Identification of Recipients

Countries with a limited amount of money allocated to improving the well-being of poor residents must design effective identification methods to ensure that benefits are distributed in the most cost-effective manner possible while still reaching the intended beneficiaries. The goals of food assistance programs can be many. Most food assistance programs are designed to improve nutrition and ensure that people have enough food to eat. These goals can lead to other results, including a redistribution of resources to poor households, an alleviation of the negative effects of economic downturns, and a population more aware of nutrition. There are also many other potential goals not directly related to food consumption including political stability and the reduction of agricultural surpluses. To compare the targeting programs of Mexico and the United States, we begin with a general theoretical framework that assumes one goal of food assistance programs is to alleviate food insufficiency.

Consider a country with a fixed amount of money, T, for nutrition programs. The country gives food assistance through a vector of transfers, **t**, to all or some residents.⁷ The extent of food insufficiency is measured by a food sufficiency index, F(**y**; z) where **y** is a vector of food consumption levels for all households and z is a minimum food consumption level below which households are defined as malnourished. The food sufficiency index could be constructed in a manner similar to poverty indexes (for example, the Foster, Greer, and Thorbecke measure (1984); Sen's poverty index (1974)).

If the y_i's are observed, a country faces the following minimization problem:

$$\min F(\mathbf{y}+\mathbf{t};z) \text{ subject to } \sum t_i \leq T,$$

where the t_i 's are the elements of t. The solution to this problem is

$$\mathbf{t}_{p}^{*}=\mathbf{t}(\mathbf{y},\mathbf{z},\mathbf{T}).$$

and each household, taking z and T as fixed, will receive the transfer, t_{pi} *= $t(y_i)$.⁸ This is called perfect targeting at the household level.⁹

In most cases, however, perfect targeting is not possible. In response, countries will minimize expected food insufficiency with a vector of observable variables, \mathbf{x} , that are correlated with y. The new minimization problem is then

min E[F(y+t;z)] subject to
$$\sum_i t_i \le T$$
, given $f(y|\mathbf{x})$ and \mathbf{X}

where the matrix \mathbf{X} is the set of observations on \mathbf{x} for all households in the population. The general solution to this can be represented by a functional \mathbf{t}^* :

$$t*=t(X, z, T),$$

which, for a given z and T, can be simplified to

$$t*=t(X)$$
.

Any household with observed characteristics, \mathbf{x}_i , will receive the transfer $t_i^*=t(\mathbf{x}_i)$. The vector \mathbf{t}^* will minimize the expected food insufficiency level in the country.

Neither Mexico nor the United States (nor any other country for that matter) is able to perfectly target transfers to households using the function $t(y_i)$ and both instead use $t(\mathbf{x}_i)$. In choosing $t(\mathbf{x}_i)$, countries consider the relative benefits and costs of various plans (see Grosh, 1994, p. 7-14). These benefits and costs are measured in terms of leakage and undercoverage. Leakage occurs when transfers are received by households that are not in need of assistance (as defined by the goals of the program). Undercoverage occurs when transfers are not received by the intended households.

The benefits to targeting are relatively obvious in terms of the theoretical structure above: for a fixed T, a country can most effectively improve the well-being of poor households by concentrating resources on those most in need. Conversely, once a country decides on who should be receiving assistance, identifying them accurately helps a country minimize the amount of T needed to achieve its goal.

There are four main costs to targeting. ¹⁰ First, there are administrative costs to identifying eligible households not present with universal food subsidies (i.e. food assistance benefits that are available to everyone without restrictions). Second, there are costs borne by recipients in applying for a subsidy. For example, the cost in time to negotiate the application process; the financial cost of getting to the welfare office; and the opportunity cost of lost wages when applying for benefits. Third, households may change their behavior in response to the identification criteria. A household just above the eligibility cutoff in terms of income, for example, would qualify for the program if the earners in the house-

⁷Our theoretical framework is similar to Glewwe, 1992. Consistent with papers in the poverty alleviation through targeted benefits literature, he uses poverty as defined through income deficits from a poverty line. Because the usual concern with food assistance programs is to ensure that people have enough food to eat and are well-nourished, we examine the alleviation of food insufficiency in this report. Other concepts such as undernutrition could be used instead. For more on targeting of support to low-income households, see Székely, 1997; de Walle and Nead, 1995; Ravallion, 1989; Ravallion and Chao, 1989; and Besley and Kanbur, 1988.

