

AN ASSESSMENT OF THE NEED FOR DIRECTED FOOD ASSISTANCE
TO SUPPORT A PROPOSED STRUCTURAL ADJUSTMENT PROGRAM
IN EL SALVADOR

August 1989



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**AN ASSESSMENT OF THE NEED FOR DIRECTED FOOD ASSISTANCE
TO SUPPORT A PROPOSED STRUCTURAL ADJUSTMENT PROGRAM
IN EL SALVADOR**

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EXECUTIVE SUMMARY

The purpose of this report is to assess whether a targeted food program is necessary to protect the food security of households that might be affected negatively by a proposed structural adjustment program. This study measures the expected impact on the incomes and food consumption of the poor in El Salvador arising from a set of proposed structural adjustment reforms. The reforms are not the results of this study; rather, they are givens to this work. For the purposes of this study, the proposed reforms are assumed to be implemented during 1990. These effects were evaluated using econometric estimates of a three-sector general equilibrium model of the real economy for El Salvador. The results of this three-sector model were then used to compute the effects on sectoral performance arising from a selected number of exchange rate and trade policies. The exchange rate and trade policies were assessed in terms of their effect on the structure of relative prices. The core of the analysis consists of (a) estimating the effect of changes in relative prices on value added in each sector; and (b) tracing the effect of the price changes and sectoral performance on the wage incomes and food costs of a number of specific population groups.

The population groups defined to be in extreme poverty were identified from the 1985 Multiple Purpose Household Survey (MPHS), together with the cost of a nutritionally adequate food basket. To compute current (1989) estimates of the prevalence of poverty, we used the changes in population, incomes and relative prices which have occurred from 1985 to the present.

The method for assessing poverty and nutritional risk is based on the identification of specific population groups by their occupational and sectoral employment characteristics. Estimates of household incomes and of the adequacy of these incomes relative to the cost of a food consumption norm constitute the basic criterion for identifying the population groups likely to contain large numbers of persons in extreme poverty. A household is considered to be at the extreme poverty level if 70 percent or more of total household income would be required to purchase a nutritionally adequate food basket.

Principal Findings

In 1989 the total number of persons living in extreme poverty exceeded 2 million. Of these, more than 1.6 million live in rural areas. The concentration and acuteness of extreme poverty in the rural areas has increased in the last four years. The principal causes of this are the implicit and explicit policies that have depressed agricultural prices of both basic grains and exportable agricultural commodities; undoubtedly, these conditions have been exacerbated by the earthquake and the civil conflict.

Notably, the urban poor are also persons linked primarily to the agricultural sector. We estimated that 366 thousand persons in the urban areas were extremely poor in 1989; of these, more than 65 percent work in the agricultural sector. This means that about 128 thousand persons in extreme poverty in the urban areas are associated with non-agricultural occupations. These latter are concentrated in unskilled occupations in industry and in the service workers.

Almost all households of agricultural workers--whether they have land and whether they reside in rural or urban areas--are judged to be in extreme poverty

by the criterion used for this study. Therefore, efforts to ameliorate poverty in El Salvador must be primarily directed at the incomes of the rural and agriculturally-based population.

The economic stagnation of El Salvador during the 1980s has stimulated interest in a structural adjustment program to implement fundamental policy reforms designed to restore economic growth. The principal focus of this program is to achieve a permanent devaluation of the real exchange rate in order to stimulate growth in the agricultural sector. These proposals have caused concern about the possibility of adverse effects on the food security of the poorest segments of the population. As a result, there is great interest in exploring whether food assistance programs should be used to create a nutritional safety net for the poor.

In the most extreme structural adjustment scenario, the exchange rate and trade policy reforms are assumed to lower the relative price of importables (industrial goods) by 20 percent and to raise the relative price of exportables (agricultural goods) by about 25 percent. In this case, and if the economic growth rates that the program's proponents expect were to be achieved, then there is likely to be a significant increase in the prevalence of extreme poverty in the urban areas in the short run. The proposed structural adjustment measures would increase the prevalence of extreme poverty in the non-agricultural, urban occupational groups from 128 thousand to almost 300 thousand. Without structural adjustment, in the short run, conditions will remain about the same as they have been.

In the longer run (five years), the conditions of increased urban poverty arising from the adjustment program are not expected to persist. By 1994, the prevalence of extreme poverty among the total population would decline by 10 percent, from 40 percent to 36 percent. In the absence of the structural adjustment program, the prevalence of poverty would continue to rise. With the structural adjustment program, there would be approximately 373 thousand fewer poor persons in 1994 than in the absence of the program. With the structural adjustment program, agricultural GDP would rise by about two-fifths by 1994 and non-agricultural GDP would rise by about one-fifth. However, more than half the rural population would remain under conditions of extreme poverty, because their poverty is so deep.

By 1994, in the absence of the reforms, the number of urban persons in extreme poverty would grow from 366 thousand in 1989 to 542 thousand in 1994, the number of non-agricultural poor would rise to 271 thousand from its present level without the structural adjustment program. With the program the number of non-agricultural poor would fall to 114 thousand. Considering the rapid population growth, this would be a significant decline in urban poverty as a result of the structural adjustment program.

Conclusions

The principal question this study addressed centered on the need for a targeted food program as a "safety net" to protect persons likely to be adversely affected by the proposed structural adjustment program. We found that poverty in El Salvador was associated primarily with the population living in rural areas or with employment in the agricultural sector. These persons are the ones most likely to benefit from the proposed structural adjustment program through significant increases in average household incomes by 1994. Nonetheless, the extent and intensity of rural poverty in El Salvador is so severe that a majority of the rural

population and people employed in the agricultural sector will remain in conditions of extreme poverty.

With respect to the urban population, we found that the structural adjustment program would reduce the prevalence of extreme poverty over the period 1989 to 1994. In estimating extreme poverty in 1994 with and without the structural adjustment program, we found that at least one-half of the urban poor--more than one quarter of a million persons--live in households whose incomes derive from the agricultural sector. The absolute number of persons in extreme poverty associated with non-agricultural occupations is actually reduced from its level in 1989 as a result of the reforms. Thus, in terms of reducing the prevalence of extreme poverty, the structural adjustment program would primarily benefit the non-agricultural urban population. The best strategy for protecting the food security of the non-agricultural urban population is to implement the structural adjustment program.

