food item or other necessity. This cash assistance is estimated to be, for an average poor family, of 235 Mexican pesos in 1997 or about 34% of money income. Because it is assumed that women are more concerned about food needs of the family and children, all money income assistance --scholarships and cash food assistance-- is given to the mother, every two months. The program so far appears successful in meeting stated objectives. The Government plans a major evaluation of the program, with support from the International Food Policy Research Institute (IFPRI), for 1999.

Honduras faced with structural adjustment to the economy implemented two food stamp programs in 1990 to protect food consumption of the poorest people during the adjustment. One was the FSP for poor primary school children (Bono Escolar, BE), distributed through primary schools in selected areas of the country conditional on regular school attendance. The other was the FSP for young children (0-5 years old) and pregnant and nursing mothers (Bono Materno Infantil, BMI) distributed at health posts and centers in selected poor areas conditional on pregnant mothers and small children getting regular check-ups and vaccines. By 1991, the BE program was benefiting over 125,000 school children and their parents while the BMI program was benefiting over 56,000 small children and pregnant and nursing mothers. The World Bank is planning an evaluation study for 1999.

Beneficiaries can purchase with the bonos (stamps) any food they want, school supplies and medicines. According to early studies of the programs, most food stamp recipients spent over 80% of food stamps on food, exclusively. Only a few expenditures were made on school supplies and medicines. Both programs have contributed to finance 17-20% of food requirements of beneficiaries in 1991-92. An evaluation done by USAID in 1995 found, for instance, that food stamps were more effective than food handouts at increasing school attendance and advancement, but that food handouts were more effective than stamps in increasing utilization of preventive health care (Rogers et al, 1995).

In Brazil the government of Brasilia also initiated a project "Bolsa Escola" which provides income support for very poor families whose school-age children attend public schools. Another program the "Poupanca-Escola seeks to reduce repetition and drop-out by providing a financial incentive to parents and children to complete secondary education. The financial contribution provided by the government is made conditional on passing the grades (described in BID, 1998). So far the results of both programs are promising. Repetition and dropout rates have decreased for those participating in the program.

Many countries are also experimenting with agriculture and conservation vouchers or bonds to be given to poor farmers to help them improve incomes, child investments in education and health services. In Colombia, for instance, a special voucher program for poor marginal areas will soon be introduced in a pilot basis. The program will benefit farmers with less than five hectares of land and have monthly average family incomes of less than 1.5 times the minimum wage--which is estimated to be the extreme poverty line. Conditions for farmers to enter into the program and remain there are regular school attendance of school age children, complete vaccination schedule for young children and family affiliation to the basic package of health services provided by the state. The basic package includes mother child preventive and curative interventions, reproductive health and nutrition education and outpatient services for all family members. A monitoring and evaluation system will ensure that eligibility conditions are maintained during the duration of the project for all beneficiaries.

Program Implementation

Implementation of integrated programs is, however, difficult. Ensuring coordination of the different agencies that need to be involved (education, health and nutrition, statistical

office, agriculture, local entities to name a few) is difficult and time consuming. In Honduras, for instance, the new agency created to administer the program, the PRAF, faced several problems. First a low administrative capacity to administer the programs --registering beneficiaries, printing, distributing and redeeming stamps, and budgeting and accounting activities. Second a slow response of health centers and posts to register and attend increased demand posed by people willing to receive stamps, once they took their children for preventive growth monitoring and vaccination activities, as required by the program. Third, lack of monitoring and evaluation activities for the program.

One aspect that is critical is ensuring adequate participation of Ministries such as Health and Education, and improving the quality of services provided. Public education is usually of very bad quality, especially in rural areas. There is no point in requiring parents to send their children to school if teachers do not work regularly or the instruction imparted is of no value for children and parents. In health adequate services need to be provided on time. Poor parents--especially mothers need to travel long distances and have little time to spend on long queues or frequent visits to health facilities. PRAF, for instance, is making efforts to improve distribution of stamps with NGOs participation and--with support from the Inter American Development Bank (IADB)--improve the supply side response of the program (health centers, posts, and schools).

