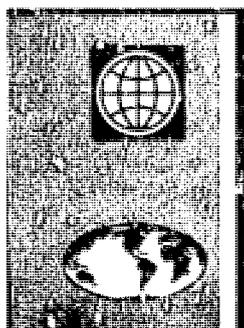


NUTRITION AND HEALTH PROGRAMS IN LATIN AMERICA

TARGETING SOCIAL EXPENDITURES



*Nutrition and Health
Programs in Latin America
Targeting Social Expenditures*

*Guy P. Pfeffermann
Charles C. Griffin*

*The World Bank
Washington, D.C., U.S.A.*

*International Center for Economic Growth
Panama City, Panama*

Guy P. Pfeffermann is director of the Economics Department and economic adviser, International Finance Corporation, an affiliate of the World Bank. Charles C. Griffin is assistant professor of economics, University of Oregon. This report summarizes the findings of the following background papers, which are based on World Bank missions and are available on request from the Macroeconomic Adjustment and Growth Division, Country Economics Department, the World Bank: Hector L. Dieguez, "Health and Nutrition Programs in Argentina: An Overview" and "Health and Nutrition Programs in Mexico: An Overview"; Roberto Macedo, "The (Mis)Targeting of Social Programs in Brazil: The Federal Health and Nutrition Programs"; and Jorge Rodriguez-Grossi, "Health and Nutrition Services: Recent Experience in Chile," "Health and Nutrition Services: Recent Experience of Costa Rica," and "Nutrition and Health Care Services: Recent Experiences in the Dominican Republic." World Bank data referred to in the text are from these papers. Work on the papers was initiated by A. D. Knox and supervised by Guy P. Pfeffermann. This report was drafted by Charles C. Griffin.

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The cover photograph, by Alan Berg, shows women in Ecuador waiting in line at a special food program.

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Nutrition and health programs are in most countries the primary means of raising or maintaining the consumption of basic necessities by the poor. In both areas, a persistent failure of consumption or a lack of timely access to services can have catastrophic consequences. This report examines the targeting of nutrition and health programs to protect the poor in six Latin American countries during the economic crisis that began at the end of the 1970s and persisted through most of the first half of the 1980s.

An economic emergency puts downward pressure on government budgets at the same time that it raises the risk of deprivation among vulnerable groups. Both forces increase the urgency of targeting. Attention to the targeting of social programs is vital, however, even when an economy is flourishing, because it is a fundamental determinant of the effectiveness and cost of the interventions.

Although nutrition and health programs are often advocated on humanitarian grounds, they (like education) also represent investments in human resources that have payoffs for both the recipients and society. Accurate targeting diminishes the chance that public investments in human capital will simply replace those private investments that would take place anyway, and it increases the probability that government programs will help to equalize opportunities rather than exacerbate inequities.

This report reviews methods for targeting nutrition and health programs to reach the poor by examining the experiences of a sample of six Latin American countries—Argentina, Brazil, Chile, Costa Rica, Dominican Republic, and Mexico—over the last decade. Food programs come in several varieties: general price supports, school lunch programs, mother-and-infant nutrition supplements, and acute malnutrition treatment programs. The six countries use many different methods to target nutrition programs, and the ones that have the best targeting records also tend to get the best results at the least cost.

In health care, there are basically two problems: how to provide ad-

Table 1. Selected indicators for Six Latin American Countries, 1986

<i>Country</i>	<i>GNP per capita (dollars)</i>	<i>Growth in GDP per year, 1980-86 (percent)</i>	<i>Total fertility (rate)</i>	<i>Life expectancy at birth (years)</i>	<i>Infant mortality (rate per 1,000)</i>	<i>Urban population (percent)</i>	<i>population per square kilometer</i>
Argentina	2,350	-0.8	3.2	70	34	84	11
Brazil	1,810	2.7	3.5	65	67	73	16
Chile	1,320	0.0	2.5	71	22	83	16
Costa Rica	1,480	1.3	3.3	74	19	45	51
Dominican Republic	710	1.1	3.8	66	70	56	135
Mexico	1,860	0.4	3.7	68	50	69	41

Note: GNP is gross national product; GDP is gross domestic product. Dollars are U.S. dollars. All numbers are for 1986, except infant mortality rate and urban population, which are for 1985.

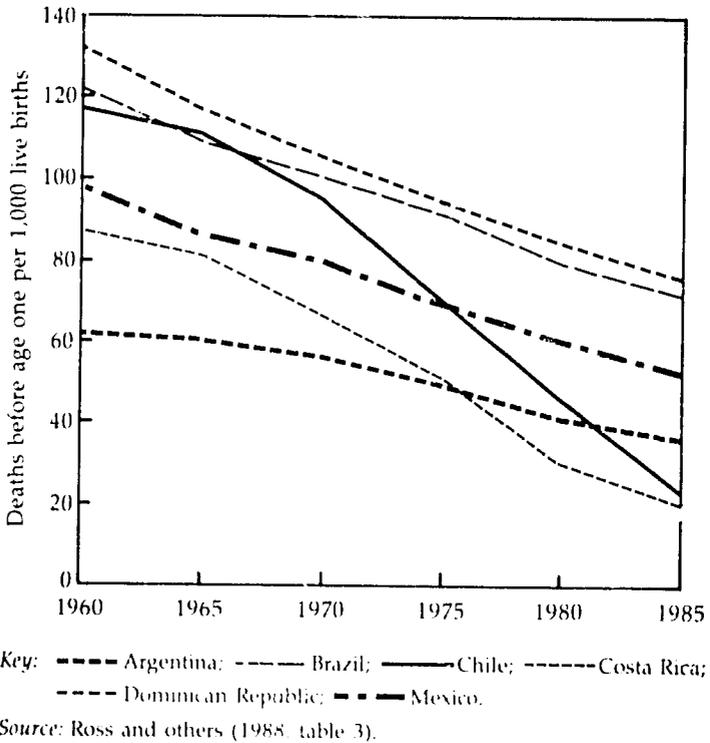
Source: World Bank (1987, 1988).

equate public health interventions and how to guarantee access to a minimum level of curative care. All six countries spend at least as much per capita on health programs as Chile, but only Costa Rica (which spends at least a third more per capita than Chile) matches its impressive record of accomplishment in health. Much of the credit for Chile's low-cost, high performance record in the health sector must be attributed to its extraordinary attention to targeting its subsidies in that sector.