During the 1989 to 1994 period, approximately one quarter of a million urban persons in the agricultural sector are, and would remain, extremely poor by the criterion used for this study. While this number does not change appreciably as a result of the reforms, there is a question as to whether this group should be the beneficiaries of a targeted food program. A complete answer to this question would require additional information to that available to us for this study. In particular, this population group may constitute part of the displaced persons problem. Alternatively, this population group could be misclassified as an urban population group given the definitions used for determining urban areas in El Salvador.

If a significant number of the urban agricultural workers are part of the displaced persons group, then attention should be directed to them in their condition as refugees, since their plight is not a result of the functioning of the economic system. If, on the other hand, this group is an artifact of the statistical system of El Salvador, then it would be dangerous to address its needs as an urban population when it may actually be a rural population group.

It is therefore the principal conclusion of this study that there is no need for an additional targeted food program to compensate or protect the persons adversely affected by the proposed structural adjustment program. We believe that interventions in the food system would be antithetical to the purposes of the structural adjustment program. Even implementing a highly targeted program carries with it the grave risk of institutionalizing the existing distortions to the agricultural pricing system. This would negate the beneficial effects of the proposed reforms and perhaps severely aggravate the public finance situation that the country faces.

There is, however, a very strong need for addressing the chronic problems of extreme poverty that have persisted in El Salvador and that have become acute in recent years as a result of economic distortions, civil conflict and natural disasters. One of the best instruments for addressing the problem of chronic poverty is the proposed structural adjustment program. However, these reforms are not likely to be sufficient in alleviating the chronic poverty conditions. They need to be supplemented with activities that facilitate the response of the private sector (especially in the rural areas) to the opportunities created by the improved incentives which will face the agricultural sector.

1. INTRODUCTION

The purpose of this report is to assess whether a targeted food program is necessary to protect the food security of households that might be affected negatively by a proposed structural adjustment program. This study measures the expected impact on the incomes and food consumption of the poor in El Salvador arising from a set of proposed structural adjustment reforms. The reforms have been proposed by a number of Salvadorean economists and by the multilateral and bilateral donor organizations that provide economic and development assistance to El Salvador. Thus, the reforms are not the results of this study; rather, they are givens to this work. For the purposes of this study, the proposed reforms are assumed to be implemented during 1990.

1.1 Statement of Problem

The economic stagnation of El Salvador during the 1980s has stimulated interest in a structural adjustment program to implement fundamental policy reforms designed to restore economic growth. The elements of this program are reforms in exchange rate policy, interest rate policy, commercial policy and monetary and fiscal policy. The primary objective of the program is to achieve a permanent devaluation of the real exchange rate in order to stimulate growth in the agricultural sector. Agriculture has historically been an important source of employment and income, but has experienced a steep decline in real output in the past decade.

The possibility that a devaluation can have contractionary effects has long been recognized¹. However, the differential effects of structural adjustment programs on the incomes of different groups in the population have only recently begun to receive more attention². Some groups will benefit and others will lose; the net effect on a particular group will depend on a number of factors. These include the sector of employment, occupation, geographic location, the endowment of human capital, and mobility of productive factors owned by the group.

¹Lizondo and Montiel (1989) survey the analytical literature on contractionary devaluations.

²See, for example, Heller, et al. (1988) and the IMF (1986).

Jolly (1985) points out that structural adjustment policies have tended to have disproportionately negative effects on the health and nutrition of poor people in underdeveloped countries, particularly children. If these effects were taken into account in designing these programs, many of the negative impacts on the poor could be alleviated. This would also facilitate the implementation of the program. To do this requires a careful analysis that identifies who the poor are, where they live and how many there are. It is extremely important that the efforts taken to moderate the negative effects of structural adjustment programs on poor households not become barriers that prevent the objectives of the program from being met. This would help insure that in the medium- to long-run the poor benefit from the structural adjustment program.

In light of these considerations, the proposed reforms in El Salvador have raised concerns that the food security of the poorest segments of the population might be adversely affected. These concerns are particularly acute, since food expenditures represent the bulk of total expenditures of the poor. Given the wide experience that the country has had with food assistance programs, it is not surprising that there is considerable interest in exploring whether a targeted food program could be used to support the proposed economic reforms by creating a safety net for the poor.

1.2 Food Assistance Programs in El Salvador

El Salvador's experience with food assistance program dates back to the 1940s. Initially, food assistance efforts were designed to improve the nutritional status of low income and malnourished families. More recently, the objectives have become more diversified. Natural disasters, civil conflict and the economic crisis have displaced significant numbers of people and worsened poverty conditions through reductions in output, employment, and incomes. These factors have been used to justify an increased use of international food aid. This has in turn created numerous programs, such as Programa de Alimentación a Grupos (PAG) feeding programs targeted principally at maternal-child health, school feeding, food for work, and displaced persons. Many interventions in the food systems of El Salvador were also implemented through the actions of the National Institute for Regulation of Supply (IRA), which attempted to maintain the prices of certain foods levels below their market clearing values.

In the past, food prices have been artificially depressed as a result of these direct interventions as well as the indirect effect of macroeconomic policies. A central element of the structural adjustment program would be to liberalize the prices of agricultural products. This would eliminate implicit and explicit subsidies to food prices. Therefore, it is expected that food prices would rise.

To moderate the effects of these price increases on the poorest people, alternative proposals have been made regarding targeted food programs, including a food stamp program. Yet, an overview of previous studies of food aid programs in the country have highlighted a number of problems, including inconsistent and mutually opposing objectives. The result has been a duplication of efforts and competition among projects (Secretaría Técnica Alimentaria (SETA), 1989). There have also been problems with programming coverage, identification of beneficiaries, operational aspects such as problems with transport and storage, and lack of coordination among the institutions involved.

Of the total amount of food aid, generalized programs constitute the greatest proportion. In 1986, only 17 percent of food aid was distributed through the PAG (MIPLAN/Ministerio de Salud Pública/INCAP, 1987). External food assistance to El Salvador in recent years has taken the form of program assistance; this has been a significant revenue source in the government budget (SETA, 1989). There has been much concern and criticism that such massive levels of food assistance could create disincentives for food production and probably adversely affect the performance of the economy, given that this assistance is being brought into a highly distorted economic system.