Another issue that is of critical importance in integrated programs addressing extreme poverty is that of avoiding perverse incentives. That is to say, how to help poor families and their children without creating dependency and destroying the motivation for self-help and self-reliance. In some cases, such as when targeting malnourished children, programs may be rewarding bad behavior. In other cases, programs may end up being seen as entitlements that are available to everyone who meets eligibility criteria on a permanent basis. This may be a disincentive to self-reliant behavior. Ways to deal with these issues include determining beforehand entry and exit mechanisms and dates. In some cases, a sliding scale by which program benefits will be reduced automatically over a given time period is better than taking out all benefits at once. The later option creates political pressures by people to stay in the program.¹⁵

¹⁵An example is the social security reform in Colombia that created a subsidized health insurance package for the poorest. Once selected, it is difficult that a family or person can be excluded even if that family is no longer poor due to political pressures (Castañeda, 1997).

The Need for Targeting Interventions

Dealing with a comprehensive package to support poor families such as that envisioned here (parental income enhancing training, integrated child development programs, full-fledged scholarships in primary and secondary education, school breakfast-lunches, adolescent programs, etc.) to reduce or eliminate the ITP cycle may be much more expensive than current conventional programs. Most programs, in part for political reasons, rather than concentrating expenditures on comprehensive programs for targeted poor families spread the money over a great number of programs and beneficiaries providing them only limited amounts of services, which end up having only a limited impact.

Effective targeting is now possible in Latin America. Due to advances in technology, information gathering techniques and information systems, means testing is now possible to target families most in need. The Ficha CAS system of Chile pioneered efforts for massive applications of means testing by local governments. Similar systems are now in place in a number of countries including Colombia, Costa Rica and Mexico. In Mexico, for instance, for the Progresa program and in Colombia for a variety of benefits including health insurance, families are selected in a two-stage means testing process. In the first stage the poorest localities or neighborhood within cities are selected on the basis of census information on basic sanitary services, schools, health facilities dispersed populations and other socioeconomic indicators. In the second stage the poorest families in those poorest localities are selected on the basis of family information on quality of housing, public services, literacy, occupation, disability of family members and income.¹⁶

Regional targeting of specific communities, city neighborhoods, peri-urban areas, rural areas is also possible. Targeted social programs can be combined with urban rehabilitation, disaster prevention measures in vulnerable areas, along with relocation of families and resettlement.

V. Summary and Conclusions

There is a strong link between the socioeconomic status of parents and that of their children in Latin America as has been found in other countries such as the US. In all the sixteen countries studied the number of siblings, mother's and father's education and income are strong variables determining the chances of young children completing secondary education--a minimum level considered necessary for permanent exit out of poverty. It is very important to note that the effects are similar among countries and occur even at low levels of mother's and father's education, indicating that there are also great opportunities for breaking the intergenerational transmission of poverty by educating, not only children, but young parents and adults.

¹⁶ See Gomez De Leon (1998) and Velez-Castaño-Deutsch (1998).

The strong negative impact of the number of siblings on the chances of completing secondary education is consistent with the quantity-quality theory of fertility and education of children that emphasizes the roles played by parental time and resource constraints in raising a family. The more children couples have the more difficult it is for them to invest in their children's education, health and other human capital investments. Since fertility is rapidly declining in many poor families in LAC countries, and the cohort of working age population is increasing there is a window of opportunity for investments in children (Duryea-Szekely (1998).

Although not investigated in our empirical analysis, the link between parents and children socioeconomic status may be also strong in indigenous populations whose children have lower levels of education and secondary school completion than those of non-indigenous children. This may be the result of a complex variety of factors including low education of their parents, discrimination in the market place that reduces the value of education, high fertility levels, lack of school opportunities and bad quality of education, among other factors reviewed in the report. Also, indigenous populations are twice as likely to suffer malnutrition than non-indigenous populations resulting from food insecurity, inadequate diets, lack of health services and nutrition education, among other factors. Policies to reach indigenous populations need to target preferential social infrastructure, provide access to land and other natural resources, enacting and enforcing of anti discrimination laws and aggressive education activities for children and young parents for their own development and promotion.

The family background variables included in the statistical analysis explain, however, only a part of the chances children have for completing secondary education. Other variables reviewed in the report with statistically important influences in countries where they have been studied included early childhood education, mother's health and nutrition, domestic violence, teen pregnancy and broad societal contextual factors. While some situations such as domestic violence and teen pregnancy occur also in non-poor families, their presence in poor families may have serious consequences on children's well-being and their future prospects.

The effects of family background variables on investments in children such as in education indicate that demand-side factors play a crucial role in determining education outcomes. These demand side factors include direct and indirect costs of investments and the benefits to be obtained from those investments. Most public policy, however, has focused on supply-side factors such as the provision of schools, although of a very poor quality. In fact, the almost universal enrollment of children at the beginning of the school year may indicate that the lack of school places may no longer be a problem in most LAC countries.

