Effect of the Macroeconomy

By ensuring that low-income households have enough food to eat, food assistance programs are an important component of the social safety net in both countries. For purposes of this report, we are concerned with two roles of the safety net. For households that are persistently poor, even during economic expansions, the safety net ensures them a minimum standard of living. In the United States, approximately one in three poor households have permanent incomes that lead to poverty in every year of a 10-year time horizon (Rodgers and Rodgers, 1992). This "chronic poverty" is particularly high for certain segments of the population, for example, households headed by single African-American mothers without a high school diploma. These households have a chronic poverty rate of close to 70 percent.[15] A comparable situation appears to exist in terms of race/ethnicity in Mexico. Areas with high concentrations of indigenous persons have less than one-fourth the average incomes of areas with low concentrations. The chronic nature of this poverty is reflected in the low human capital levels as proxied for by literacy rates. In indigenous areas, 48 percent of households are literate versus 76 percent in other areas. The chronic nature is also reflected in the quality of residential amenities – in indigenous areas, 16.1 percent of households have piped water versus 62.5 percent in other areas; 48.9 percent have electricity versus 92.9 percent; and 2.2 percent have a telephone versus 22.2 percent (Panagides, 1994, table 7.1, table 7.4, and figure 7.5).

[15]This study was based on data from 1977 to 1986.

A second role of the social safety net is to protect families that fall below the poverty line during economic recessions.[16] During an economic recession, the average income in a country declines. While, in theory, an increase in poverty does not necessarily occur if the relative distribution of income in a country stays the same or becomes more unequal, a falling average income does lead to an increase in poverty.

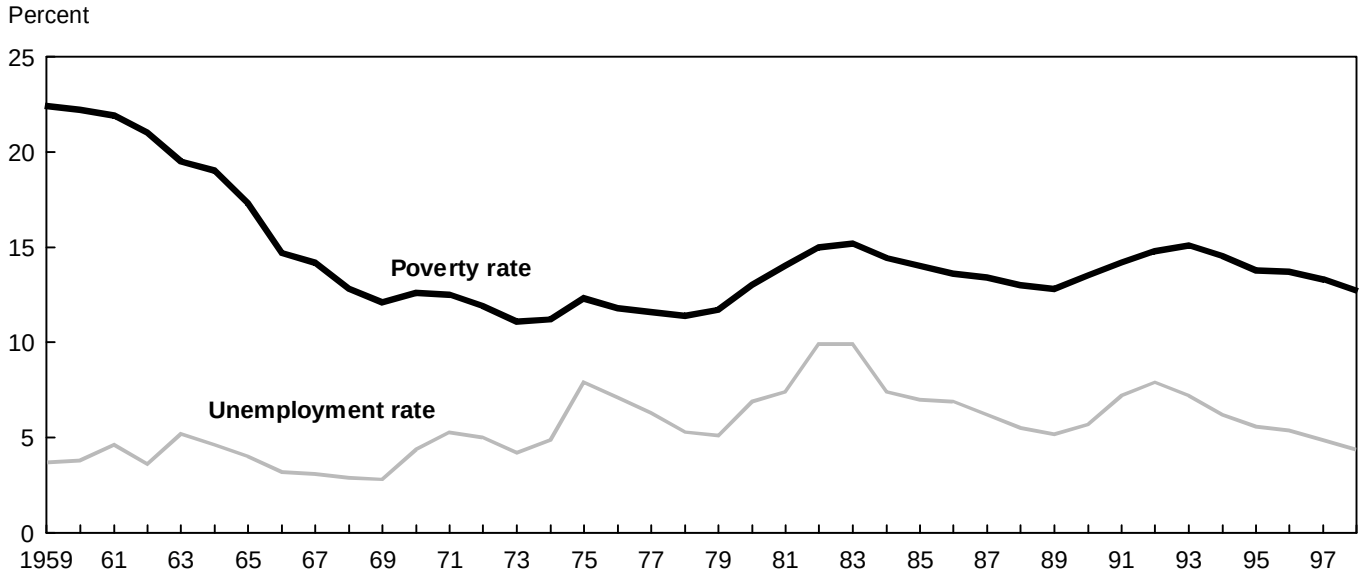
This inverse relation between poverty and the state of the macroeconomy in the United States can also be seen in figure 3, which shows the poverty rate and the unemployment rate (as economic growth declines, the unemployment rate increases) from 1959 onwards. For example, during the prolonged expansion of the 1960's, there was a steady decline in the poverty rate, and during the recession of the early 1990's, there was an increase in the poverty rate.[17] There has been extensive work done on the relationship between the macroeconomy and the poverty rate. (See, for example, Blank, 1993; Blank and Blinder, 1986; Blank and Card, 1993; and Cutler and Katz, 1991.)