1.3 Objective of the Study

The purpose of this analysis is to measure the expected effects of a proposed structural adjustment program on the incomes and food consumption of the extremely poor in El Salvador and to determine whether a program of targeted food assistance to groups that might suffer from the reform measures is needed. To do this we first identified the poor in El Salvador and determined their numbers and functional characteristics, namely, the type of work they do and the economic sector in which they are employed. The ability of each functional group to

purchase a nutritionally adequate food basket was used to determine whether that group was likely to contain a large number of extremely poor people.

The macroeconomic effects of the policy reforms were simulated by employing econometric estimates of a three-sector general equilibrium model of the real economy of El Salvador. The three sectors are exportables, importables and non-tradables. The effects of a selected number of exchange rate and trade policies were translated into changes in the relative prices of exportables and importables, which in turn were used to calculate possible changes in sectoral value added. These relative price and income changes were used to calculate estimates of poverty as measured by the cost of a nutritionally adequate food basket.

Section 2 describes the three-sector general equilibrium model of the economy. Section 3 presents the methods used to identify and enumerate the poorest groups in El Salvador. Section 4 discusses the short-run and long-run effects of a proposed structural adjustment program in terms of changes in the numbers of the poor. Based on these findings, a number of recommendations are made as to how best alleviate the negative effects on the poor. These recommendations are presented in Section 5.

2. MODELING THE EFFECTS OF STRUCTURAL ADJUSTMENT REFORMS

The model used to analyze the proposed structural reforms is based on a class of general equilibrium models which have been applied by Sigma One Corporation, IFPRI and others to assess the economy-wide effects of trade liberalization, exchange rate reforms and related macroeconomic policies. The specific approach is based on the work of Dornbusch (1974), Sjaastad (1980) and Sjaastad and Clements (1981), among others. A widely available and readable presentation of this approach is García García (1981) for Colombia. Economists at Sigma One Corporation have extended these methods to assess food consumption and income distribution effects (for example, Franklin and Valdés (1987) for Peru). While the particular model used for the analysis for El Salvador is based on this family of models, it was solved specifically for the present study using methods presented in Lewis (1975).

2.1 Theoretical Three-Sector General Equilibrium Model

The model is a three-sector general equilibrium model based on those developed and extended by Dornbusch (1974), Sjaastad (1980), Sjaastad and Clements (1981) and García García (1981). The economy produces and consumes three goods: exportables (x), importables (m), and home goods (h). The economy is small and open, so that the terms of trade (the relative price of importables in terms of exportables) are given to the economy. In equilibrium, trade is balanced. There are no initial distortions. The relative prices of importables and exportables in terms of home goods are flexible; following a disturbance to the system, equilibrium is restored via home goods market clearing. The economy is always assumed to operate on its production possibilities frontier with fixed endowments of labor and capital. There is no investment, so there is no endogenous growth; the model reallocates factor incomes across sectors in response to an exogenously-induced change in relative prices.

Value added in each sector, Z_i , $i = x, m, h$, is assumed to be produced with domestic capital, k_i , and labor, l_i . Each value-added function is assumed to exhibit constant returns to scale; the elasticity of substitution between capital and labor, σ_i

for $i = x, m, h$, is not constrained to be equal across sectors. Using E as the logarithmic differential operator³ the production relations can be written as

$$EZ_x = \alpha_x El_x + (1-\alpha_x)Ek_x \quad (2.1)$$

$$EZ_m = \alpha_m El_m + (1-\alpha_m)Ek_m \quad (2.2)$$

$$EZ_h = \alpha_h El_h + (1-\alpha_h)Ek_h \quad (2.3)$$

where α_i is the sectoral cost share of labor and $1-\alpha_i$ is the cost share of capital in each sector, i. e.,

$$\alpha_i = wl_i/Z_i = wl_i/(wl_i+rk_i) \quad i = x, m, h$$

$$1-\alpha_i = rk_i/Z_i = rk_i/(wl_i+rk_i) \quad i = x, m, h$$

Human and physical capital are assumed to be completely mobile across sectors. Therefore, the real rental rate of a unit of human capital, w , and the real rental rate of capital, r , are identical in the three sectors. We note that wages paid to persons in different occupations and different sectors of the economy can differ, because of differences in human capital endowments, but we emphasize that the rental rate per unit of human capital is identical in all sectors.

If all firms in each sector minimize the cost of producing a given amount of value added, then the derived demands for labor and capital by each sector can be obtained from the cost function. These can be written in log differential form as follows:

$$El_x = EZ_x - (1-\alpha_x)\sigma_x E(w/r) \quad (2.4)$$

$$Ek_x = EZ_x + \alpha_x \sigma_x E(w/r) \quad (2.5)$$

$$El_m = EZ_m - (1-\alpha_m)\sigma_m E(w/r) \quad (2.6)$$

³That is, $Ey = d\ln y$.

$$Ek_m = EZ_m + \alpha_m \sigma_m E(w/r) \quad (2.7)$$

$$El_h = EZ_h - (1 - \alpha_h) \sigma_h E(w/r) \quad (2.8)$$

$$Ek_h = EZ_h + \alpha_h \sigma_h E(w/r) \quad (2.9)$$

The economy has a fixed endowment of domestic labor, l^0 , and capital, k^0 . Following Lewis (1975), factor substitution within each sector allows real factor prices to clear factor markets so that the fixed supply is allocated among the three sectors:

$$l^0 = l = l_x + l_m + l_h \quad (2.10)$$

$$k^0 = k = k_x + k_m + k_h \quad (2.11)$$

Equations 2.4 to 2.9 represent the demand conditions in factor markets. Equations 2.10 and 2.11 are factor market equilibrium conditions that insure the available supplies (l^0 and k^0) are fully employed.