 $^{^{8}}$ It is possible that for some households, t_{pi} =0. In fact, for the programs discussed below, this is the case.

⁹Perfect targeting at the household level does not imply perfect targeting at the individual level. There may be individuals in ineligible households in need of assistance. Even if the intended households receive the benefits, due to intra-household allocation decisions, not everyone in the household may receive the benefits in the intended amounts. (See Lundberg and Pollak, 1996, for more on the implications arising from intra-household bargaining.)

¹⁰Analyses of food assistance programs in Egypt (Ali and Adams, 1996) and Jamaica (Jacoby, 1997) have found that universal subsidies can achieve similar outcomes as targeted subsidies. This can occur if, for example, the program provides "inferior foods" that nonpoor persons are less likely to consume. Neither Mexico nor the United States uses universal subsidies, so we do not consider the relative efficacy of universal versus targeted programs.

hold scaled back the number of hours they worked. While this improves the household's welfare by increasing the leisure time of wage earners, such households were not the intended beneficiaries when the government established the eligibility criteria. In response, the government is therefore forced to spend more money than it would have otherwise and/or cut back on the number of recipients. Fourth, when geographical targeting is used, some nonrecipients may move into the targeted area so as to receive benefits. This outcome may have desirable features insofar as otherwise poor nonrecipients are now covered, but if nonpoor households also move into the targeted area to receive benefits, the Government may be forced to reduce the amount available to poor households and/or to increase the cost of the program.

A country's choice of $t(\mathbf{x})$ and T is clearly influenced by its available resources. The United States is much wealthier than Mexico. Based on current exchange rates, the per capita 1997 U.S. gross domestic product (GDP) was \$29,326, while it was \$4,298 in Mexico. Using purchasing power parity prices, the gap narrows somewhat: \$29,326 versus \$7,697. The United States, therefore, if it is so inclined, has a lot more money available for food assistance programs. This additional income means that more sophisticated targeting methods $t(\mathbf{x})$ are possible and T can be larger. This should be noted as we now review how $t(\mathbf{x})$ is chosen for the three largest U.S. food assistance programs and for the Mexican food assistance programs.

U.S. Food Assistance Programs

Food Stamp Program

Households have to meet three financial criteria to qualify for the Food Stamp Program: the gross income test, the net income test, and the asset test. A household's gross income before taxes in the previous month must be at or below 130 percent of the poverty line (\$1,479 per month in fiscal year 1999 for a three-person household, the most common food stamp household). Households with disabled persons or headed by someone over the age of 60 are exempt from this test (although they must still pass the net income test). After passing the gross income test, a household must have a net monthly income at or below the poverty line. Net income is calculated in the following manner. A standard deduction is subtracted from a households' gross income. Households with earnings from the labor market deduct 20 percent of these earnings from their gross income. Households incurring expenses for child care and/or care for disabled dependents can deduct up to some limit. A medical deduction for expenses above \$35 per month and a shelter deduction for costs in excess of 50 percent of a household's net income (computed before the shelter deduction) are also used. (The medical deduction is only available to households with elderly or disabled members.) The shelter deduction is capped except for elderly or disabled households. Finally, net-income-eligible households must meet an asset test. All net-income-eligible households with assets less than \$2,000 qualify for the program (\$3,000 for households headed by someone over age 60). The value of a vehicle above \$4,650

is also considered an asset unless it is used for work or for the transportation of disabled persons. The value of a home is not considered an asset.