Table 1 contains summary information on the six countries. It is a diverse group in every way, ranging from Brazil, with 140 million people concentrated in its southeastern urban areas, to tiny Costa Rica, with only 2.6 million citizens who are largely rural but relatively densely settled. The Dominican Republic is far and away the poorest and most crowded of the countries. The table illustrates the well-known phenomenon that social indicators in developing countries are at best weakly correlated with per capita income. Public policies definitely contribute to differences in those indicators. Chile and Costa Rica, for example, have experienced declines in mortality and fertility during the last two decades that far exceed what could be expected on the basis of growth in income alone. As can be seen in figure 1, the spectacular reductions in infant mortality in Chile have endured through the economic crisis of the 1980s. In contrast, Argentina, which led this group of countries in life expectancy and infant mortality in 1950, has dropped to third place for those indicators even though it still has the highest per capita income for the group.

Income or consumption subsidies are determined by a political process in which targeting, costs, and benefits are important but are not necessarily decisive. Subsidies are often distributed so as to secure patronage, votes, or clients rather than assist the poor, who rarely have political clout. It may therefore appear naive to discuss social programs, as this report does, with only passing reference to the political forces that create them. Even so, many social programs are ostensibly directed to the poor, few are defended on purely political grounds, and administrators exercise considerable discretion in allocating legislated benefits. Examining how existing programs are targeted, how targeting can be improved, and what characteristics seem to be important in successful programs can provide a basis for better legislation and better administration of interventions.

Figure 1. *Infant Mortality Rate, 1960-85*



Identifying and Targeting the Poor

The most obvious, intrusive, and expensive way to target programs is to use social workers to classify households by their per capita incomes or to identify other characteristics that might qualify them for assistance. Alternatives that can achieve similar results at low cost or with less direct intervention are attractive for many reasons, however, not the least of which is that resources can be channeled to benefits rather than to administrative costs. These alternatives include targeting by geographic location, age, health problems, and self-selection. (See box 1 for Chile's comprehensive approach to targeting.)

Targeting by Geographic Location

No matter how poverty is measured, the most common characteristic of the poor in Latin America is rural residence. In Mexico in 1977, the

Box 1. Chile's Ficha CAS Eligibility System

The Chilean government has developed a survey technique (the Social Stratification Survey or CAS card—*ficha CAS* in Spanish) to identify the poor systematically and to determine the benefits for which they are eligible from most social programs. The system is based on a survey form that is administered by a social worker, who classifies the household according to the characteristics of the dwelling, the educational and labor status of each family member, and family income. Differences between rural and urban dwellers are taken into account. The social worker has some discretion in making this determination, but the same questionnaire is used for every household. On the basis of the survey, the government's intention is to identify the poorest 30 percent of the population and provide them with an eligibility card. The card will determine the amount of housing subsidies, income transfers, and school food programs to which the household is entitled.

Chile's approach has four major advantages. If the survey technique works well, the poor will be identified in a positive manner (rather than waiting for them to use programs to which they are entitled), and they will be informed of the programs for which they qualify. Gradations of need will be explicitly recognized, rather than all or nothing poor/nonpoor categories. A variety of factors other than household income are taken into account, which makes the eligibility process more sensitive to the physical characteristics of poverty. Finally, it unifies eligibility requirements across interventions, allowing administrators to understand better the interactions of benefits from multiple programs.

On the negative side, all interventions cannot be targeted in this manner. Nutrition programs, for example, may require additional targeting mechanisms because they are intended for certain age groups (children) and conditions (pregnancy). The procedure is also expensive and may not result in any better coverage than less precise methods, although we do not know enough about targeting to know how effectively different methods identify the poor. Under any circumstances, it is an experiment that deserves careful evaluation.

bottom 30 percent of the income distribution was made up entirely of rural households. In Brazil in 1985, roughly 18 percent of all people lived in households with per capita incomes below a fourth of the minimum wage. Of this group, 58 percent were rural, although only 27 percent of the total population lived in rural areas. Nearly 50 percent of the poor lived in the Northeast. In Argentina, a criterion tied primarily to deficiencies in the physical condition of housing (lack of toilet facilities, overcrowding, or unsuitable dwelling) put 22.3 per-

cent of all households in the 1980 census below the poverty line. In the five most rural provinces (out of twenty-four), 43 percent of the households were poor. In Costa Rica in 1983, according to a poverty line tied to the cost of a minimum bundle of food, 25 percent of the population was poor, of whom 12 percent were classified as in extreme poverty. Although 55 percent of the population lived in rural areas, 67 percent of the poor and 70 percent of the extreme poor were rural. In the Dominican Republic the level of absolute poverty is greater than in the other countries, but the rural concentration of the poorest is similar.

To summarize, for each country and poverty measure a fourth to a fifth of the population has been identified as poor, with the incidence of poverty much higher in the countryside. Focusing on rural areas is thus a simple way to reach many of the poor. Even within cities, geographical targeting makes sense because the poor typically live in well-defined areas. Yet some programs can be difficult and expensive to deliver to sparsely populated rural areas, and targeting solely on a geographical basis inevitably results in leakages to people who would not qualify on other grounds.

Targeting by Age

Targeting by age is a practical method for reaching specific groups made vulnerable by events in the life cycle. Targeting benefits to youngsters, for example, reaches a group at a stage when investments in human capital are most useful and when concern for the sticky political question of work incentives has little relevance. Often children are concentrated in low-income households and have virtually no control over their circumstances. In Brazil, 62 percent of the country's children live in the poorest 40 percent of the households. Households in the top income quintile (with only 8 percent of the children) have, on average, about 90 times more resources available per child than do the poorest 40 percent of households (Birdsall and Griffin 1988).

