

## **Reducing Poverty and Inequality in Latin America** **Sebastian Galiani; Washington University in St Louis**

### **Introduction**

With about one in five people in Latin America and the Caribbean classified as poor by international definitions, poverty remains at the top of the regional policy agenda. Economic growth is one way to reduce absolute poverty, and indeed seems a prerequisite for any significant improvement. Chile illustrates what can be achieved: real per capita income grew at an annual rate of 5.7% between 1987 and 1998, while the poverty rate dropped by 60%.

But economic growth alone is unlikely to be sufficient in an area such as Latin America where inequality is particularly marked. We therefore favor interventions which increase consumption by the poor (via redistribution), and so alleviate poverty. These should be coupled with initiatives which build human capital and help poor households create their own prosperity.

### **Poverty in Latin America and the Caribbean**

Extreme poverty per individual is defined by the World Bank as living on less than \$1.08 per day, measured at 1993 purchasing power parity (PPP) exchange rates. A poverty line has also been set at \$2.15 per person per day. These measures are subject to criticism, but nevertheless form the basis for international comparisons.

Globally, extreme poverty rates declined steeply between 1981 and 2004, while poverty showed a smaller decrease. From a below-average baseline, both measures declined modestly in LAC over that period. At 8.64%, extreme poverty seems not to be particularly widespread in the region (global total is 18.09%), but poverty remains a problem at 22.17% (although still modest set against the world total of 47.55%). But inequality in LAC has been higher than any other region for at least the last half century.

Behind the average, poverty rates vary widely, from 5.1% in Chile to 43.1% in Bolivia. Both poverty and extreme poverty rates are much higher in rural than urban areas. However, given the approximately 3:1 ratio of urban to rural dwellers, the total number of poor people is fairly evenly distributed between rural and urban areas. However, poverty is a particular problem in the indigenous population, who live predominantly in rural areas.

### ***Education and Fertility***

Education is the most important dimension of human capital, and levels in the region are still low. The adult population has on average completed only 7.8 years of schooling, equivalent to primary education. Younger people are doing better, but even the youngest cohort has completed only an estimated 9.1 years, whereas 12 years of schooling would be needed to finish secondary education. The situation for the poor is worse: the overall population has only 4.8 years of schooling, and 25 year olds have still only completed 6 years.

Compounding this further is the disadvantage of indigenous populations and the high rate of child labor. However, the gender situation has improved, and younger women are now actually at an educational advantage over their male peers.

Fertility is strongly related to education, child labor and poverty. As life expectancy has increased and infant mortality fallen, so birth rates have declined rapidly in most parts of the developing world. LAC has seen a particularly impressive drop, and now has one of the lowest developing world fertility rates. However, the link with education and income still remains.

### ***Child Health***

Child health is another important dimension of human capital. Infant and child mortality rates have declined very substantially, as has variation between countries, but the actual levels are still high.

But mortality rates do not show the whole picture. Undernutrition and micronutrient deficiencies add substantially to disease rates. Together they exacerbate poverty via lost wages, increased health costs and impaired intellectual development which reduces earning potential.

Many poor nutritional outcomes start during pregnancy, and intrauterine growth retardation is usually proxied by measuring the extent of low birth weight (LBW, the percentage of newborns weighing less than 2,500 grams). Although the region is substantially below the average for developing countries, a LBW prevalence of 10% is still far from satisfactory.

Nutritional status of children is normally characterized by such measures as standardized weight-for-age, height-for-age and weight-for-height. Although better than the rest of the developing world, the percentage of underweight children in Latin America is still 5%. The region also has 11.8% children who are stunted – a measure of their long-term nutritional status. In both cases, there are substantial inter-country differences, with Chile being the best and Guatemala the worst.

Micronutrient status for young children is poor in the region. Deficiencies in Vitamin A, iron and zinc run at 15%, 46% and 33% respectively. These can give rise to blindness, increased vulnerability to infections and impaired development.

### **Reducing Poverty in LAC**

Economic growth appears to be a powerful instrument for reducing absolute poverty, and Chile is an impressive regional example of its benefits. Between 1987 and 1998, real per capita income increased at an annual rate of 5.75%, while the poverty rate fell by 60%.