Recipients of food stamps are categorically eligible for WIC and the School Lunch and Breakfast programs, if they also meet the other nonincome requirements of the program. As seen in the income eligibility tests of these other programs, the converse does not hold.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

To qualify for WIC, three criteria must be met. First, individuals must fall into one of four categories: pregnant woman, postpartum woman, infant under the age of 1, or child between the ages of 1 and 4. Second, gross household income in the previous month must be less than 185 percent of the poverty line. Participants in the Food Stamp Program or Medicaid are automatically income eligible. Third, recipients must be nutritionally "at risk." Two major types of nutritional risk are recognized: medically based risks (such as anemia, underweight, maternal age, history of pregnancy complications, and/or poor pregnancy outcomes) and dietbased risks such as an inadequate dietary pattern. This assessment, based on Federal guidelines, is made by a health professional, that is, a physician, nutritionist, or nurse.

Unlike other U.S. food assistance programs, WIC is not an entitlement program and, therefore, funding may not be available so that all eligible persons can receive benefits. Once a local WIC agency has spent all its funds, rationing occurs based on the following priority levels (in descending order): pregnant women, breast-feeding women, and infants determined to be at nutritional risk because of a nutrition-related medical condition; infants up to 6 months of age whose mothers were at nutritional risk during pregnancy; children at nutritional risk because of a nutrition-related medical condition; pregnant and breast-feeding women and infants at nutritional risk because of an inadequate dietary pattern; children at nutritional risk because of an inadequate dietary pattern; and nonbreast-feeding, postpartum women at nutritional risk.

The National School Lunch Program

Any student at a school participating in the School Lunch Program can receive free or reduced-price lunches. About 92 percent of all students have access to these meals with near universal access in public schools. Children from households earning less than 130 percent of the poverty line can receive free meals; children from households earning between 130 and 185 percent of the poverty line can receive meals for 40 cents; and households earning more than 185 percent of the poverty line do not receive any reduction in the cost (although even these meals are subsidized to some extent due to the use of surplus agricultural foods).

As seen in the age requirements for this program and WIC, it is very unlikely that a child could receive benefits from both programs. However, a family can potentially receive benefits from both programs.

Mexico's Food Assistance Programs LICONSA

Children under the age of 12 who live in families with incomes below 2 times the minimum salary (a commonly used poverty line in Mexico) qualify for subsidized milk in the LICONSA program. The participation of over 10,900 dairies ensures milk availability.

DICONSA

DICONSA's target population is families with incomes of less than 2 times the minimum salary living in rural communities of less than 2,500 inhabitants whose residents (a) request assistance and (b) have the majority of the population with incomes below two-times the minimum wage. Access to this program for the distribution of basic commodities is facilitated through 23,000 stores, 332 warehouses, and 3,400 vehicles for distribution and supervision.

DIF

Everyone residing in a targeted community qualifies for the benefits of DIF. Targeting of DIF depends on an "index of social vulnerability" composed of five components — (1) infant mortality rates, (2) illiteracy rates, (3) malnutrition rates, (4) the number of indigenous persons in an area, and (5) the number of postpartum women who are unable to breast-feed. To establish the index, DIF first uses official statistics, then DIF agents talk with local officials to establish the statistics' veracity. The goal is to reach the most poverty-stricken households; so areas scoring highest on this index are served by DIF.

FIDELIST

Families earning less than two times the minimum salary and without a telephone or car qualify for FIDELIST.

Progresa

The selection process of beneficiaries for Progresa is determined by income and other factors, a process clearly stated in the program's guidelines. A household is defined as a group of people (related or unrelated) living in the same house, sharing food expenses, and cooking in the same kitchen.

The identification of beneficiaries of Progresa is carried out in three stages. The first consists of a geographic targeting process to determine the most marginal localities with relatively easy access to health services and schools. Second, a census of socioeconomic information of each household in all the selected localities is carried out to identify the beneficiaries of the program. Third, once the list of beneficiaries is

completed, it is presented to the communities in meetings to rectify any improper inclusion or exclusion of beneficiaries.