Children's physical needs and opportunities to supplement their consumption vary as they grow. From infancy to the age of five years, targeting children means targeting mothers. Some of the younger children can be reached in day care centers, especially if the mothers live and work in cities. School-age children are easier to reach, but often the poorest children do not attend school, and schools are rarely in session more than 200 days a year.

Targeting by Health Problems

Health programs for specific problems, such as family planning, immunizations, malaria, and schistosomiasis, tend to be well-targeted to the poor because those are the problems of the rural poor and uneducated. Many nutrition and health programs are targeted to pregnant women and their babies, both of whom are easily identified although sometimes difficult to reach. Some programs are triggered by physical signs of distress, such as poor weight-for-height scores, a history of infant deaths in a household, or treatment in a hospital for malnutrition.

Targeting by Self-Selection

A subtle type of targeting depends on clients themselves selecting a program, usually on the basis of their sensitivity to costs or the attractiveness of the goods and services being delivered. Programs can be targeted by the types of goods and services provided, when they are provided, how they are provided, and by different combinations of price and quality. A World Bank nutrition project in Brazil that required clients to purchase food coupons found that with a subsidy rate of only 30 percent, 75 percent dropped out within a year but with a subsidy of 60 percent, only 26 percent dropped out. The poorest households found it difficult to scrape together enough cash to buy the food coupons. Program directors found that administration was less expensive and targeting was more effective when they simply provided general price subsidies on selected foods in carefully chosen stores and limited the quantity that could be purchased. The combination created an effective self-selection mechanism because the poor shopped at those stores anyway and tended to purchase small quantities each time. The rich, however, found the store locations and the restrictions on quantity to be a great inconvenience (Berg 1987).

Summary

It is evident from the foregoing that targeting programs to the poor can be improved if attention is paid to a few basic characteristics. A full-blown social welfare bureaucracy is not a prerequisite. Programs that can be approximately targeted to the poor by geography, age, or health problems can be precisely targeted by adding a sliding scale of fees or a self-selection mechanism that differentiates levels of need.

Box 2. Targeting an Emergency Food Program in Argentina

The National Food Program (PAN) was created in 1984 as a direct response to economic deterioration in Argentina. It was conceived as a temporary program to help vulnerable families through the crisis by delivering boxes of food to them. The program periodically delivers 30-40 pounds (14-15 kilograms) of nonperishable food such as milk, sugar, wheat flour, maize flour, oil, noodles, and rice. Fish, meat, and other products are added to the boxes on a rotating basis.

The program was initially targeted geographically; boxes were distributed only in areas where poor households, identified primarily by deficiencies in their dwellings, were concentrated. In addition, within targeted areas priority was given to households having pregnant women or small children. After the first two years of operation, about 5 percent of all households were receiving a PAN food box.

Although there are no statistics on distribution of the boxes by income, if households are divided into quintiles by education of the household head, the distribution of PAN boxes strongly favors groups with little education. About 44 percent of the lowest quintile, 25 percent of the second lowest quintile, and 13 percent of the third lowest quintile were receiving boxes in 1986. There was little leakage to the top two quintiles. An evaluation of school food programs found that of school children displaying signs of chronic malnutrition (retarded height for age), about 86 percent were living in households receiving PAN boxes. By both measures—education and nutritional status—the criteria for targeting geographic areas and households with mothers and children worked reasonably well, although they worked better in preventing leakages than in reaching all of the lowest educational quintile. Physicians, however, complained that PAN reduced attendance at maternal and child health clinics because a mother could get milk from PAN boxes without getting a checkup for her baby.

Box 2 explains how targeting a combination of geographical and mother-child characteristics worked for a food program precipitated by the economic crisis in Argentina.

Nutrition Programs

The six countries have several types of nutrition programs: general price subsidies, targeted price subsidies, school lunch programs, and mother-and-infant feeding programs.

General Price Subsidies

General price subsidies for foodstuffs are expensive and notoriously difficult to target. In Mexico, the national food distribution agency has supplied subsidized food through government outlets in cities for many decades. By 1983, those price subsidies consumed 1 percent of gross national product (GNP). The subsidy was subsequently limited to two foods and was better targeted; by 1986 expenditures fell to 0.2 percent of GNP (see box 3). In the Dominican Republic, two different institutions provide general price subsidies for food, but there is no knowledge of who benefits from the subsidies or of their net cost. The larger of the two programs had sales in 1985 well over \$100 million. (All dollars are U.S. dollars.) If the implicit subsidy were only 5 percent of sales (probably a gross underestimate), it would represent an amount large enough to pay five times the cost of existing programs targeted to mothers and children in that desperately poor country. A general wheat price subsidy of \$8 per capita in Brazil consumed more than half of Brazil's federal expenditure on food programs in 1986. In contrast, two general price subsidies targeted geographically through shops in urban slums provided a subsidy of \$7 per capita to the target populations at a total cost of less than 3 percent of the untargeted wheat program.

Neither Costa Rica nor Chile provides general price subsidies for food. In Costa Rica, as a matter of fact, producers enjoy tariff protection for rice, beans, and sugar, which *raises* the price paid for those staples by consumers. In both countries, the government took emergency steps to help the poor during the economic crisis. Costa Rica set up a temporary food aid program that distributed food packets to households targeted by local committees. Chile concentrated government efforts on employment programs for the poor, leaving direct food subsidies primarily to private charities. Although general price subsidies are helpful during an economic crisis, as any income supplement would be, the per capita amount is usually so small that it offers little protection to the families most in need of help. Box 4 explains how improving the targeting of food subsidies can raise the subsidy to people most in need without necessarily spending more money.

School Lunch Programs

School lunch programs are usually targeted to a specific age group regardless of income, although some countries in the sample stretch

Box 3. Targeting General Food Price Subsidies in Mexico

In 1986, Mexico added several targeting mechanisms—a tortilla program, a milk program, and a maize program—to its general food price subsidy programs. The system now subsidizes only tortillas and milk directly in urban areas, plus maize in rural areas.