But growth is not always as effective as this in reducing poverty. Despite continued growth of the national economy, poverty rates in the United States have remained relatively stable since the early 1960s, mainly due to increased inequality during this period.

Based on an analysis of the elasticities of poverty and extreme poverty, the annualized per capita growth rate in Latin America between 1990 and 2005 of 1.7% would reduce poverty by 20% in 10 years. To halve it in the same period would require a growth rate of 3.5%, which is higher than the levels achieved in the last decade.

The effect of economic growth on poverty underlines the importance of finding ways to stimulate it. A per capita growth rate of 3.5% is possible if the reform process initiated 20

years ago is invigorated and enhanced. But the region still has a very unreliable business environment which discourages the investment and innovation necessary to fuel long-term growth. What it is more, investment and innovation incentives must be put in place for a broad segment of the population rather than just existing elites.

Improving the business environment and achieving macroeconomic stability are dealt with in detail by other authors. But an effective education system is also essential for increasing growth. A larger stock of human capital increases innovation and the adoption of new technologies.

Inequality may in itself be detrimental for economic growth. A highly skewed distribution of wealth and power can reduce the efficiency of the economy. Economic and political institutions systematically favor the most influential groups, leading to sub-optimal outcomes.

Estimates of elasticity suggest that a 20% reduction in inequality would lead to a 30% drop in poverty rate. But one striking feature of the LAC region is how little redistribution is currently carried out. Most countries rely heavily on indirect taxes, so overall taxation has little redistributive effect. Even though Chile's tax system is the most effective in Latin America, collects the most from personal income taxes and has the highest marginal rates, it remains slightly regressive.

Building an effective tax system can provide a greater measure of control over resources and for that reason is often resisted by elites who fear that their power may be threatened. And even a more progressive tax system will have little direct impact on many poor people, who work primarily in the informal sector.

The high level of inequality and the ineffectiveness of the conventional tax system in redistributing incomes means that a package of cost-effective policies targeting poor households is needed to build up their income generating capacity.

### **Cost-effective interventions**

We present here a set of redistributive interventions which seek to foster the accumulation of human capital among poor children by improving education, health and nutritional conditions in poor households. Estimates show that all have benefits which exceed their costs, but the actual benefit-cost ratios should be seen only as first-order approximations.

In LAC, there is an inexcusable lack of long-term experimental evidence upon which to base advice for policymakers on cost-effective interventions. More well-designed evaluations of poverty-reduction efforts are therefore needed, although the level of knowledge of conditional cash transfer programs is already quite adequate.

Appropriate targeting of interventions is clearly important. Means-testing or geographic targeting are systematically associated with better performance, while other approaches can be good but more variable. Combining targeting methods leads to further increases in targeting performance.

Focusing on early childhood development (ECD) programs makes sense, because it yields higher returns to investment than interventions made later in life; also learning begets further learning.

***Nutrition Interventions***

The nutritional status of adults largely reflects their cumulative nutrition since conception. Severe malnutrition in early childhood and micronutrient deficiencies can negatively affect cognitive development. But early interventions can be very successful. Giving young children access to randomly available nutritional supplements in rural Guatemala significantly increased school enrolment and educational achievement. Provision of Vitamin A on a semi-annual basis can reduce overall childhood mortality by 25-35%.

Anemia is one of the most widespread health problems among children in developing countries, and it is associated with one fifth of maternal deaths. Lower adult height, partly due to poor childhood nutrition, is associated with reduced earnings: a 1% increase in height leads to a greater than 2% increase in wages.

Multiple strategies are available to avoid malnutrition in young children, including reducing the incidence of LBW, a focus on infant and child nutrition and exclusive breastfeeding promotion and reducing iron, vitamin A, iodine and zinc deficiencies.

The benefit-cost ratio of breastfeeding promotion in Latin American hospitals has been estimated as 4.8, using a 5% discount rate. Properly targeted micronutrient supplementation or fortification programs can also yield extremely favorable benefit-cost ratios, although the actual figures are very sensitive to the exact intervention introduced.