The economy faces the following resource constraints:

$$\mu_x \alpha_x El_x + \mu_m \alpha_m El_m + \mu_h \alpha_h El_h = 0 \quad (2.12)$$

$$\mu_x (1 - \alpha_x) Ek_x + \mu_m (1 - \alpha_m) Ek_m + \mu_h (1 - \alpha_h) Ek_h = 0 \quad (2.13)$$

where $\mu_i = Z_i/Z$ is the share of value added in the i th sector to total value added, Z . Equations 2.12 and 2.13 represent the production possibilities frontier for the economy. The equations say that the weighted sum of changes in the sectoral allocations of each factor is zero. This implies that in a new equilibrium following a disturbance, the economy remains on the production possibilities frontier, although it will be producing a different output mix.

Output prices are linked to factor prices through the following marginal cost equations:

$$EP_x = \alpha_x Ew + (1 - \alpha_x) Er \quad (2.14)$$

$$EP_m = \alpha_m Ew + (1 - \alpha_m) Er \quad (2.15)$$

$$EP_h = \alpha_h Ew + (1 - \alpha_h) Er \quad (2.16)$$

These equations are neoclassical equilibrium conditions. With no transactions costs, there are zero profits in equilibrium. This implies that payments to the factors exhaust the price of the output.

Equations 2.4 through 2.16 constitute the model. We want to obtain sectoral value added as a function of the relative price of exportables and importables. Specifically, we want to determine the responsiveness of sectoral value added to changes in these relative prices. To do this we apply a solution method described in Lewis (1975).

First, substitute the sectoral derived demands for labor and capital into the economy's production possibilities frontier. That is, substitute equations 2.4, 2.6 and 2.8 into equation 2.12 and equations 2.5, 2.7 and 2.9 into equation 2.13 to get:

$$\mu_x \alpha_x EZ_x + \mu_m \alpha_m EZ_m + \mu_h \alpha_h EZ_h - sAE(w/r) = 0 \quad (2.17)$$

$$\mu_x (1 - \alpha_x) EZ_x + \mu_m (1 - \alpha_m) EZ_m + \mu_h (1 - \alpha_h) EZ_h + sAE(w/r) = 0 \quad (2.18)$$

where $sA = \mu_x \alpha_x (1 - \alpha_x) \sigma_x + \mu_m \alpha_m (1 - \alpha_m) \sigma_m + \mu_h \alpha_h (1 - \alpha_h) \sigma_h$.

Second, obtain an expression for the relative price of exportables as a function of the factor price ratio by subtracting equation 2.16 from 2.14. Likewise, the relative price of importables in terms of home goods can be expressed as a function of the factor price ratio by subtracting 2.16 from 2.15. This yields

$$E(P_x/P_h) = (\alpha_x - \alpha_h) E(w/r) \quad (2.19)$$

$$E(P_m/P_h) = (\alpha_m - \alpha_h) E(w/r) \quad (2.20)$$

Third, rearrange 2.19 to obtain $E(w/r)$ as a function of the relative price of exportables and substitute that expression into equation 2.17. Solving the resulting expression for EZ_x gives

$$EZ_x = - \frac{\mu_m \alpha_m}{\mu_x \alpha_x} EZ_m - \frac{\mu_h \alpha_h}{\mu_x \alpha_x} EZ_h + \frac{sA}{\mu_x \alpha_x (\alpha_x - \alpha_h)} E(P_x/P_h) \quad (2.21)$$

Rearrange equation 2.20 to obtain $E(w/r)$ as a function of the relative price of importables and substitute that expression into 2.18. Solving the resulting expression for EZ_m gives

$$EZ_m = \frac{\mu_x (1 - \alpha_x)}{\mu_m (1 - \alpha_m)} EZ_x - \frac{\mu_h (1 - \alpha_h)}{\mu_m (1 - \alpha_m)} EZ_h - \frac{sA}{\mu_m (1 - \alpha_m) (\alpha_m - \alpha_h)} E(P_m/P_h) \quad (2.22)$$

The result is a system of two simultaneous equations for EZ_x and EZ_m in terms of relative output prices and sectoral values added.

Value added in the home goods market is determined by an equilibrium condition that states that the excess demand for home goods is zero. We implicitly assume that home goods are produced only with domestic labor and capital, that is, no imported inputs are used in the production process. Thus, the supply schedule for home goods will not shift in response to a change in the output of importables. The supply responsiveness of the home goods sector can then be solved for by a demand-side substitution that gives

$$EZ_h = \tau_{xh} E(P_x/P_h) + \tau_{mh} E(P_m/P_h) \quad (2.23)$$

where τ_{ih} is the elasticity of demand between the i th good (exportables or importables) and home goods.

Given a change in the relative price of exportables, importables or both, this system of three equations (2.21 through 2.23) determines the sectoral output responses as functions of the structural parameters in the economy. These parameters include the sectoral factor shares, the sectoral output shares, and the elasticities of substitution between labor and capital in each sector.

2.2 Estimation of the Model

2.2.1 Data

Data on current and constant value GDP from 1960-1987 by sector of origin and by expenditure category (private sector consumption, government investment and consumption, private sector investment) were taken from Lievano and Norton (1988). The exportable sector was defined to be agriculture and mining, the importable sector was defined to be manufacturing, and the home goods sector was the rest of GDP⁴.

Implicit price deflators for importables and home goods were calculated from these data and used to represent the nominal prices of the outputs of these sectors. The relative price of importables in terms of home goods was the ratio of the implicit deflator for importables to the deflator for home goods. The relative price of exportables in terms of home goods was taken to be the trade-weighted real exchange rate. This was calculated for 1960 to 1987 and represented an extension of Loehr (1988) and Loehr, Protasi, and Vogel (1989).

The quality of data for El Salvador presented a serious obstacle to this analysis. In particular, the accuracy of the sectoral GDP data is suspect. Based partly on finding identical labor shares in the exportables and importables sectors, we hypothesize that estimates of GDP in these sectors were obtained by multiplying sectoral wages by a fixed factor. In addition, a doubling of the relative price of exportables during 1975-77 was accompanied by a decline in agricultural sector GDP. This is not credible. In the calculation of value added, an exogenous increase in the value of a sector's output should generate a corresponding increase in sectoral value added, regardless of whether physical output increases.

These problems with a fundamental indicator of economic activity have profound implications for implementing and monitoring the effects of policy reforms. It makes a determination of who is gaining and who is losing especially problematic, thereby compromising efforts to compensate the losers. It is very important that

⁴In terms of sectoral GDP, home goods comprise construction, electricity and water services, transport and communications, commerce, finance, real estate, government services and personal services.

some effort be made to determine (and validate) the techniques used to compute value added, especially now that significant policy reforms are being contemplated.