Poverty rates and participation in welfare programs are generally closely related. However, poverty rates may change without any changes in participation rates or vice-versa. For example, a large number of eligible households do not participate in the U.S. Food Stamp Program (Cody and Trippe, 1997). In recent years, several researchers have analyzed the

[16]A safety net will also help a family facing a transitory income shock unrelated to the macroeconomy. For example, a spouse's departure (abandonment, death, divorce) from a family may lead to a temporary decline in the family's income.

[17]According to Gottschalk and Danziger, 1985, a large portion of this decline is also due to increased transfer payments over this time period.

Figure 3
U.S. poverty rates and unemployment rates, 1959-98



Source: U.S. Dept. of Agri., Food and Nutrition Serv.

effect of the macroeconomy on welfare caseloads in the United States. This work has emerged, in part, to try to answer the following question: Which has the larger effect on the unprecedented decline in cash assistance caseloads – various State-based welfare reform policies or the macroeconomic expansion? Some have argued that welfare reform is a very important factor (Executive Office of the President, 1997; Blank, 1997) while others have argued that economic growth swamps any influence of welfare reform (Ziliak, Davis, and Connolly, 1997; Martini and Wiseman, 1997).[18]

This work was inspired by the dramatic caseload reductions in cash assistance programs. An even greater decline has occurred since 1994 in the Food Stamp Program. From a record high of 27.5 million in 1994, the number of food stamp recipients fell by more than 30 percent to 18.0 million by mid-1999. A recent analysis by Figlio, Gundersen, and Ziliak (2000) examined the relative contributions of the macroeconomy and welfare reform to this decline by using dynamic and static models with data from all 50 States and the District of Columbia for fiscal years 1980 to 1998.[19] In their preferred dynamic model, the effect of the welfare reform variables are very small compared with the effect of the macroeconomic variables. From 1994 to 1998, approximately 35 percent of food stamp caseload change is due to State differences in macroeconomic conditions (unemployment and employment-growth rates), while a very small fraction is attributable to State-to-State differences in welfare reform. State-level political factors account for about 15 percent of the caseload decline. Their work implies that a reversal of economic fortunes will likely lead to a substantial increase in food stamp cases. (Other research looking at the effect of the macroeconomy on food stamp caseloads include Kuhn, LeBlanc, and Gundersen, 1997; Wallace and Blank, 1999; and Dynarski, Rangarajan, and Decker, 1991.)

These studies were primarily concerned with the determinants of caseloads. In this report, we analyze the effect of the macroeconomy on food assistance expenditures in Mexico and the United States. Caseload dynamics is one of the two factors influencing changes in food assistance expenditures. The other factor is the change in the average benefit level. While we use econometric techniques to analyze the effect of the macroeconomy on food assistance expenditures in United States, the lack of information about food assistance expenditures before 1989 prevents a similar exercise for Mexico.

Total real annual food assistance expenditures in the United States from 1970 on is seen in figure 4 (the expenditures are deflated by the Urban Consumer Price Index (CPI-U)). Figure 5 shows the unemployment rate and total real food assistance expenditures. With a few exceptions, increases in unemployment apparently coincide with increases in food assistance expenditures. Using models akin to those used in Kuhn, LeBlanc, and Gundersen (1997), we then isolated the effect of various macroeconomic forces on food assistance expenditures. The two models we used are

$$(1)\quad \log FAEXP_t = \beta_0 + \beta_1 \log FAEXP_{t-1} + \beta_2 UN_t + \beta_3 UN_{t-1} + \beta_4 INFL_t + \beta_5 t + \varepsilon_t$$

and

$$(2)\quad \log FAEXP_t = \alpha_0 + \alpha_1 \log FAEXP_{t-1} + \alpha_2 \Delta GDP_t + \alpha_3 \Delta GDP_{t-1} + \alpha_4 INFL_t + \alpha_5 t + \varepsilon_t$$

where logFAEXP is the log of real food assistance expenditures (discounted by the Consumer Price Index - Urban (CPI-U)); UN is the male unemployment rate; INFL is the inflation rate; ΔGDP is the change in real GDP; and t is time. We restricted our choice of variables and frequency of observation (annual) such that comparable models to study the effect of the macroeconomy on food assistance expenditures in Mexico were possible.