For the tortilla program, food coupons are sold in urban areas that can be exchanged only for tortillas. The effective price subsidy under the program was about 75 percent in 1986, when a tortilla coupon that purchased 130 pesos worth of tortillas sold for 32 pesos. Seventy percent of the coupon outlets are in low-income neighborhoods, and 6 million households are covered by the program. Households qualify for the program with an income below two minimum wages, which is certified by a social worker who visits the applicant household. Thus there are three targeting mechanisms—the commodity (tortillas only), geography (low-income urban neighborhoods), and a means test (below two minimum wages). The mechanisms are workable, but the targeting criteria are not restrictive.

Although most tortilla coupon outlets are in low-income neighborhoods, there are substantial leakages, primarily through trade unions, to higher-income groups. The income limit is high enough to include 48 percent of all Mexican households, according to the 1983–84 National Income and Expenditure Survey. Moreover, the income elasticity for tortillas estimated in that survey is above one, indicating that tortilla consumption increases in percentage terms faster than income. Tortillas are quite possibly a luxury for extremely poor households, in contrast to staples such as maize, grain, and beans.

The subsidized milk program works much like the tortilla program. It is urban (Mexico City accounted for 75 percent of its coverage in 1986), distribution units are primarily in poor neighborhoods, the same income limit applies, and the amount of the subsidy is about 70 percent. In addition, eligible households must contain at least one child under twelve years of age. The volume of milk and frequency of delivery depend on the number of qualifying children.

The price subsidy for maize applies only to rural areas, which do not participate in the other two programs. The subsidized price of maize is approximately the same as the wholesale price, so the price subsidy targeted to rural households provides a substantially lower offset against the market price than do the urban programs.

The obvious problem with these food programs is that the bulk of the subsidies goes to urban households, whereas the bottom 30 percent of the Mexican income distribution is rural. Yet the potential for targeting the new programs is much better than the general price subsidy they replaced.

Box 4. The High Opportunity Cost of Failing to Target

Reallocating only part of a general price subsidy to targeted programs can make an enormous difference in the effectiveness and cost of nutrition interventions. In 1986, Costa Rica spent about \$11.15 per capita on food programs, about half for school lunches and half for mothers and children. Brazil spent \$13.80 per capita on food programs in the same year, but well over half of Brazil's spending was on poorly targeted general price subsidies. Brazil's wheat price subsidy involves importing nearly 35 percent of the required wheat, so it has a high foreign exchange cost as well.

Brazil spent about \$11.60 per schoolchild in 1986 for meals, 60 percent less than Costa Rica. For mothers and children, Brazil's broadly targeted national milk program spent an average of \$4.50 per recipient, its supplementary food program spent \$17.35 per recipient, its day care food project spent \$3.41 per child, and a small complementary food program spent \$74 per person. If Brazil's spending per beneficiary were summed across programs (as if they all reached the same recipients, which they do not), Brazil's total subsidy per beneficiary would be less than Costa Rica's \$150. In addition, in Brazil almost all subsidies go to urban areas, whereas in Costa Rica most of each type of expenditure goes to rural beneficiaries.

Some people argue that Costa Rica's program is expensive, but if Brazil were to eliminate its general price subsidies and target school lunch and mother-child programs more carefully, it could achieve spending levels for those groups that meet or exceed Costa Rica's per capita outlays and still reduce its total expenditure on nutrition programs.

their budgets by targeting specific schools or children. Others reach beyond the school walls and school year to maintain nutrition supplements for needy children or those too young to attend school.

In Argentina the school lunch program is a federally assisted program providing a complete lunch, a cup of milk, or supplemental food to schoolchildren. It is fully financed by federal funds in 40 percent of the provinces and is supplemented by local funds in the remainder. The program's first criterion of targeting is the per capita income of a province. According to this criterion, Buenos Aires, as the wealthiest jurisdiction in the country, receives no federal funds. The second criterion of targeting is the location of rural schools within districts, although not all provinces differentiate among schools. The third criterion of targeting is that within the schools children may be either

self-selected or designated by teachers' evaluations of need. In some districts all children in a targeted school are given free food.

An evaluation of the program in 1985 found that it was missing many children in unsubsidized schools who needed diet supplements, and the poorest rural schools tended not to participate at all because they had no kitchen facilities. Many of these problems could be solved within the current budget if, instead of targeting subsidies to schools, they were targeted to children specifically. The evaluation suggested use of anthropometric measures to identify eligible youngsters.

In Brazil, all elementary schools are covered by a federally funded school lunch program. The program is completely untargeted, providing free meals to all children attending public primary schools. It cost about \$12 per child per year in 1986. In that year the program was extended from 180 days to 260 days a year, and children aged four to six years were allowed to participate. The number of children receiving meals increased by nearly 50 percent in the first year of the expansion, to more than 30 million. Brazil also has a program for day care centers that provides four meals a day to children between three months and six years of age who qualify on the basis of low family income and poor anthropometric measurements. It served nearly a million preschoolers per month in 1986.

These changes obviously increased the food subsidies for children. Yet Brazil spends an equivalent of half the total school lunch budget to provide lunches for 2 million adult male workers. That is a far higher per capita expenditure on a group that is probably the least likely to require any nutrition supplement—peculiar targeting indeed!

In Chile, the school food program provided breakfast and hot lunch rations to about a fifth of all schoolchildren (attending 80 percent of the country's schools). Until 1980, teachers selected children to participate in the program, but the CAS card system described in box 1 is now the primary determinant of who gets the subsidy. The meals are designed to provide a third of the energy and half the protein requirements of the children. This program provides a minimum of 700 calories and 20 grams of protein a day to qualifying children at a daily cost of about \$0.33 per child.

In Costa Rica, nearly half of nutrition spending is consumed by the school lunch program. A 1986 analysis found that about 70 percent of government expenditures on this program were captured by the bot-

tom two quintiles of the income distribution. Yet when families whose children (ages seven to twelve years) did not get food at school were asked why, more than 40 percent of the bottom two quintiles responded that it was not available, and 35 percent of the poorest quintile responded that the child was not in school. For even the poorest quintile, however, a quarter of the parents said that the child did not get food because he or she did not need or did not like the food.

The Dominican Republic has a school food program, but a 1984 survey found that 98.5 percent of schoolchildren received no free food at school. Out of the 1.5 percent that did receive food, two-thirds belonged to the poorest 40 percent of the population.