Public Policies to Break the ITP cycle.

In the design of effective programs to break the ITP cycle it is of utmost importance to follow at least three considerations. First, the focus of programs should be the family as to reinforce positive --and minimize negative--influences of parents on their children. Second, programs should take into account and maximize beneficial spill over effects of programs on family interactions. For instance, early childhood integrated programs provide benefits to

children and parents as well. Parents, especially mothers, can participate more in the labor market and earn higher wages. Also, parents can save food expenditures on cared children, which can be used to better feed other children or themselves. Older children benefit from child care of young brothers and sisters leaving them time to attend school. Similar family benefits can be obtained of scholarships, direct transfers or food provided at schools.

Finally, the third consideration is that to understand family constraints and the process by which ITP (wealth) is transmitted, it is important to consider the family formation cycle jointly with earnings and labor force cycles of parents in the market place. Young children come at a time when parents can have social mobility, skill improvement opportunities and increased earnings, as a result of occupational mobility, migration and other. Thus, early childhood intervention programs that provide good quality child-care and nutrition, in addition to helping children, are critical to help parents undertake those activities in the labor market. Primary and secondary school-aged children demand great direct family expenditures during a long period when parents face stagnant earnings and little social and labor mobility. Integrated programs for these children, which include full scholarships (tuition and maintenance), school breakfast and lunch programs, textbooks and materials, help poor families pay for direct costs of education.

A few countries in LAC have started to design integrated programs with a family focus. The Progresas program of Mexico integrates education, health and nutrition and income support. A major component of the health and nutrition component is reproductive health that will allow women to attain desired fertility and better health and nutrition for their children. The PRAF program of Honduras integrates education attendance and preventive health check-ups with income support for poor families. Recent innovations to this program also consider significant improvements in the education and health services supplied to the poor. It is no point in inducing poor people to attend schools and health clinics when the quality of those services is very poor. Other innovative programs introduced experimentally in a few countries include agricultural vouchers for very poor farmers for purchases of modern input supplies and technical assistance conditional on school attendance by school children, health check-ups for family members and reproductive health and nutrition education.

As shown in Mexico's Progresas program, the more comprehensive set of government programs discussed in the report, which include income enhancing opportunities for parents and adequate support of pre-school and primary and secondary school children, will be much more expensive than current programs. It is thus, required that the most needy be clearly and properly identified for those targeted interventions. Targeting instruments can now be implemented in most countries taking advantage of advances in information technology and experience in mean testing and other targeting methods in a number of LAC countries.

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**Table 1. Logit Estimates of the Probability of Completing at Least
Secondary Education
Peruvian Panel Data**

Dependent variable¹ : D = 1 if at least secondary education completed, = 0 otherwise

| Variable | Coefficient |
|--------------------------|--------------|
| Constant Term | - 1.23 ** |
| No. of Siblings | - 1.34 ** |
| No. of Siblings * DR | 1.33 ** |
| Father's Education | 0.88 * |
| Father's Education * DR | - 0.89 * |
| Mother's Education | 0.13 |
| Mother's Education * DR | - 0.07 |
| Gender | - 0.54 ** |
| Household Income | 0.00 * |
| Household Income * DR | - 0.00 |
| Migration | 2.35 * |
| Migration * DR | - 1.64 |
| Mc Fadden R ² | 0.07 |
| No. of Observations | 294 |

Note: *** significant at 1% level, ** significant at 5% level, * significant at 10% level.

¹ Dependent variable measured in 1994, independent variables measured in 1985.

Variable definition:

- The *gender* variable is a dummy variable with value one for men and zero for women.
- The *migration* variable is a dummy with value 1 if the child has migrated during his schooling years and 0 otherwise.

Data Source: The panel sample was constructed from a panel data set assembled by Martin Cumpa using the 1985 and 1994 CUANTO surveys of Peru. More details on sample size, demographic characteristics and possible biases are in Aldaz-Carroll (1999).