The results are in table 1. In model 1, the health of the macroeconomy is measured by the unemployment rate. The combined effect of lagged and current unemployment implies that a 1-percent increase in the unemployment rate leads to a 9-percent increase in food assistance expenditures after 2 years. Consistent with the work on food stamp participation, inflation is also positively associated with food stamp expenditures. The steady increase in expenditures seen in figure 5 is reflected in the importance of the year variable.

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[18]Figlio and Ziliak, 1999, find that the primary difference in these conclusions is attributable to the types of models used. Once the dynamics of caseloads is incorporated into models, the role of welfare reform is sharply reduced relative to the macroeconomy.

[19]The static model is expressed as

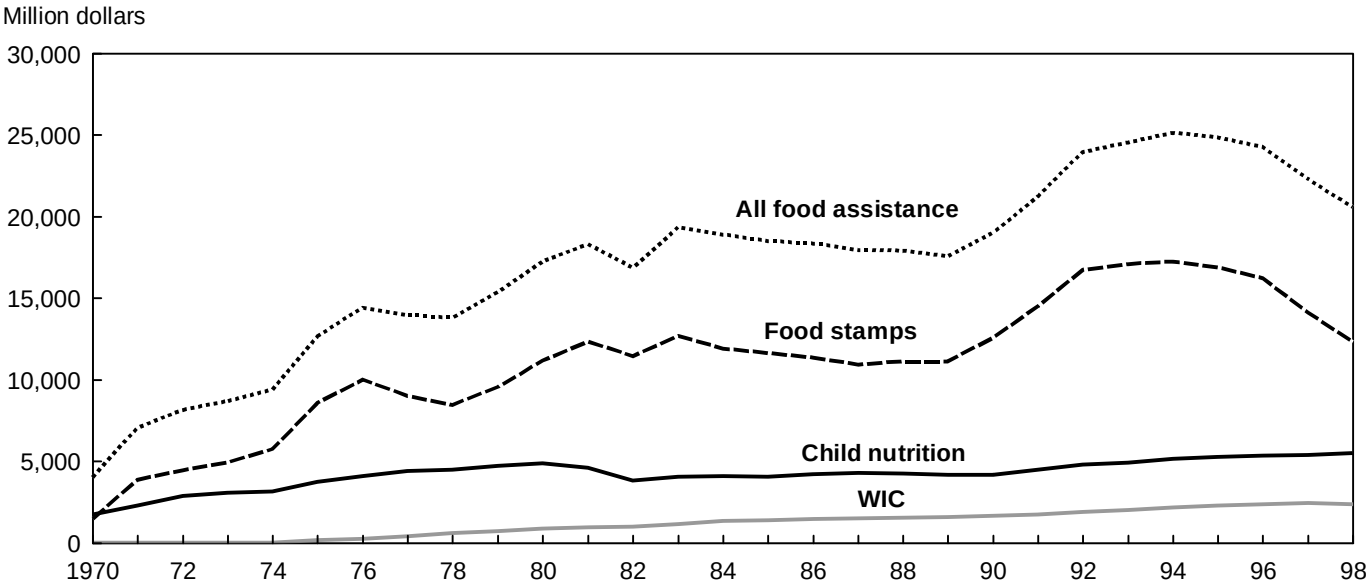
$$C_{it} = \mu + \alpha UR_{it} + \iota EMP_{it} + \beta W_{it} + \theta B_{it} + \eta ABAWD_{it} + P_{it}\varphi + \xi EBT_{it} + \gamma_t + \delta_i + \lambda_i t + \varepsilon_{it}$$

and the dynamic model is expressed as

$$C_{it} = \mu + \sum_{s=1}^{s} \rho_s C_{it=s} + \sum_{j=0}^{J} \alpha_j UR_{it-j} + \sum_{k=0}^{K} \iota_k EMP_{it-k} + \beta W_{it} + \theta B_{it} + \eta ABAWD_{it} + P_{it}\varphi + \xi EBT_{it} + \gamma_t + \delta_i + \lambda_i t + \varepsilon_{it}$$