The geographic targeting process is based on the Indice de Marginación. The index is based on, for any region, the percentage of illiterate population age 15 or more; the percentage of households without water services, drainage, electricity, or floors; the average number of inhabitants per room in households; and the percentage of the population employed in the primary sector (mainly manufacturing and services industries).

The second step in the targeting process is based on the analysis of socioeconomic information of each household in the regions selected by the Indice de Marginación. Beneficiaries must also be considered poor. The information obtained through the socioeconomic census of each household was designed to include measures of poverty. These variables are household structure, individual characteristics, occupation, income of each member of the household, government support programs received by the members of the household, migration, health of the members of the household, physical characteristics of the house, use of the land, and the number of farm animals.

The consolidation of the list of eligible households by locality takes place in a community meeting attended by the female head of the household and other members of the community. The input of the community in determining the final list of beneficiaries is important and ensures that all eligible households are included.

During this community meeting, the basic guidelines are reviewed as well as the responsibilities of the beneficiaries, such as compulsory visits to the health center and children's school attendance. The community is in charge of the control and surveillance of the program. The benefits of Progresa can be suspended temporarily or permanently if the beneficiaries do not fulfill their responsibilities. After 3 years, people may be rotated off the program to allow other community members to participate.

The objective of targeting is to ensure that the poorest families receive the benefits. Because financial resources for food assistance programs are insufficient to reach all households living in extreme poverty, the Government ensures that Progresa does not overlap with other Government food and education support; so beneficiaries of Progresa cannot participate in other food assistance programs. This rule is consistent with the goals of the Mexican Government. As Progresa expands, it is going to replace the other programs. In other words, the other programs are not going to be able to replace beneficiaries lost to Progresa by going to other parts of the country not served by Progresa or by changing their eligibility criteria to include more families. Poor households who receive no benefits from Progresa could theoretically receive benefits from the four other programs. The extent of overlap is unknown.

A Comparison of Programs Over Three Dimensions

We now compare Mexican and U.S. food assistance programs over three dimensions related to targeting: (1) the structure of benefits, (2) the uses of nonhousehold-based information for targeting, and (3) the possible negative incentives produced by the programs.

Structure of Benefits

In Mexico, once a family is deemed eligible for food assistance, its level of benefits is fixed. In the United States, the amount of assistance a family receives for WIC, TEFAP, and the Food Distribution Program on Indian Reservations is also fixed. The benefits under the National School Lunch and Breakfast Programs and the Food Stamp Program, however, are inversely related to income, although for the former, there are only three income categories. In terms of the theoretical structure above, if $t_i(\mathbf{x}_i)^* > 0$, then $t_i(\mathbf{x}_i)^*$ is independent of \mathbf{x}_i for the fixed-benefit programs; for the other programs, if $t_i(\mathbf{x}_i)^* > 0$, $t_i(\mathbf{x}_i)^*$ depends on \mathbf{x}_i .

A fixed benefit level reduces the administrative cost of targeting because the only information needed is whether or not a household is eligible. For example, Mexico has no need to know whether a household without a car or telephone earns 1 or 1.5 times the minimum wage—in both cases a household qualifies for FIDELIST. However, for the U.S. Food Stamp Program, for example, greater detail is needed to set the benefit level. While the need for greater detail does increase the administrative costs, there are two primary advantages to using a benefit level inversely related to, say, income. First, the marginal benefit to a peso of assistance is, under reasonable assumptions, higher for households with incomes far below the poverty line than those closer to the poverty line. In other words, it is a more efficient way to allocate scarce resources. Second, the disincentive effects of a variable benefit level are lower than for a fixed benefit level. Consider an ineligible individual who, with a small decrease in the number of hours worked, will become eligible. If there is a fixed benefit level, a small decrease in the number of hours worked may actually lead to a higher total income. If there is a properly constructed variable benefit level, however, a small decrease in the number of hours will not lead to a higher total income.