Table 2. Cross-Sectional Logit Estimates of the Probability of Completing at Least Secondary Education¹

Dependent variable: D = 1 if at least secondary education completed, = 0 otherwise

(If coefficient < 1 negative effect; if >= 1 positive effect)

| Variable | Peru 1996 | Costa Rica 1995 | Ecuador 1995 | Honduras 1996 | Paraguay 1995 | Venezuela 1995 | El Salvador | Chile | Nicaragua | Colombia | Uruguay | Panama | Mexico | Brasil | Bolivia | Argentina |
|--------------------------|--------------|--------------------|-----------------|------------------|------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| No of Siblings | 0.92 ** | 0.92 * | 0.80 *** | 0.73 *** | 0.78 *** | 0.86 *** | 0.87 *** | 0.84 *** | 0.88 *** | 0.89 *** | 0.70 *** | 0.76 *** | 0.79 *** | 0.80 *** | 0.85 *** | 0.78 *** |
| No of Siblings * DR | 1.05 | 0.91 *** | 1.08 | 1.07 | 1.18 ** | 0.94 | 1.33 *** | 0.97 | 0.74 *** | 0.99 | 1.08 | 1.02 | 1.13 *** | 1.04 | 1.10 *** | |
| Mother's Education | 1.15 *** | 1.07 * | 1.23 *** | 1.13 *** | 1.22 *** | 1.14 *** | 1.17 *** | 1.16 *** | 1.06 | 1.14 *** | 1.11 *** | 1.18 *** | 1.21 *** | 1.17 *** | 1.14 *** | 1.26 *** |
| Mother's Education * DR | 0.99 | 1.11 ** | 0.99 | 1.04 | 1.04 | 1.04 | 1.02 | 1.01 | 1.12 * | 1.06 *** | 1.02 | 1.02 | 0.96 | 1.00 | | |
| Father's Education | 1.16 *** | 1.16 ** | 1.01 | 1.02 | 1.03 | 1.11 ** | 1.11 *** | 1.06 *** | 1.11 ** | 1.07 ** | 1.13 *** | 1.02 | 0.94 * | 1.11 *** | 1.06 *** | 1.04 |
| Father's Education * DR | 0.95 | 1.07 | 1.07 | 1.09 | 1.04 | 1.04 | 0.89 *** | 1.00 | 0.99 | 1.01 | 0.93 | 1.06 | 1.12 *** | 0.96 *** | | |
| Gender (Girls) | 1.15 ** | 2.17 *** | 1.69 *** | 2.02 *** | 1.91 *** | 2.35 *** | 1.69 *** | 1.88 *** | 2.56 *** | 1.86 *** | 1.75 *** | 1.94 *** | 1.79 *** | 2.01 *** | 1.09 | 3.12 *** |
| Household Income | 1.00 *** | 1.00 *** | 1.00 | 1.00 *** | 1.00 *** | 1.00 ** | 1.00 *** | 1.00 *** | 1.00 ** | 1.00 ** | 1.00 *** | 1.00 *** | 1.00 *** | 1.00 *** | 1.00 ** | 1.00 *** |
| Household Income * DR | 0.99 ** | 1.00 | 1.00 | 0.99 ** | 0.99 | 1.00 | 1.00 | 1.00 *** | 0.99 ** | 1.00 ** | 1.00 | 0.99 | 0.99 *** | 0.99 *** | | |
| Area (Urban) | 2.91 *** | 3.36 *** | 3.39 *** | 5.25 *** | 5.76 *** | 1.86 *** | 3.25 *** | 2.26 *** | 3.08 *** | 2.96 *** | | 1.95 *** | 2.25 *** | 1.87 *** | | |
| Area * DR | 1.47 *** | 0.58 * | 3.69 | 1.15 | 0.83 *** | 0.79 | 0.87 | 1.21 | 2.46 * | 0.92 | | 0.77 | 1.16 | 1.60 *** | | |
| Single Mother Head | 1.61 *** | 1.13 | - | - | - | 1.13 | | | | | | | | | | |
| Single Mother Head *DR | 0.83 | 5.29 *** | - | - | - | 1.54 ** | | | | | | | | | | |
| Mother's LFP | - | 1.31 | 1.43 * | 0.59 ** | - | - | | | | | | | | | | |
| Mother's LFP *DR | - | 0.43 *** | 0.67 | 1.12 | - | - | | | | | | | | | | |
| Mc Fadden R ² | 0.21 | 0.27 | 0.26 | 0.34 | 0.42 | 0.19 | 0.27 | 0.22 | 0.19 | 0.21 | 0.15 | 0.25 | 0.26 | 0.27 | 0.12 | 0.25 |
| No of Observations | 4495 | 1466 | 1127 | 1397 | 734 | 4034 | 1984 | 9355 | 1027 | 5446 | 3267 | 1946 | 3209 | 15209 | 1310 | 580 |

Notes: *** significant at 1% level, ** significant at 5% level, * significant at 10% level.
database.

¹ Coefficients expressed as odds ratios. **Data Source:** IDB, Office of the Chief Economist