What does this information tell us? First, targeting through schools has many elements of a general price subsidy for an age-selected group. It can be quite expensive. Targeting by school, as in Argentina, can better focus the subsidy, but needy students may be missed because they attend a school that receives no subsidy. Students who do not need or want the food get it because they attend a subsidized school. In one of Argentina's poorest provinces, reductions in budgets in 1984 first caused services, such as the milk cup and snack, to be dropped. Additional cuts in 1985 required that whole schools be dropped because there was no mechanism in that province to target within schools.

Second, targeting schoolchildren misses children who are not in school. Some nutritionists contend that school feeding programs actually come too late in life to alleviate nutritionally linked problems, such as learning disabilities. All the countries have supplements for very young children, which will be discussed next, but Brazil stands out for its effort to reach children who are too young to be in school but too old to qualify for infant feeding programs. Furthermore, only Brazil and Chile have extended their school lunch programs beyond the confines of the academic schedule. School lunch programs also miss children who should be in school but are not. The Costa Rican survey shows that these children may be some of the most needy.

Third, school-based subsidies tend to have an urban bias. In Argentina, small, poor rural schools that can support neither a kitchen nor a cook have no lunch program. Enrollment ratios also tend to be lower in rural areas. Accordingly, although schools provide a convenient means to reach an important age group, they are not perfect. Few countries have good data on the characteristics of the eligible children

who are missed, how they could be reached, and what it would cost to reach them.

Mothers and Infants

Maintaining adequate diets for mothers and their babies puts food supplement programs squarely at the interface between nutrition and health. Some programs effectively exploit this connection by using nutrition interventions to attract mothers to health clinics and to identify children who need health care. Every country in the sample provides some kind of food program, usually milk supplements, for expectant mothers and their small children.

Argentina provides powdered milk to mothers of children up to two years of age, and the program is geographically targeted to low-income areas. Buenos Aires is excluded. The allotment of milk is adequate for 60 percent of the requirements of a newborn, but the supplement declines rapidly as the child gets older. In the second year it provides about 14 percent of the calorie requirement of the average toddler. The milk is delivered through health care units, and the mother must bring her eligible children with her in order to qualify for the supplement. The mother (if pregnant) and her children are weighed and examined at the clinic. In 1986, this program targeted delivery of 259,080 kilograms of milk powder but actually distributed only a third of the goal in La Rioja, one of the poorest provinces.

The Dominican Republic has a nutritional surveillance program that targets rural children under five years old. More than 135,000 children were examined during 1986 under this program. Severely malnourished children were identified by health promoters and brought to nutrition centers, and other children were provided various forms of medical and food assistance. A 1986 survey found that 21 percent of all children under six years of age were benefiting to some degree from this and other nutrition programs.

Nutrition programs in Chile and Costa Rica are narrowly focused on mothers and children, and relatively little money is spent for additional nutrition interventions other than school meals. In Chile, a complementary feeding program is targeted to pregnant women, breast-feeding mothers, and children from birth to the age of five years. Beneficiaries who are not at nutritional risk are given a package of food. Those at risk are provided substantially greater benefits. Regular medical checkups are obligatory in order to receive food through

the program, and the visits must take place in National Health Service clinics. That requirement creates some self-selection *out* of the program by women who refuse to use public clinics (presumably higher-income women). This program reaches about 70 percent of the eligible population at an annual cost of \$36 million (\$30 per beneficiary). This and other programs have virtually eliminated severe malnutrition among youngsters in Chile. In the process, they have nearly put the system of inpatient hospitals for malnourished children out of business. That saves untold permanent costs for the children for whom the risk of malnutrition is reduced, and it saves the nearly \$650 per inpatient case spent in 1983. Thus each case of severe malnutrition averted by this well-targeted program frees up enough resources to reach twenty-two youngsters.

Costa Rica has an exceptionally well-targeted program that provides a general food subsidy and other assistance to households which have children who have been treated in a medical facility for malnutrition. Only 1,300 households received this type of assistance in 1985. Another program provides hot meals, snacks, health care, and educational activities to children too young for school and pregnant mothers who live no more than 1 kilometer from the center providing the food. Coverage of that program is highest among the poorest groups, although it serves many high-income households as well. The program is complemented by another that provides milk and diet supplements for mothers and children who live beyond the 1 kilometer cutoff.

Summary

The greatest difference among the countries in the sample is whether they provide general price subsidies for food. If they do, these subsidies create a heavy drain on the budget relative to the amount of aid targeted to the poor. School lunch and nutrition programs for mothers and children are ubiquitous, and some countries, such as Chile, are careful about targeting even these programs, with great success.

Health Programs

Trends in infant mortality have already been shown in figure 1. Differences across the sample are due to variations in public policies, educational attainment, environment, and income. Table 2 shows dif-

Table 2. Per Capita Health Spending and Health Inputs

<i>Country</i>	<i>Household plus government medical consumption, 1986 (dollars)</i>	<i>Medical consumption as percentage of GDP, 1986</i>	<i>Central government spending on health, 1986 (dollars)</i>	<i>One-year olds vaccination against measles, 1984-87 (percent)</i>	<i>Average for tuberculosis, diphtheria, measles, polio 1984-87 (percent)</i>	<i>Access to safe water in 1980s (percent)</i>
Argentina	80	4	8	67	72	64
Brazil	68	5	31	63	67	77
Chile	57	4	27	91	90	86
Costa Rica	87	5	54	81	79	90
Dominican Republic	56	7	10	24	28	62
Mexico	59	4	26	64	47	76

Note: Total spending is in U.S. dollars. The first column is derived from table 6 in World Bank (1988), which comes from the International Comparison Project and should be the most reliable and comparable figures available. Spending by the central government is derived from World Bank (1988: table 23). Spending on health by Mexico's central government is assumed to be 5.1 percent, the 1972 figure, not 1.4 percent as estimated in World Bank (1988). Most of these numbers are consistent with estimates for earlier years although, for example, other World Bank data for Argentina estimate health spending at 7-8 percent of GDP compared with 4 percent in this table.