Uses of Nonhousehold-Based Information

In the theoretical framework above, we presumed that households were the intended beneficiaries of food assistance programs, and, with the exception of DIF, programs in both countries use at least some information at the household level to identify beneficiaries. However, in both countries, the vector ${\bf x}$ can also include information not necessarily at the household level.

Some programs use more disaggregation to identify beneficiaries by targeting benefits to individuals within households. WIC does use the income of households to identify eligible recipients, but it also uses information about the

women, infants, and/or children within the households who are potential beneficiaries. For example, nutritional risk is an eligibility criterion for the women, infants, and children. Others in the household could be at nutritional risk, but they are not eligible. U.S. school meal programs use household income to decide on the cost of meals, but only school-age children in schools are eligible for benefits. In Mexico, Progresa's scholarship program is for school-age children, and its benefits are further targeted by gender with girls receiving more benefits than boys. LICONSA targets benefits to children under the age of 12. This further disaggregation allows for more precision in reaching the intended beneficiaries. All members of households benefit insofar as money previously spent on now-covered expenses is freed up for other expenditures.

Unlike the United States, Mexico uses information aggregated beyond the household level to identify beneficiaries. All food assistance programs in Mexico use some geographic targeting. By using more aggregation, the administrative costs of providing food assistance is decreased in at least two ways. First, by screening out large categories of persons, the cost to certifying the eligibility of a smaller number of potential recipients is lowered. For example, Progresa first decides on what areas are most in need of assistance and, after this decision, individuals are targeted. This method reduces the costs of ascertaining eligibility for the Government. Second, the costs to providing the services themselves are lessened. Consider the case of DICONSA, which incurs both capital and labor costs. By restricting the benefits to limited areas, the capital investment is diminished because the Government does not have to establish and staff stores in all locales. The costs to families can also be less. Suppose the Government, instead of targeting geographically, decided instead to establish the same number of DICONSA stores distributed randomly across the country. This alternative location strategy would lead to an increase in travel and opportunity costs for the average poor family.

While there are advantages to geographic targeting, the primary disadvantage is the undercoverage that occurs because needy individuals not in the targeted area will not receive benefits. Simulations for Mexico show that if only Statelevel information is used, the undercoverage rate is 59.3 percent; if municipal information is used, it is 42.3 percent; and if locality information is used, it is 37.3 percent (Baker and Grosh, 1994; table 7). By no means should these be interpreted as the actual extent of undercoverage: they are based on data from 1984; Mexico uses more than just geographic targeting; and the simulations presume a fixed amount of money available to poor households – but that fixed amount of money is not based on the actual amount of money available. Thus, these simulations should be seen as only an indication of the relative effectiveness of hypothetical targeting schemes.