2.2.3 Parameter Estimates

The model given by equations 2.21 to 2.23 was estimated by two-stage least squares in order to account for simultaneous equations bias. To insure that the system was identified, exogenous shifters were added to each equation. The estimating equations were

$$\ln Z_x = a_0 + a_1 \ln Z_m + a_2 \ln Z_h + a_3 \ln(P_x/P_h) + a_4 \ln I + a_5 \ln DC + U_x \quad (2.24)$$

$$\ln Z_m = b_0 + b_1 \ln Z_x + b_2 \ln Z_h + b_3 \ln(P_m/P_h) + b_4 \ln I + b_5 \ln DC + U_m \quad (2.25)$$

$$\ln Z_h = c_0 + c_1 \ln(P_x/P_h) + c_2 \ln(P_m/P_h) + c_3 \ln CG + c_4 \ln POP + U_h \quad (2.26)$$

where

- I = real private sector investment,
- DC = Central Bank credit to the banking system deflated by the implicit GDP deflator,
- CG = real private and government consumption,
- POP = national population,
- U_i = error term, $i = x, m, h$.

The parameter estimates are shown in Table 2.1.

Table 2.1. 2SLS Parameter Estimates

Explanatory Variables	Dependent Variable		
	Z_x	Z_m	Z_h
Constant	-0.30 (1.34)	-2.11 (0.69)**	-1.27 (0.33)**
Z_x		0.14 (0.34)	
Z_m	-1.05 (0.59)		
Z_h	1.93 (0.72)*	0.92 (0.24)**	
P_x/P_h	0.35 (0.23)		0.09 (0.06)
P_m/P_h		0.36 (0.06)**	-0.01 (0.04)
I	-0.11 (0.06)	0.07 (0.03)*	
DC	-0.06 (0.05)	0.05 (0.03)	
CG			0.87 (0.06)**
POP			0.21 (0.09)*
Adj. R^2	0.91	0.99	0.99

All variables are in logs. Variables are defined in the text. Standard errors in parentheses. Significance levels indicated by * = 5%; ** = 1%

2.3 Structural Adjustment Policy Scenarios

2.3.1 Elements of the Proposed Structural Adjustment

The proposed structural adjustment program consists of changes in exchange rate policy, commercial policy, and monetary and fiscal policy. The centerpiece would be a nominal devaluation of 50 percent, from C.5.0 per dollar to C.7.5 per dollar. The major reforms in commercial policy would be the elimination of all non-tariff barriers (NTBs), such as import prohibitions, prior deposits and quantity restrictions. Furthermore, all tariffs above 50 percent would be immediately reduced to 50 percent. Within 5 years, the range of tariffs would be narrowed to 15 to 50 percent (with an average of 35 percent) applicable to all imports.

Changes in fiscal policy would be directed at reducing the deficit from 4.5 percent of GDP to less than 1.5 percent within 5 years. Revenues would be increased by broadening the coverage of the stamp tax (timbres) as a first step towards implementing a value added tax. Other measures to improve revenues include a reform of the pricing policies for goods provided by the public sector, for example, electricity.

The objective of monetary policy would be to keep inflation under control in order to prevent the erosion of the real effects of the devaluation. In addition, the Central Bank would immediately move to a regime of fixed positive real interest rates as a first step in mobilizing domestic savings. In the longer run, all subsidized credit would be eliminated.

2.3.2 Construction of the Scenarios

The objective of this section is to combine the estimates of the general equilibrium model with the proposed economic reforms in order to estimate changes in sectoral incomes. As formulated in equations 2.21-2.23, the model is driven by changes in the relative prices of exportables and importables. Hence, we manifest the effects of the economic reforms as changes in these relative prices. Next, the effect of these relative price changes on sectoral value added are computed. The price changes and the changes in sectoral value added are then translated into changes in the wage incomes and food costs of the functional groups.

This section describes the linkage between the policy reforms and the relative price changes. We concentrated on the reforms in exchange rate and commercial policy. Our analysis assumed that monetary and fiscal policy would be utilized to support the nominal devaluation, i.e., to ensure that inflation would not erode the real effect of the nominal devaluation. The relationship between the fiscal deficit and inflation was not analyzed, nor were the effects of inflation on the population at nutritional risk.

Table 2.2 presents different scenarios for the effects of the structural adjustment program on relative prices and sectoral value added. We assume that the economic reforms are implemented at the beginning of 1990; all changes are relative to conditions prevailing at the end of 1989. The scenarios are constructed for the short run (one year, corresponding to the end of 1990) and the long run (five years, corresponding to the end of 1994). The difference between the short- and long-runs is one of cumulative change from 1989 to 1990 and to 1994, respectively, in population, total GDP and sectoral GDP. However, it should be noted that the relative price changes caused by the reforms are once-and-for-all changes; they do not cumulate from year to year.

All scenarios assume an annual population growth rate of 2.5 percent. A baseline of no structural adjustment was specified; because no reforms would be undertaken in the baseline case, it was assumed there would be no relative price changes⁵. Since the model does not allow for endogenous growth, GDP growth rates were assumed. Estimates of per capita income growth expected to prevail under present policies (the baseline) were taken from the World Bank (1989, Table 7.2). Annual per capita growth rates for real GDP under structural adjustment were assumed to be 1.0 (1990), 2.0 (1991), 3.0 (1992), 3.5 (1993) and 4.0 (1994)⁶.

For the structural adjustment scenarios, we assumed a nominal devaluation of 50 percent (from C.5.00 per dollar to C.7.50 per dollar) and the removal of all NTBs on imports resulted in a decrease in the relative price of importables of 10 percent

⁵Because we did not model the effects of inflation, we ignored one potential source of change in relative prices, namely, further appreciation of the real exchange rate.

⁶Growth rates were supplied by USAID/El Salvador.