Immunization coverage is the average for one-year-olds for each shot or series of shots: for tuberculosis; for diphtheria, pertussis, and tetanus; for polio; and for measles. Measles is also shown separately. The health statistics are from Ross and others (1988).

ferences across countries in health spending per person plus statistics on coverage of two common health interventions, immunizations and water supply, that are sensitive to public policy. It takes no feat of imagination to guess that children who are not immunized and households that are not using safe water supplies are the poorest and least accessible ones. Chile and Costa Rica provide all but 10-20 percent of their populations with both interventions, but the other countries have some work to do.

The surprise of table 2, however, is that the Dominican Republic spends almost exactly as much per capita on health as Chile and Mexico even though its GNP per capita is half or less than half of theirs. Despite comparable health spending in those three countries, Chile's immunization rate is almost double Mexico's and triple the Dominican Republic's. Clearly, on the basis of per capita health spending alone, any of these countries can afford to match Chile's performance! It is not a problem of total expenditure but one of allocation and targeting.

As an example of poor targeting, one of the main reasons for the Dominican Republic's high expenditures is that the 220,000 people who are covered by the social security system (4 percent of the population) receive per capita benefits of \$65 per year. That is more than ten times the amount spent on the rest of the population by the government. A 10 percent reduction in the social security benefit, if channeled to public health, would more than double the existing budget for those activities and provide public goods that would benefit social security members and the rest of the country.

Provision of Public Goods

"Public goods" in the field of health are goods and services the government is best equipped to finance because individuals have little incentive to pay for them. These interventions include immunizations, insect control, regulation of air quality, and provision of safe drinking water. (Box 5 discusses Costa Rica's experience in improving its public health programs.) There are at least two good reasons to provide public goods first in any program to target health subsidies.

First, public goods substitute for costly private activities. Public health goods tend to be supplied inadequately without some kind of government action. People react to a shortfall by purchasing substitutes. A good example is water. Slum residents in South American

Box 5. Public Health Programs and Costa Rica's Interventions

One public health responsibility that is often inadequately performed by governments is the collection of epidemiological data. If diseases are to be targeted, their incidence and distribution must be known. By the early 1970s Costa Rica's epidemiological data base was adequate to guide public policies, and it revealed that the prevalent causes of death were malnutrition, vaccine-preventable diseases (mainly tetanus and measles), and sanitation- and water-related diseases. Feeding programs targeted to children, health education, primary health care, water supply and sanitation, and improved access to curative services were simultaneously developed.

The effects were amazing. By the end of the 1970s, immunization rates exceeded 85 percent. Infant mortality due to vaccine-preventable diseases plummeted after 1972 by 98 percent, from 23 per 1,000 to less than 1 per 1,000 in 1979. Deaths from diarrhea and respiratory infections fell from even higher levels to less than 1 per 1,000 by 1982. Even though these improvements cannot be attributed completely to the change in policies, there was clearly a connection.

Government statistics show that the counties with the highest and lengthiest coverage by the primary health program—generally those with the worst coverage before 1972—gained substantially more years of life expectancy than did counties most recently covered—rural areas closest to cities. Changes in the infant mortality rate by mother's education showed the greatest gains among the least educated mothers. Differences in infant mortality across income groups were almost wiped out.

Costa Rica's policies went beyond the provision of pure public health goods to include improved coverage of curative services. But the public health interventions—better water and sewerage, vaccination campaigns, epidemiological surveillance, and health education—clearly played a central role in the strategy. Is Costa Rica's experience an aberration? If other countries, such as the Dominican Republic, did the same thing, would they achieve similar results? Which interventions were most important in determining the outcome? Those questions are difficult to answer, but it is clear that Costa Rica systematically analyzed its epidemiological problems and used a combination of technology, health education, public health investments, institutional reforms, and targeted curative interventions to solve them. In principle the same tools are available to other countries, although the human and physical resources that make the strategy possible may take longer to build.

cities commonly pay more for inadequate supplies of low-quality trucked water than people in upper-income residential areas pay for ample supplies of treated, piped water. Table 3 shows the quality of, quantity of, and expenditure on water from different neighborhoods

Table 3. Water Consumption and Expenditure Patterns, Lima, Peru, 1972

<i>Quality of water</i>	<i>Quantity of water (liters per capita per day)</i>	<i>Monthly household expenditure on water (dollars)</i>
Poor (vendors)	23	2.44
Medium (standpipes)	78	0.51
Good (house connection)	152	0.81

Source: Briscoe (1984).

in Lima, Peru, in 1972. On average, the poorest households spent three times *more* than the wealthiest households for nearly seven times *less* water, which was also of lower quality. In rural areas, by cutting the large amount of time spent especially by women in fetching and transporting small quantities of low-quality water, easy access to safe community water systems can substantially cut the total cost in money and time of consuming water, not to mention improve its quality. In both circumstances, provision of the public good can improve equity by lowering costs to the poor and increasing the quantity and quality of water.

Second, many public health technologies are also largely irreversible. Once people drink safe water, a short-term economic downturn is unlikely to cause them to revert to their previous behavior. Once a population is immunized against measles, economic crises have little effect on the incidence of the disease. Health gains made through the provision of new knowledge or technology thus tend to be permanent. This phenomenon has been clearly demonstrated in Chile and Costa Rica, where gains in mortality and life expectancy held steady during the recession.

In summary, although public health inputs are untargeted by virtue of the fact that everyone benefits from them, their provision can actually provide substantial permanent benefits to the poor. The effects of public health interventions may be global, but they are also tangible. In Chile, a reduction in public health activities is blamed by some observers for a sudden rise in typhoid and hepatitis cases around 1980 that has not yet fallen to earlier levels. In Brazil, where infant mortality increased in some regions during the economic crisis, São Paulo's infant mortality rate continued to fall because of an aggressive immunization program that delivered vaccine doses at a rate sharply higher than the growth of population in the early 1980s (Macedo 1984).

Table 4. Social Security Coverage in Six Latin American Countries, 1986

<i>Country</i>	<i>Percentage of population covered</i>
Argentina	63
Brazil	83
Chile	61
Costa Rica	85
Dominican Republic	4
Mexico	56

Source: World Bank data.