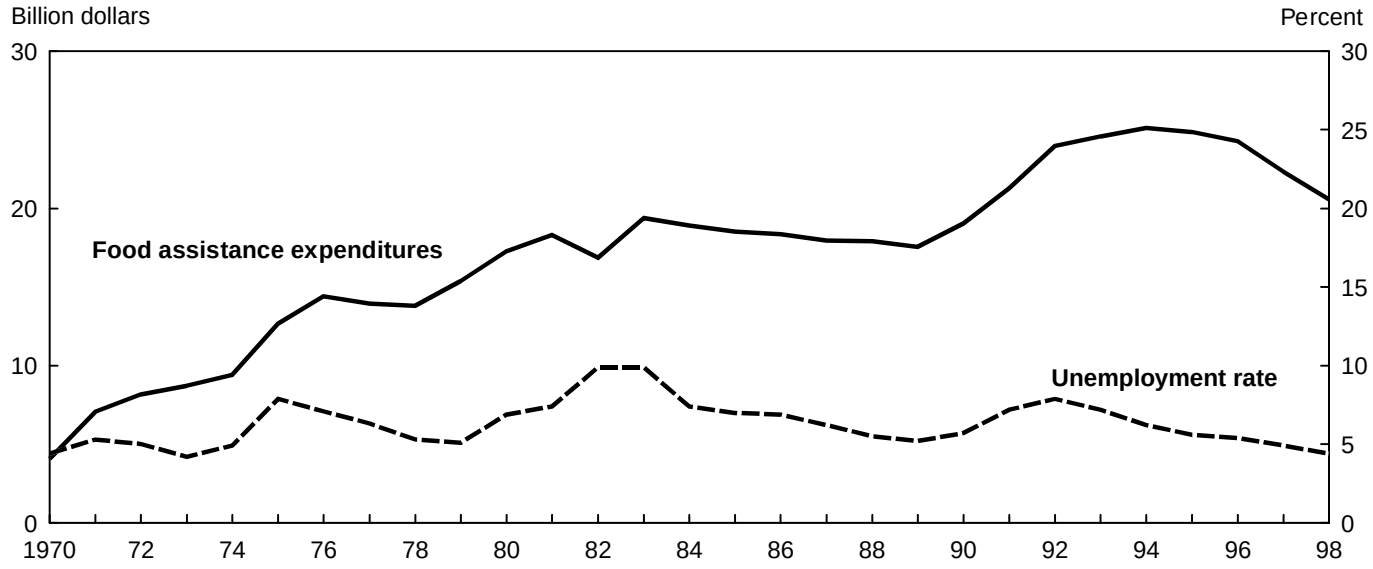
where C_{it} is the natural log of per capita food stamp caseloads, UR_{it} is the unemployment rate, EMP_{it} is a measure of employment per capita, W_{it} is a welfare reform indicator that equals the fraction of a year that "any statewide AFDC waiver" is in effect, B_{it} is the real maximum AFDC/TANF plus food stamp benefit for a family of three, P_{it} is a vector of variables reflecting the political climate of a State, $ABAWD_{it}$ is the weighted percentage of a State's population waived from work requirements for unemployed able-bodied adults without dependents, EBT_{it} is an indicator that equals the fraction of a year that a State's recipients received benefits via the Electronic Benefits Transfer program, γ_t is a vector of year effects, δ_i is a time-invariant State-specific deviation from the overall constant μ,λ_{it} is a State-specific trend, and ε_{it} is a random error.