***Conditional Cash Transfers***

Cash transfers to finance current consumption to families which meet certain conditions (such as school enrollment) have been widely adopted in developing countries. There are Latin American examples we draw on, from programs in Mexico, Honduras, Nicaragua and Ecuador. They all cover mainly rural areas, but differ greatly in scope. All except the BDH program in Ecuador were randomized at the community level; in Ecuador there was also a degree of household randomization. In all cases, the design makes benefits easy to quantify.

All the programs take an integrated view of poverty alleviation, addressing education, healthcare and nutrition. They are found to have significant positive impacts on a range of outcomes such as consumption, education, health, nutrition and labor market participation.

On the household consumption side, CCT beneficiaries seem to improve the quality as well as increase the quantity of the food they consume. Most programs had a positive effect on education in terms of enrollment, drop-outs and progression rates, but there is little evidence of improved achievement.

There is also evidence of improvement in the use of preventive healthcare services, and in Mexico there has been a reduction in the number of hospital visits. Nutritional supplements seem to have a positive effect, even if not consumed fully or regularly. There has been some reduction of child labor, but no impact on adult labor market participation.

*Comparing benefits and costs*

This section deals with the details of the PROGRESA program in Mexico, focusing on a group of 100 households over a two-year period and costed in 1996 pesos.

#### *Costs of the project*

For an average transfer of 197 pesos per month (as of November 1998), the total monthly deflated cost for the 100 families is 13,310 pesos. The total government outlay is 14,542 pesos including administration costs. There are also private costs (traveling and loss of leisure time) which together amount to a further 2,459 pesos.

#### *Benefits of the project*

Households in the program were found to have increased their consumption by 151 pesos per month (November 1998 prices). The monthly deflated consumption increase for the nominal 100 households is then 10,202 pesos. There is also a significant educational benefit, which translates into additional income over a working life.

Health status improved during the program. The rate of children's illness declined by 11%, there were fewer days of incapacity for adults and infant mortality was reduced from 18 to 16 per thousand. These benefits can be quantified. For 100 households, the lower infant mortality represents a reduction of 0.067 deaths over the two years, representing a benefit of 638 pesos or a yearly benefit of 0.067 DALY (Disability Adjusted Life Years) for a lifetime. The reduction in the illness rate for children gives a monthly benefit of 0.18 DALY or 411 pesos per month, for two years in each case. Further benefits accrue from reductions in adult incapacity.

Improvements in childhood health status also bring long-term benefits. Children aged 12 to 36 months receiving treatment are, on average, one centimeter taller, but the returns to this capital are hard to estimate. It has been found that a 1% increase in adult height gives a 2.4% increase in lifetime earnings, although the exact carry-over of gains in childhood to adulthood is unknown. However, taking two different assumptions, we can calculate the benefits for individuals starting 17 years after the program began and lasting for 47 years. The net monthly benefit per 100 households is then 1,225 pesos if the percentage height increase is carried through to adulthood, or 612 pesos if the adult height increase is only half of this.

Overall, the net present value, without using DALYs and at a 6% discount rate is \$335,466 and the benefit-cost ratio just over 2. Findings are similar if DALYs are used.

#### ***Early child development***

There is a wide range of interventions in this category. Some, such as growth monitoring and pre-school activities, target children directly, while others aim to improve parenting skills, train teachers or build capacity in community resources.

The importance of ECD programs is based on the understanding that about half of all intellectual development potential is established by the age of four.

Studies have shown that providing services – micronutrient supplementation, child stimulation and health and nutrition programs – directly to children is more effective than only working through parents. Results from some well-known programs in the USA show, for example, that years of schooling increased from 11 to 11.9 and high school graduation rates rose from 45 to 66%. By the age of 40, participants had median earning

one-third higher than the control group. Information from Latin America is scarcer but positive.

#### *Hogares Comunitarios Program in Colombia*

This is a large program started in the mid-1980s based on community nurseries where poor children receive food and care from one of the mothers in the community. A number of benefits have been identified, including a 3.3% median height increase at age 6, better school attainment and progress rates and an increase in the supply of female labor as mothers were free to work.