Health Services

Some people pay directly for curative health care, others have health insurance, and still others receive subsidized care from the government or from private charitable institutions. Each of the six sample countries employs all of these financing mechanisms, but some have been far more successful in extending coverage to the poor through the two main avenues available to the government: social insurance and free government services.

Table 4 shows the coverage of social security programs in the sample countries. One of the main problems with social security systems in the past has been low coverage of the population. All of the countries except the Dominican Republic have made great strides in bringing citizens working outside the formal tax paying sector into their social insurance systems. Brazil's coverage rate, for example, increased from 23 percent in the early 1960s to nearly 85 percent in 1986. In 1974 it started providing emergency assistance to anyone who needed it, and rural workers—the last large uncovered group—have slowly been brought into the system, supported by land and crop taxes. The latest change is a ruling that membership in the social security system is no longer a prerequisite to receiving medical care from the system, which offers the possibility of 100 percent coverage.

In Mexico, the social security system covered about 35 percent of the population in 1978. During the past decade it has steadily expanded coverage to include seasonal workers in such sectors as sugar, coffee, and tobacco. The latest expansion, in 1987, provided coverage to 100,000 taxi drivers. To extend coverage to rural areas, a separate program was created by the federal government which the social security system agreed to manage and to fund partially. Between 1979

and 1981, the social security system built 2,715 rural medical units and 30 rural hospitals that were added to a previously existing stock of 310 rural medical units and 30 rural hospitals. The federal government provided the construction funds and 60 percent of the operating costs. These units provide a full range of primary health and family planning services, and the social security system is widely recognized for having succeeded in providing relatively high-quality services to rural areas in a remarkably short time.

In Costa Rica in 1971, medical care and hospitalization were extended to everyone through the social security system, and two years later the social security system took over the management of Ministry of Health hospitals. As a consequence, the social security system now provides about 90 percent of all medical visits that the government delivers. The system is financed by earmarked payroll and sales taxes. In addition, rural and urban health programs provide clinic services beyond the hospital system.

This reorganization divided health activities in Costa Rica almost exactly in line with the distinction between public and private goods discussed earlier. Curative services were moved into the social security system, and the Ministry of Health began to specialize in the tasks the government is supposed to undertake: health policy, epidemiological surveillance, primary care (preventive services, health education, and minor curative activities), and eradication of malaria. Both bureaucracies developed a strong rural focus; about 53 percent of curative health expenditures and 61 percent of preventive expenditures were directed to rural areas in 1982. A 1984 household survey found that there was almost no difference between the poorest and richest quintiles in whether health care was sought for an illness. An analysis of public health expenditure found it to be mildly redistributive, with the poorest 40 percent of the population receiving 49 percent of the total subsidy—although they received 57 percent of the subsidy for rural and preventive programs. In Argentina, only the indigent require care from the public system because the rest of the population is covered by insurance. Public subsidies are consequently redistributive, with the poorest 40 percent receiving 69 percent of the subsidy.

These examples show that the social security systems, which are usually regarded as much stronger financially and organizationally than the ministries of health, have succeeded in improving medical coverage of low-income households in several countries. As coverage

improves, equity improves because benefits are related to need rather than contribution. Even the Dominican Republic's system would look fairly equitable if it covered a much larger share of the population.

An unresolved problem in financing health care through social insurance in these countries is that the systems often skew spending in inappropriate directions. In Brazil, if the health insurance fund would devote only 10 percent of its budget to preventive services rather than curative care, the public health budget would rise by 150 percent. The Brazilian social security system is widely viewed as distorting providers' and patients' decisions in ways that do not serve sensible goals for health sector policy.

Public expenditure on health care in Chile has actually fallen in real terms since 1969. An important aspect of this retrenchment has been a much more careful targeting of subsidies. Free care is now available only to certified indigents. Social security insurance pays for blue collar workers, but anything beyond the most basic care requires copayments by the patient. White collar workers have been pushed completely into private insurance plans that are funded by social security deductions. In short, all apparent public subsidies of the health system have been removed from recipients of social security. Although overall government subsidies have been reduced, the remaining subsidies have also been redirected. For example, even though the total number of government physicians has fallen, the number of obstetricians and gynecologists has risen. Primary health services have been expanded at the expense of hospital services (Scarpaci 1985; Viveros-Long 1986).

Apart from the improvement in access to medical services based on social security, all of the countries have wrestled with the problem that better access does not directly translate into the use of government health services by the poor. In the Dominican Republic, for example, several surveys have found that, depending on the sample, 15 to 40 percent of the poorest two quintiles of the population sought private health services despite the availability, at least on paper, of free public services. Reasons given for not using public services include a shortage of drugs and low quality care.

Two methods have had some success in reliably reaching the poor. One has already been discussed: attracting clients, especially mothers and children, into clinics in order to receive food from nutrition programs. The apparent success of such programs in delivering care to

pregnant mothers and their children, especially in Chile and Costa Rica, suggests that there are program complementarities that can be exploited to the advantage of both nutrition and health interventions for target groups. The second approach is outreach programs that put health professionals in the field to seek out and deliver care to clients. A pioneering "hospital without walls" experiment providing dispersed peasants with comprehensive care in Costa Rica required that top medical personnel go to health posts to treat patients rather than requiring the patients to come to the hospital. It was a costly experiment because specialized physicians spent their valuable time in transit between the hospital and the health post. But medical visits almost doubled in one year using the same staff. In Argentina, a pilot program has developed criteria by which to rate low-income households for the risk of child malnutrition and to intervene with nutrition and health activities provided directly to the most vulnerable households.

Summary

The six sample countries have struggled with problems of health financing for several decades, and—despite their macroeconomic difficulties—most of them have had success in widening coverage of their health systems to include the poorer segments of society. Costa Rica and Chile have had documented success in pulling many of the poor into the curative system and in equalizing the provision of public health goods. But the costs of the strategies chosen in the two countries are quite different, with Costa Rica's per capita spending running about 50 percent above Chile's. Almost all of Costa Rica's spending on health is apparently funneled through the public sector (see table 2). By 1986, nearly 20 percent of Costa Rica's central government expenditure was for health. Yet Argentina spent nearly as much per capita on health with much less effect in improving outcomes for the vulnerable groups that Costa Rica has successfully reached.