Table 2.2. Structural Adjustment Scenarios

	1990				1994			
	Baseline	I	II	III	Baseline	I	II	III
Exogenous Changes								
Population	0.025	0.025	0.025	0.025	0.13	0.13	0.13	0.13
P/C income	-0.007	0.01	0.01	0.01	-0.14	0.14	0.14	0.14
Relative Price Changes								
Importables	0.00	-0.10	-0.15	-0.20	0.00	-0.10	-0.15	-0.20
Exportables	0.00	0.12	0.18	0.24	0.00	0.12	0.18	0.25
Sectoral Changes								
Home goods	0.00	0.03	0.03	0.04	0.00	0.16	0.17	0.17
Exportables	0.00	0.09	0.13	0.17	0.00	0.21	0.25	0.29
Importables	0.00	0.00	-0.01	-0.01	0.00	0.14	0.13	0.13

All changes are represented as proportional changes.

(Scenario I), 15 percent (Scenario II) and 20 percent (Scenario III). To understand better why these values were selected, an overview of the theory of the incidence of protection is useful⁷.

The following relationships for the nominal domestic prices of importables and exportables are taken from García García (1981). E_0 denotes the nominal exchange rate measured as the domestic currency price of foreign exchange; P_m^* is the international price of importables, assumed to be given to the country; P_x^* is the international price of exportables, also given to the country; t and s are import tariffs and export subsidies, respectively.

$$P_m = E_0 P_m^* (1+t) \quad (2.27)$$

$$P_x = E_0 P_x^* (1+s) \quad (2.28)$$

The domestic price of tradables equals their international price converted to domestic currency units by the exchange rate, all multiplied by a factor incorporating tariffs (explicit and implicit) and subsidies.

Forming relative prices with home goods as the numeraire yields

$$P_m/P_h = (E_0/P_h) P_m^* (1+t) = e P_m^* (1+t) \quad (2.29)$$

$$P_x/P_h = (E_0/P_h) P_x^* (1+s) = e P_x^* (1+s) \quad (2.30)$$

where e is the real exchange rate. From 2.29 and 2.30, the relative price of importables in terms of exportables is

$$P_m/P_x = (P_m^*/P_x^*) [(1+t)/(1+s)] = P^* T \quad (2.31)$$

where P^* is the international relative price of importables in terms of exportables and T is the ratio of the tariff factor to the subsidy factor.

⁷For example, see Sjaastad and Clements (1981), Garcia Garcia (1981), and Jardine, Scobie, and Franklin (1989). The latter study derives the incidence parameter and estimates it for a five sector and seven sector economy, as well as for the three sector economy.

García García (1981) shows that under certain conditions⁸, the excess demand functions for importables, exportables and home goods can be represented as

$$M(P_m/P_h, y) = M^e \quad (2.32)$$

$$X(P_x/P_h, y) = X^e \quad (2.33)$$

$$H(P_m/P_h, P_x/P_h, y) = H^e \quad (2.34)$$

where y is real income in terms of home goods. The system is in full equilibrium when $M^e = X^e = H^e = 0$; in this case, trade is balanced and income equals expenditure. We made the same assumption when deriving the model given by equations 2.4-2.23.

The excess demand for importables (2.32) is inversely related to the relative price of importables, whereas the excess supply for exportables (2.33) is positively related to the relative price of exportables. A graphic representation of these functions with quantities on the horizontal axis and relative prices on the vertical axis would show a downward-sloping excess demand function for importables and an upward-sloping excess supply function for exportables. Their intersection would determine equilibrium relative prices for importables and exportables.

Interventions that move the economy away from the prices and trade volumes implied by this intersection can be analyzed in a manner that is directly analogous to the traditional microeconomic analysis of the incidence of a tax or subsidy on a particular commodity. An important conclusion of the traditional analysis is that it does not matter whether the tax is levied on the supplier or the demander of the commodity; the incidence is the same. The same conclusion applies to the incidence of a tariff or other measure intended to protect a particular sector of the economy.

Thus, attempts to protect a particular sector of the economy, such as importables, through tariffs or other barriers to imports can generate important and unintended effects on unprotected sectors, such as exportables. A tariff on

⁸Namely, that there are no cross price effects between importables and exportables.

importables, either directly levied or indirectly imposed through quotas or other non-tariff barriers, raises the price of the importables, thereby causing substitution away from importables to all other goods in the economy. Consumption is thus shifted to unprotected goods and services. If the importables are factors of production in the unprotected sectors, the domestic costs of production of exportables and home goods may also increase. The extent to which the nominal price in the unprotected sectors (exportables and home goods, in this example) adjusts in response to the induced changes in consumption and production is the measure of the incidence of the tariff.

The incidence is a function of the substitution possibilities, both in consumption and in production, of importables for exportables and home goods; the higher the degree of substitution, the greater the incidence of the protective structure on exportables and home goods and the less effective is the true protection to the importable sector. If importables are directly consumed by households, their consumption will decline as a result of the tariff and the demand for exportables and home goods will increase. If importables are also a factor of production, producers in the unprotected sectors will reduce their use of importables. At any given price, this will reduce the domestic production of unprotected goods. In the case of exportables whose domestic price is given by the international price converted at the prevailing exchange rate (see equation 2.28), this increase in demand and reduction in supply can only be accommodated by an adjustment in the price of home goods, and thus by an adjustment in the real exchange rate.

In the market for home goods, this induced increase in demand and decrease in output put upward pressure on the market-clearing price. This is the mechanism by which the real exchange rate, defined as E_o/P_h , appreciates. This puts downward pressure on the relative prices of exportables. A lower relative price constitutes a disincentive to the production of exportables.

The analysis sketched above can be applied to a reduction in explicit or implicit tariffs on importables. Removal of tariffs or non-tariff barriers as contemplated under the proposed reforms, would tend to lower the price of importables; a nominal devaluation would tend to raise their price. To implement this theoretical analysis, we need to establish what the net effect on the relative

price of importables of these actions would be and we need an estimate of the incidence parameter in order to determine what the effect on the relative price of exportables would be. We made assumptions about the effect of the exchange rate and trade policy reforms on the relative price of importables, assumptions that formed the basis of the three scenarios described above.