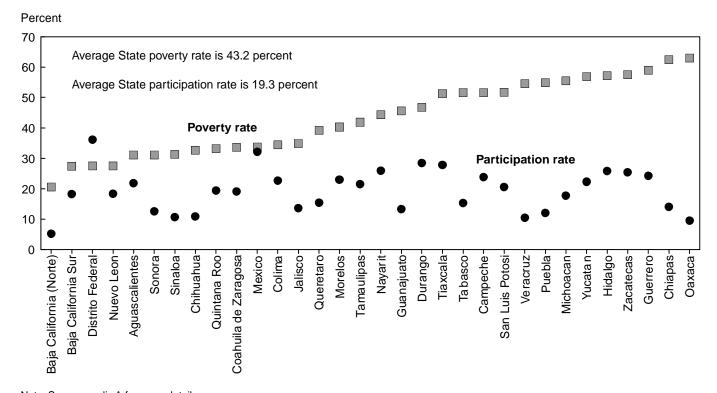
Compared with the United States, poverty in Mexico is more concentrated in rural areas. This concentration is the primary reason that most programs in Mexico use the urban/rural distinction to target benefits more extensively than the United States. About 4.2 million Mexican households live in extreme poverty conditions. 11 Of those poor households, 1.7 million are in urban areas and 2.5 million in rural areas. Because the distribution of Mexico's population between urban and rural areas is 73 percent in the cities and 27 percent in rural areas, poverty is much more common in rural areas. (For more on the rural/urban poverty differential, see Kelly, 1999.) In the United States, poverty is more evenly distributed. The poverty rate for persons outside metro areas was 15.9 percent in 1997 versus 12.6 percent inside metro areas (Dalaker and Naifeh, 1998). Using nongeographical distinctions one can see sharp disparities between groups in poverty rates, however. For example, single mothers with children have a poverty rate of 31.6 percent, while married couples with children have a poverty rate of 5.2 percent. While the United States has not targeted food stamp benefits based on these nongeographical distinctions, it has structured access to food assistance programs based on this information. For example, prior to PRWORA,

recipients of AFDC, a program for single parents with children, were categorically eligible for food stamps. As a consequence, they did not have the burden of establishing income eligibility for food stamps.

The relation of the food assistance participation rate to the poverty rate by State is one way to view the effectiveness of a country's targeting methods. The poverty rate and the participation rate are displayed by State for Mexico in figure 1. The States are in ascending order of poverty. There appears to be very little connection between State poverty rates and food assistance participation. For example, in Oaxaca, a State with a poverty rate of 63 percent, only 9 percent of residents participate in at least one food assistance program. Conversely, in the Distrito Federal, a State with a relatively low poverty rate of 28 percent, 36 percent of residents participate in at least one food assistance program. We provide a more detailed look at the targeting methods used in the food assistance programs in the section on "Food Assistance and Poverty Rates" below.

Figure 1

Mexican food assistance participation rates and poverty rates, 1995, by State



Note: See appendix A for more detail. Source: Conteo de Poblacion y Vivienda.

¹¹Extreme poverty is defined as not having enough resources for access to the goods contained in the official list of basic products that allows for the adequate performance of daily activities.

¹²For a discussion of how the participation and poverty rates were calculated and the information source used for this analysis (Instituto Nacional de Estadistica Geografia e Informita, 1997) see Gundersen and Kelly, 1999. The participation rate is calculated as the percentage of households participating in at least one food assistance program. Appendix A has a table for all States in Mexico. Appendix B has a table for all the United States.

A similar exercise for the Food Stamp Program in the United States is in figure 2. There are two major differences between the United States and Mexico in terms of the food assistance/poverty relation. First, the difference in poverty rates across States is much less in the United States, from 5 percent in New Hampshire to 18 percent in Mississippi whereas in Mexico the range is from 21 percent in Baja California (Norte) to 63 percent in Oaxaca. Second, while not exact, food stamp participation rates appear to be more correlated at the State level with poverty rates in the United States. This closer correlation between poverty rates and food stamp participation rates in the United States may be due to three reasons. First, food stamps are an entitlement program, while none of the food assistance programs in Mexico are entitlement programs. Second, the costs to reach some of the poorest areas in Mexico are very high due to underdeveloped transportation systems. As a consequence, administrators of food assistance programs may decide not to serve such areas because the marginal costs of serving them exceed the marginal benefits. In the United States, transportation systems are well-developed and therefore are not an issue. Third, Mexico has a large number of subsistence farmers, especially in very poor rural areas. While these farmers may be in dire need of other social services, food assistance may not be needed to the same extent as in areas without subsistence agriculture. Food assistance