#### *Pre-primary education*

Most OECD and many middle-income countries have turned to universal pre-primary education to give children a better start to their schooling. Argentina, in the 1990s, built enough pre-school classrooms for 186,000 children. One year of pre-primary school was found to increase third grade test scores in Spanish and Mathematics by 8% of the mean. There were also behavioral improvements.

Analysis of the results of Uruguayan pre-school program showed it to have a significant effect on completed years of primary and secondary education. The gains increase as the children get older.

In poor countries, where a large percentage of children are excluded from the education system at an early stage, pre-primary schooling, with no formal evaluation system guarantees a common starting ground for children from heterogeneous backgrounds and could yield high returns in terms of later educational success.

#### **Comparing benefits and costs**

Children with one year of pre-school education have by age 15 accumulated 0.79 years more education than their peers. This should bring higher productivity and wages throughout their working lives, and also bring indirect benefits such as lower criminality, higher tax revenues and lower welfare payments.

If a classroom is built to accommodate 50 pre-school children in two shifts, we estimate the infrastructure costs at UY\$39,299 (Uruguayan pesos) per year. The teacher would be paid UY\$4,460 per month, and we assume additional miscellaneous costs equivalent to half this. There is also a cost to provide the additional schooling pre-school education results in, plus an opportunity cost because the children are not available to work. We assume that all children enter the labor market at 16.

At a 6% discount rate, the net present value of the project for the cohort of 50 children is UY\$1,220,804, and the benefit-cost ratio a very favorable 8.2. Similar results have been found for similar pre-school projects in the USA.

#### **Taking stock**

All the interventions presented here are very cost-effective. Some have already been implemented in some Latin American countries, but there is scope for extending them to across the region.

Conditional cash transfers not only enhance the development of human capital in poor children, but also increase current consumption in poor households. Even if other interventions are more cost-effective, this immediate benefit to the whole family makes

such programs very attractive politically. Since transfers to poor families are potentially high, they can have a substantial impact on reducing poverty and inequality. We conclude that they should be at the core of the redistributive component of an integrated poverty reduction strategy.

Educational factors lie at the center of the perpetuation of poverty and inequality in the region. We believe there should be heavy investment in education, with a goal of ten years of schooling for the poor plus at least one year of pre-primary education. But quality needs to be improved, as well as quantity, and there is no consensus as to how this can best be achieved.

### **Other promising interventions**

Finally, we briefly cover other interventions for which we do not have all the information needed to estimate costs and/or benefits.

#### ***Education***

Since indigenous people lag behind the general population, bilingual education targeted towards them could be effective. Equally, scholarships for tertiary education can promote social mobility.

#### ***Property rights and land reform***

The poor often suffer from lack of secure property titles, which makes it harder to sell or mortgage and is a disincentive for investment in productive activities. Redistributive land reform has long been advocated as a source of greater equity and improved efficiency, but it is important to take into account the relationship between the size of landholdings and productivity. Small farms can be efficient units of production, but this depends on conditions specific to particular crops and associated factors such as marketing and credit. Unfortunately, there has been a history of land reform failure in the region, so this issue needs to be evaluated carefully before seriously promoted. It is also important to distinguish between countries (and among areas within countries) with regard to where existing land rights are and are not contested. In the former case, there is greater scope for land reform to enhance both equity and efficiency.

Instead, there is evidence that strengthening tenancy markets and land titling programs could result in large productivity gains, and also help attack poverty in urban areas.

#### ***Rural infrastructure***

Better access to rural roads, electrification, water and sanitation and information and communication technologies can reduce costs to poor people and increase productivity by improving access to markets and improving production technology.

Growth of agricultural productivity in poor areas can directly benefit the rural poor, reduce food prices to the benefit of both the rural and urban poor, and contribute to the growth and generation of economic opportunity for the non-farm sector.

#### ***Credit and insurance***

The poor do not normally have access to banks or formal financial institutions, and informal credit tends to be very expensive. Microfinance institutions have been very successful in some regions, but there has been no study of the Latin American context to suggest whether or not they would have similar success in this region.