Public Administration, Public Finance, and Targeting

Targeting social spending to the poor is a bright idea that seems so attractive and sensible that it should take the world by storm. Why would a government *not* want to target its income subsidies to people who need them most? Nonetheless, attempts to reduce or eliminate general price subsidies have encountered enormous political opposi-

tion in many countries. Some opposition is inevitable because even general price subsidies benefit specific groups much more than the average subsidy level would suggest, and those groups have a strong economic incentive to protect the subsidy. Bureaucracies may see their power slipping away and oppose change. Citizens may not trust governments to act fairly. Nevertheless, the huge savings that can be generated by targeting previously untargeted programs give governments wide latitude to cushion the blow, and politicians can be relied on to try to do that. A more important concern, really, is that governments understand the administrative requirements and issues of public finance embedded in targeting.

Public Administration

Countries often do not have the information or the administrative capacity to do sophisticated targeting. Must that prevent targeting? Clearly not—the few simple methods outlined in this report probably will target programs nearly as well as the fanciest approaches. Inexpensive sample surveys can effectively evaluate alternative strategies at low cost. Mexico's general food price subsidy required market interventions stretching from producer to consumer and imposed far greater administrative demands than the sale of tortilla coupons or the delivery of milk.

Some targeting mechanisms are models of simplicity. The most sophisticated approach identified in this report is also the most simple—self-selection. Self-selection mechanisms put subsidies on specific goods or services in particular locales and take advantage of existing behavior. They require relatively little bookkeeping, and enforcement costs are nil. They should be self-enforcing. The only question is how well they work in different situations and for different goods.

We have seen that a major problem in targeting health care subsidies is getting the poor to take advantage of them. To some degree that is effectively resolved by providing other desired services, such as nutrition supplements, as a complement to essential medical services. An alternative high-cost approach is to send personnel out to find and serve the poor. Targeting of health subsidies can almost always be improved simply by transferring some portion of them from curative services to investments in public health.

But governments must make some difficult administrative changes. If, for example, schoolchildren are to be targeted with free lunches,

schools must have kitchens. If health services are to be delivered in rural clinics, the clinics must exist and must work. Both problems require adequate budgets for maintenance and personnel. Mexico's rural health service barely operated before the social security system took over because of weak management, inadequate maintenance, and little logistical support. Changing those items cost money and required a strong, expensive administrative structure. Argentina's school lunch program is in a shambles because capital and maintenance costs are underfunded. The Dominican Republic's rural health system is bypassed by the poor because it does not work. Systems that are inoperable are targeted to no one. Donors and governments alike must take much more care to understand the requirements of social sector finance before activities are undertaken. Targeting can make that job easier by narrowing the scope of subsidized activities. Chile has shown, for example, that by stepping back from direct provision of services, it can get better quality and save money. In 1980 the government began to contract out the preparation of school lunches to the private sector throughout the country and assume the role of regulator, quality controller, and check writer. Since then, costs have plummeted and quality has improved (Chile 1988).

Public Finance

A complete analysis of targeting would require information on both the recipients of the benefits and those who pay the taxes that support the programs. In developing countries, indirect taxes provide the bulk of government revenues (World Bank 1988). Those taxes are at best mildly regressive and at worst impose a lopsided burden on lower-income groups and the rural sector. This report has looked exclusively at the expenditure side, but if social programs are targeted to upper-income groups or urban areas instead of poor rural residents, and the latter group pays a disproportionate fraction of its income to support the programs, the total effect of the badly targeted programs can be regressive indeed. In almost every developing country, a poorly targeted expenditure program is not only a lost opportunity to help the poor but actually represents a transfer from the poor to the well-off and from rural to urban households.

Adjustment has not only meant retrenchment but also decentralization as governments have tried to improve productivity and cut costs. Unfortunately, decentralization of the financing of social pro-

grams has tended to accompany administrative decentralizations. That is a mistake if it goes very far. For example, in 1986, the social security system began withdrawing from the administration and funding of Mexico's rural health system. This so-called decentralization will leave the system to the management and financial support available from state governments. If anything, local management should improve the operation. But local financing will create regional inequities that will reinforce geographical patterns of income distribution rather than counteract them. Central governments cannot fully decentralize the financing of poverty programs. They must always guarantee a minimum level of program activity that is not dependent on local tax capacity. The same phenomenon is seen in Argentina's federal system, which provides a minimal level of funding for some programs that the poorer provinces are bound to and the richer provinces supplement. The central government performs a redistributive function across regions that cannot be decentralized along with administrative responsibilities.

Conclusion

Chile and Costa Rica have shown that avoidance of general price subsidies, wide provision of health insurance coverage, aggressive delivery of public health goods, and careful targeting of nutrition interventions can create an effective set of interventions that need not cost more, and often cost less, than what other countries spend on poorly targeted, ineffective programs.

Chile has made a strong effort to replace direct delivery of services by the government with provision by the private market. The government has tried to redefine its role as one of providing financial subsidies and quality control. Costa Rica has maintained a strong involvement by government in both the financing and provision of services. The long-term effects of the two approaches are yet to be played out. One would expect to see Chile's costs continue to decrease relative to Costa Rica's but possibly also to witness decreasing support for programs that no longer benefit from large public bureaucracies.

In order to target nutrition and health programs to vulnerable groups, it is usually taken for granted that we must know who they are, where they live, and how their behavior patterns affect efforts to

reach them. Chile and Costa Rica have taken pains to gather statistical information about the poor. Yet a variety of methods can be used to target programs even when the poor are not precisely identified. The six Latin American countries discussed in this report continue to have innumerable problems in targeting their subsidies, but they have all had some success even in the absence of an exhaustive statistical base. In many ways the experiences of these countries provide hope that better targeting can be accomplished, that it will increase equity, and that it will also increase efficiency.

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