Figure 4
U.S. real expenditures on all food assistance, food stamps, child nutrition, and WIC, 1970-98



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

Figure 5
U.S. real food assistance expenditures and the unemployment rate, 1970-98



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

Table 1—Effect of macroeconomic variables on total real food assistance expenditures in the United States

Variables	(1)	(2)
(Log of) Real food assistance expenditures in year t-1	0.238 (2.572)	0.615 (5.871)
Unemployment rate in year t	.032 (3.090)	
Unemployment rate in year t-1	.015 (2.426)	
GDP growth rate in year t		.0014 (.303)
GDP growth rate in year t-1		-.025 (-6.112)
Inflation in year t	.022 (3.347)	.011 (2.091)
Time trend	.031 (5.746)	.019 (3.946)
Constant	-54.506 (-5.490)	-33.054 (-3.639)
Adjusted R-squared	.969	995

Notes: The dependent variable is the log of real food assistance expenditures. The Prais-Winsten correction for serially correlated residuals is used. T-statistics are in parentheses. Please see the text for more details on the models.

We use another measure of macroeconomic health, the growth rate of GDP in model 2. Here, the effect of contemporaneous GDP growth rate is insignificant, but the previous year's growth rate is significant. The combined effect implies that a 1-percent decrease in GDP growth rate leads to a 7.2-percent increase in food assistance expenditures. The effect of inflation is less in this model, but the strong influence of time is still present.

The decomposition of food assistance expenditures in figure 4 shows that the time path of the various components of total food assistance expenditures differs widely.[20] To see how the macroeconomy has different effects, we ran models identical to models (1) and (2) for the three largest food assistance programs.[21] Except for contemporaneous unemployment's effect on the WIC program, the Food Stamp Program is the only one with expenditures influenced by either unemployment or GDP growth (table 2). A 1-percent increase in unemployment leads to an 11.3-percent increase in food stamp expenditures, and a 1-percent decrease in GDP growth rates leads to a 10.2-percent increase in food stamp expenditures. The only other variable that matters for the other programs, in either model, is the previous period's expenditures. The WIC program is not an entitlement program and, thus, does not have the capacity to expand during economic downturns, and, even during economic expansions, persons are rationed from the program. Consequently, we may not anticipate much of an influence of the macroeconomy, and the influence of current unemployment is unexpected.

In the United States, food assistance expenditures are countercyclical (that is, increasing during economic downturns and decreasing during expansions), but food assistance expenditures in Mexico appear to be neither counter- nor procyclical. The general pattern of real food assistance expenditures in Mexico from 1988 to 1998 is seen in figure 6 (the figures are deflated by the Mexican equivalent of the U.S. CPI-U).[22] From 1989 to 1993, food assistance expenditures generally declined mainly because of the decline in DICONSA expen-

[20]Total food assistance expenditures are broken into five components: The Food Stamp Program and the Nutrition Assistance Programs in Puerto Rico, the Northern Marianas, and, starting in 1996, American Samoa; all these combined are denoted by food stamps.

The National School Lunch, School Breakfast, Child and Adult Care, Summer Food Service, and Special Milk programs = child nutrition.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the Commodity Supplemental Food Program = WIC.

The Food Distribution Program on Indian Reservations, the Nutrition Program for the Elderly, the Disaster Feeding Program, the Emergency Food Assistance Program, the Food Distribution Program for Charitable Institutions and Summer Camps, and the food donation programs to soup kitchens and food banks = food donations.

Administrative expenses. The first three are much larger than food donations and administrative expenses, so we consider only those here.

[21]The only difference is that the lagged term always refers to the food assistance expenditure category itself rather than total food assistance expenditures.