An estimate of the incidence parameter, w_M , was obtained from the following regression:

$$D\ln(P_h/P_x) = 0.005 + 0.552D\ln(P_m/P_x) - 0.265D\ln(TOT) + 1.378DGDEF$$

(0.010) (0.076)** (0.097)* (0.726)+

where D = the first difference operator⁹,

ln = natural logarithm

TOT = international terms of trade calculated as the ratio of the export unit value index to the import unit value index from International Financial Statistics (IFS)

GDEF = government deficit (expenditures minus revenues) scaled by GDP

Adj. R² = 0.91 Durbin-Watson = 1.810

Numbers in parentheses are the standard errors. Significance denoted by ** = 1 percent, * = 5 percent, and + = 10 percent.

The coefficient of the relative price of importables in the regression above is the estimate of the incidence parameter. Its value of .55 implies an elasticity of protection of -1.22¹⁰. The elasticity of protection measures the response of the relative price of exportables to a given change in the relative price of importables. Multiplying the proportional changes in the relative price of importables assumed in each scenario by this elasticity gives the changes in the relative price of exportables reported in Table 2.2.

⁹Dx(t) = x(t)-x(t-1).

¹⁰The elasticity of protection is given by $-w_M/(1-w_M)$. See, for example, Jardine, Scobie and Franklin (1989).

3. DEFINING THE POVERTY GROUPS

There is widespread concern that structural adjustment programs may particularly affect households at the lowest income levels, because they typically have a limited capacity to adjust to the economic alterations that will occur. This makes their identification a high priority. This section describes the techniques used to identify and characterize the poverty groups in El Salvador.

The population groups defined to be poor were determined by comparing the cost of a basic food basket with the estimated income for persons in that group. This is a common method for deciding whether a population group is in poverty. For example, in the United States, the "poverty level" is determined by the criterion that household income should exceed three times the cost of a thrifty food plan. For this study, a criterion developed by the Economic Commission for Latin America (ECLA) was used; a household is considered to be in extreme poverty if 70 percent or more of its income would have to be spent to purchase a basic food basket that is nutritionally adequate.

This methodology was first developed by Joy and Paine (1975) and was used in Central America by Valverde (1978). It has since been improved and used to answer the types of questions addressed in this study by Parillón, Franklin, and Harrell at Sigma One Corporation for Panama, Peru, Ecuador and the United States.

3.1 Identification of the Poverty Groups

The number of people likely to be extremely poor in El Salvador was estimated for groups identified according to occupation and economic sector. This classification was performed for the urban and the rural areas. Secondary data available from the Multiple Purpose Household Survey in 1985 (Ministerio de Planificación) were used to compute the likelihood that a person in a given group would be extremely poor.

3.1.1 Basic Food Basket

After studying a number of alternative diets that have been used in other studies in El Salvador, it was decided to adopt the basic basket proposed by SECONAN in 1983, most recently revised by Osegueda (1987) and reported in Table 3.1. This hypothetical basket reflects the Salvadorean food consumption pattern and meets the nutritional requirements of the population. It also takes into account the difference in composition of the urban and rural diets.

The cost of the basket reported in Osegueda (1987) was for 1985. To get the cost of this basket for the urban area in early 1989, we multiplied the quantities in this basket by the prices in San Salvador in early 1989. The resulting nominal cost of the urban food basket was C/.3.44. To calculate the cost of the rural basket in early 1989, its cost in 1985 was inflated by the previously calculated increase in the cost of the urban basket from 1985 to 1989¹¹. The resulting nominal cost of the rural food basket priced was C/.2.44.

Following the lead of ECLA and the World Health Organization, over the past few years researchers throughout Latin America have used this concept to establish poverty levels. This concept establishes a monetary criterion for poverty, defined as the amount of income necessary to acquire a basket of basic needs, which includes food, clothing, shelter, etc. In the case of El Salvador, the study uses the data provided by SECONAN to establish the extreme poverty criterion. Extreme poverty is said to exist if households would have to spend more than 70 percent of their income on the basic food basket, thereby leaving only 30 percent to fulfill their other wants.

3.1.2 Classification of Poverty Groups

Estimation of the likelihood that a person in a particular group would be extremely poor was conducted in three steps. First, the average per capita income for each group was estimated. Second, an index was formed in which this income was compared to the cost of the basic food basket from Section 3.1.1; the value of the index was assumed to be the mean of the distribution of incomes from which

¹¹This method of calculating the 1989 cost of the rural basket was used because rural food prices were not available nor is there a CPI for the rural areas.

Table 3.1. Composition and Cost of Urban and Rural Basic Food Baskets in El Salvador, 1985

	Urban		Rural	
	Quantity (gms)	Cost (colones)	Quantity (gms)	Cost (colones)
Corn	194	0.13	300	0.21
Beans	58	0.11	70	0.14
Rice	55	0.09	40	0.07
Meats	90	0.88	34	0.33
Fluid milk	175	0.23	55	0.12
Eggs	55	0.24	47	0.21
Vegetables	127	0.17	127	0.17
Fruits	157	0.20	160	0.20
Sugar	55	0.08	50	0.08
Fats	33	0.15	21	0.09
Wheat flour	35	0.08	20	0.05
Salt	10	0.01	10	0.01
Cost/Day/Person	-	2.37	-	1.68
Total Calories	2,160		2,160	

Source: Osegueda Jimenez, 1987

the probability that an individual in that group would be extremely poor was calculated. Third, the number of extremely poor persons was calculated by multiplying this probability by the population of each group. This analysis was conducted for both urban and rural areas.

Average per capita income was estimated by the following process. First, the average income per wage earner was calculated. Second, the average number of wage earners per household was determined. Third, the average household size was estimated. Multiplying income per wage earner by number of wage earners per household yielded total household income, which was then divided by average household size to get per capita income. This process was followed for each group and for urban and rural areas. The details of this procedure follow immediately.

Average income per wage earner in each group was computed as follows. Average monthly income per wage earner by economic sector was taken from Table 1.01 in the 1985 Multiple Purpose Household Survey (MPHS). The economic sectors were: (1) agriculture; (2) mining; (3) industry; (4) public utilities; (5) construction; (6) commerce; (7) transportation and communication; (8) finance; and (9) personal services. Average monthly income per wage earner by occupational group was taken from Table 1.02 in the MPHS. The occupational groups were: (1) professionals; (2) managers; (3) office workers; (4) merchants; (5) agricultural workers; (6) drivers; (7) skilled labor; (8) unskilled labor; (9) personal services; and (10) others. These data were provided for urban and rural workers¹².