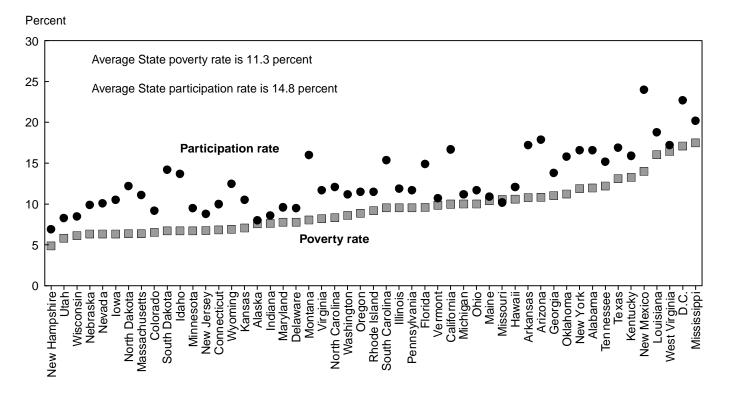
administrators may therefore decide not to serve these areas. The number of subsistence farmers in the United States is negligible.

Negative Incentives

A government generally hopes that the vector of characteristics, $\mathbf{x_i}$, for any household i is not affected negatively by the targeting method, $t(\mathbf{x_i})$; but that occasionally happens nonetheless. Examples of changing characteristics to receive benefits include moving to a certain area to receive benefits (when geographic targeting is used); cutting back on the number of hours worked (when income cutoffs are used); and increasing family size to receive more benefits (when family size influences the size of benefits).

In Mexico, there is no published evidence of and little concern about families that changed behavior to receive food assistance benefits. In the United States, however, policy-makers are concerned about the possible negative incentives associated with welfare, including food stamps. The recent Personal Responsibility and Work Opportunity Reconciliation Act was designed, in part, to reduce the negative incentives seen by some as the source of extended welfare stays for portions of the population. Through the TANF program, the entitlement nature of AFDC ended. The act limits cash assistance benefits to 5 years total in an individual's life

Figure 2
U.S. food stamp participation rates and poverty rates, 1995, by State



Note: See appendix B for more detail.

Source: U.S. Dept. of Comm., Census, and U.S. Dept. of Agr., Food and Nutrition Serv.

and, through the increased autonomy given to States, States can impose even stricter requirements — as little as 2 years of receiving assistance. States also impose various rules limiting benefit levels for additional children, thus reducing the supposed incentives for mothers to have more children to qualify for higher benefits. The Food Stamp Program remains a federally funded entitlement program, however, with time limits on receipt for only a small portion of eligible persons – able-bodied adults without dependents who do not work or participate in an employment training program and who do not live in an area with high unemployment rates or in a labor surplus area.

Despite concern by policymakers, research has found that the negative incentives associated with U.S. welfare programs have a very small effect on the number of recipients and the size of families. While hours of work were lower than they would have been in absence of AFDC benefits, the disincentives to work were calculated to have led to about a 5-percent increase in the AFDC caseload (Moffitt, 1992; p. 17). ¹³ Over

time, the number of single-parent households has increased. However, despite the claims of some policymakers, this increase cannot be attributed to the AFDC program (Moffitt, 1992; p. 29). Relatively less work has been done on the effect of the Food Stamp Program on labor supply and/or family size. ¹⁴ Fraker and Moffitt (1988) found that elimination of the Food Stamp Program would lead to an estimated 9-percent increase in the number of hours worked by female heads of households. A study of married couples (Hagstrom, 1996) found that increases in food stamp benefits produce almost no change in the number of hours worked, although they do induce higher participation levels.

Countries can also choose targeting methods that may indirectly induce positive changes in individual or household characteristics. For example, Progresa requires medical checkups as a condition of receipt, and WIC recipients are strongly encouraged to seek prenatal care. The effects of these indirect influences on recipients' well-being is an area in need of more research.

¹³A decline in hours of work is not necessarily a negative outcome: this allows single mothers to spend more time caring for their children. In fact, the original intent of AFDC was to ensure single mothers did not have to work outside the home.

¹⁴On a per person basis, other food assistance programs are probably too small to produce labor supply changes.