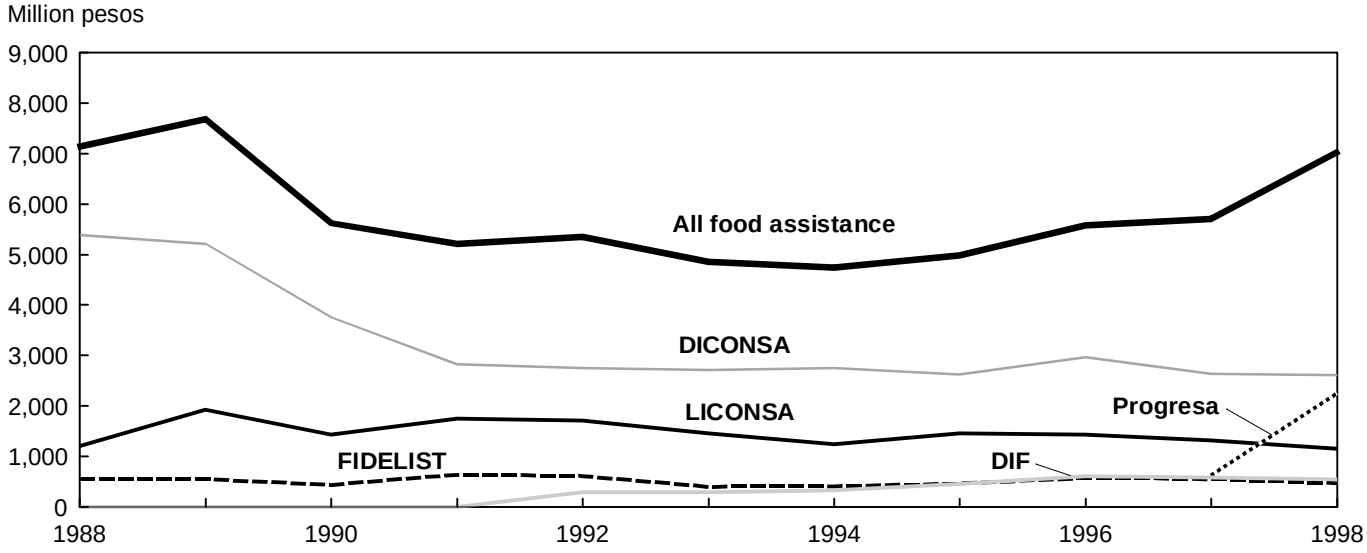
[22]Most of the food assistance expenditure information is from *Informe de Gobierno,* 1998. Information for years before 1988 in a comparable format is not available, however. In earlier years, all food assistance expenditures were subsumed under spending on a more general category of social assistance programs (*Informe de Gobierno,* 1991).

Table 2—Effect of macroeconomic variables on food assistance expenditures in the United States by category of expenditure

Variables	Log of real food stamp expenditures		Log of real child nutrition expenditures		Log of real WIC expenditures	
	(1)	(2)	(1)	(2)	(1)	(2)
Log of real expenditures on ____ in year t-1	0.167	0.389	0.594	0.605	0.722	0.843
	(2.200)	(6.604)	(4.597)	(5.776)	(6.293)	(8.001)
Unemployment rate in year t	.056		-.0042		.118	
	(4.108)		(-.378)		(2.990)	
Unemployment rate in year t-1	.044		.0081		-.0011	
	(2.349)		(.571)		(-0.251)	
GDP growth rate in year t		-.0024		.0092		-.025
		(-.391)		(1.745)		(-1.184)
GDP growth rate in year t-1		-.033		-.0088		-.036
		(-6.013)		(-1.988)		(-1.808)
Inflation in year t	.029	.017	.0041	.0083	.044	.030
	(3.514)	(2.322)	(.497)	(1.236)	(1.860)	(1.176)
Year	.038	.028	.0058	.0068	.039	.016
	(6.454)	(4.734)	(1.204)	(1.529)	(1.724)	(0.636)
Constant	-69.274	-49.908	-8.098	-10.284	-77.203	-29.805
	(-6.126)	(-4.387)	(-.935)	(-1.256)	(-1.716)	(-.618)
Adjusted R-squared	.976	.987	.977	.987	.901	.900

Notes: The Prais-Winsten correction for serially correlated residuals is used. T-statistics are in parentheses. The "____" in the listing of variables refers to the expenditures on the food assistance program displayed in the relevant column.

Figure 6
Real Mexican expenditures on all food assistance, DICONSA, LICONSA, FIDELIST, DIF, and Progresa, 1988-98



Note: Expenditures expressed in 1994 pesos.
Source: *Informe de Gobierno.*

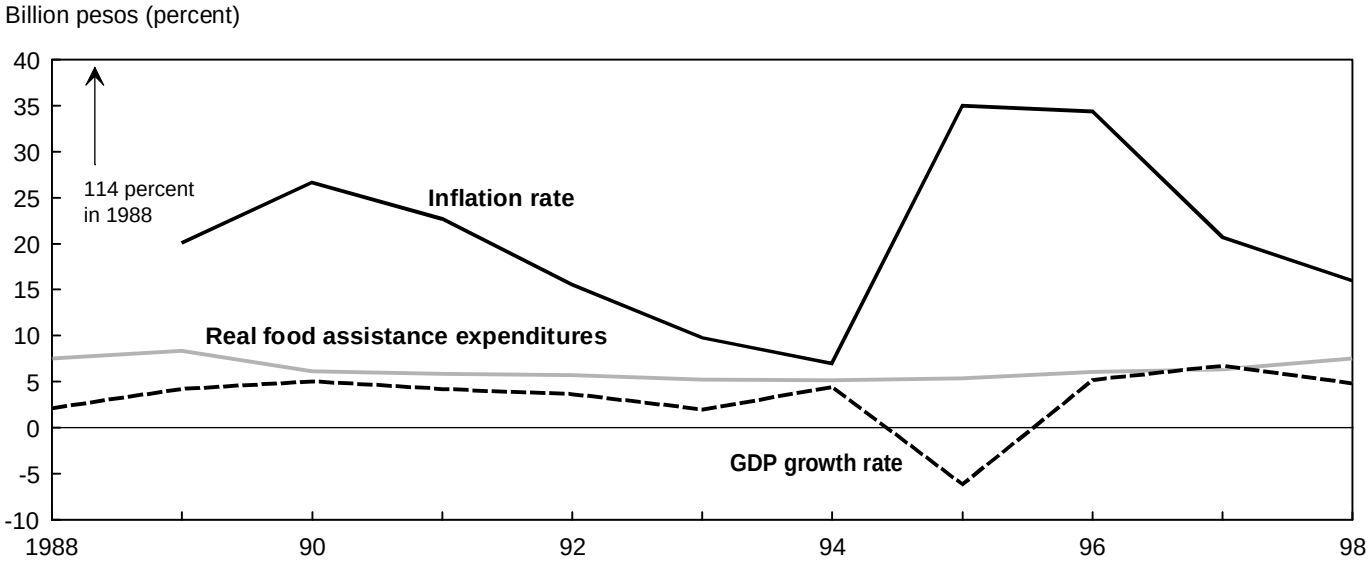
ditures. From 1993 on, expenditures increased sharply due to the introduction of Progresa in 1997.

Figure 7 is comparable to figure 5 and shows the relationship between the Mexican economy's health and total food assistance expenditures. Because the unemployment rate in Mexico is not directly comparable to the U.S. unemployment rate, we instead show the growth rate of GDP. We also show the inflation rate in Mexico because its level and volatility have a large influence on the Mexican economy.

Neither the inflation rate nor the GDP growth rate appears to have any influence on food assistance expenditures. During times of high inflation in 1988 and 1995, food assistance expenditures were unaffected, and when GDP dropped sharply in 1995 due to the peso devaluation in December of 1994, food assistance expenditures did not change. Conversely, despite the high economic growth in many of these years, expenditures did not change either. One possible explanation for this lack of influence is that Mexican food assistance programs are primarily designed to aid those whose depth of poverty is so great that they are unaffected by larger economic forces and are poor for longer periods. If this is the case, then we may not find the countercyclical relationship found in the United States where the average length of food stamp receipt is about 9 months (Gleason, Schochet, and Moffitt, 1998).

One difference between the determinants of expenditures on food assistance programs should also be emphasized. In the United States, the types of foods available for most food assistance recipients are relatively unrestricted, and when prices rise in one product, individuals (or, in the case of school meals, school districts) can purchase lower priced substitutes. Thus, an increase in price for any commodity will not produce a major increase in food assistance expenditures. In Mexico, however, many of the food assistance programs are tied to one commodity. For instance, Federal transfers for LICONSA declined in real terms in 1997 compared with 1996. This is explained by a drop in the level of international prices for dried milk as well as prices of the main inputs used in production, rather than budget restrictions or domestic macroeconomic variables. However, the decrease did not affect production and distribution of milk, as these were maintained at the same levels as in 1996.

Figure 7
Real Mexican food assistance expenditures, inflation rate, and GDP growth rate, 1988-98



Note: Expenditures expressed in 1994 pesos.
Source: *Informe de Gobierno.*