For urban areas, these average sectoral and occupational incomes were converted to proportions by dividing each by the national average urban income. Similarly, proportions were calculated for rural workers by dividing the average sectoral and occupational incomes by the national average rural income. If one pictures a table whose rows are the economic sectors and whose columns are the occupational groups, the objective was to use these row and column proportions to fill in the cells (groups) of the table. Under appropriate statistical assumptions¹³,

¹²While not explicitly stated in the tables, we assumed the figures represented income per wage earner.

¹³Namely, that the 9 average sectoral incomes and the 10 average occupational incomes are mutually stochastically independent random variables.

the average income per wage earner in each group can be calculated from equation (3.1):

$$\bar{Y}_{ijk} = (a_{ij} \times a_{ik}) \bar{Y}_i \quad (3.1)$$

where \bar{Y}_{ijk} = average income per wage earner in the i th area of residence, j th sector of the economy and k th occupation group,

a_{ij} = proportion of the j th average sectoral income to the average income in the i th area of residence

a_{ik} = proportion of the k th average occupational income to the average income in the i th area of residence

\bar{Y}_i = average income per wage earner in the i th area of residence

i = urban, rural

j = 1, ..., 9 economic sectors

k = 1, ..., 10 occupation groups.

This procedure yielded incomes per wage earner for 1985. The analysis required estimates of nominal incomes for 1989 to correspond with the nominal cost of the basic food basket in 1989. The structure of the economy in 1988 and 1989 was assumed to be the same as the average structure that existed from 1985 to 1987; that is, the average shares of GDP generated by exportables, importables and home goods in total GDP from 1985 to 1987 were assumed to hold in 1988 and 1989. We had an estimate of nominal GDP for 1988 that was multiplied by the sectoral value added shares to obtain sectoral GDP. A zero growth rate was assumed for 1989, so that 1988 incomes equalled 1989 incomes. The implied growth rates for exportables, importables and home goods from 1985 to 1989 were then multiplied by the 1985 income levels to estimate the average income per wage earner by group¹⁴.

In order to estimate per capita income in each group, we determined the number of wage earners per household and the average household size. This enabled us to distribute the average household income across its members to get an estimate of per capita income, as in equation (3.2):

¹⁴The growth in the exportables sector was applied to agriculture and mining; growth in the importables sector was applied to industry; and growth in the home goods sector was applied to the remaining six sectors of the economy.

$$\overline{YPC}_{ijk} = (\bar{Y}_{ijk} \times \bar{N}_{ij}) / \bar{H}_{ij} \quad (3.2)$$

where \overline{YPC}_{ijk} = average per capita income in the i th area of residence, j th sector of the economy and k th occupation group,

\bar{N}_{ij} = average number of wage earners per household for the j th sector in the i th area of residence

\bar{H}_{ij} = average household size for the j th sector in the i th area of residence

i = urban, rural

j = 1, ..., 9 economic sectors

k = 1, ..., 10 occupation groups.

The numerator is total household income, which is converted to per capita income by dividing by the average household size. Data on number of households and average household size are not available by occupation. As the formula shows, sectoral household characteristics were assumed to hold across all occupation groups within the sector.

The average number of wage earners per household¹⁵ by sector and occupation group was calculated as follows. The number of wage earners in each economic sector/occupation group was taken directly from MPHS, Table B.20, subtables 2 (urban) and 3 (rural). There were 90 possible sector/occupation groups for the urban areas and 91 possible sector/occupation groups for the rural areas. Groups for which no workers were reported in the MPHS were dropped from the analysis. The number of households in each sector were taken from MPHS, Table B.40, subtables 2 (urban) and 3 (rural). Since the number of households by sector/occupation group was not available, the number of wage earners in each occupation for a given sector was divided by the number of households in that sector. This yielded the average number of wage earners per household by sector/occupation group. The average household size for each sector was calculated from the data in the MPHS, Table B.40, subtables 2 (urban) and 3 (rural).

In the next step of the analysis, the average per capita income for each group was compared to the cost of the basic food basket. If 70 percent of that income

¹⁵This procedure accounts for the presence of multiple wage earners within a household, but does not explicitly account for multiple jobholding by a wage earner.

was less than the cost of the food basket, then the average person in that group was defined to be extremely poor. That is, the condition

$$0.7(\overline{YPC}_{ijk}) < C_i \text{ or, equivalently,}$$

$$[0.7(\overline{YPC}_{ijk})]/C_i < 1 \tag{3.3}$$

where C_i = the per capita cost of the basic food basket for the i th area is the criterion for extreme poverty for the average person in that group. This technique is used by the United States Department of Agriculture for assessing the benefit levels for participation in the Food Stamp Program, and by the Office of Management and Budget for monitoring poverty in the United States. For El Salvador, the income criterion developed by WHO and ECLA was used as the cutoff for extreme poverty.

If we applied this criterion without further refinement, a value of the index of less than one would cause us to classify an entire group as extremely poor, when in fact the group is only extremely poor on average. Furthermore, finding a value greater than one would cause us to classify the entire group as "not extremely poor," when some individuals in the group would be extremely poor.

To get around this problem, we assumed that individual values of the poverty index were distributed around the average value of the index for each group, as given by the left-hand side of the inequality in equation 3.3. That is, we computed the following probability:

$$\text{Prob}\{[0.7(\overline{YPC}_{ijk})]/C_i < 1\} = P(I_{ijk} < 1) \tag{3.4}$$

where I_{ijk} is assumed to have a logarithmic normal distribution with mean given by the left-hand side of the inequality in 3.3 and standard deviation equal to one-third of the mean. The lognormal distribution has been found to be a good characterization of the distribution of low incomes (Cramér, 1971). It captures the skewness of income distribution in poor countries and can be described with a few parameters; the mean and the variance are sufficient.

In the final stage of the analysis, the number of people in each group who were likely to be extremely poor was calculated by multiplying the group's

probability by its population. At this stage, cells that were sparse in size were eliminated from the analysis. Only groups which had more than 5,000 people in extreme poverty were retained.

3.1.3 Classification Results for 1989

The results of applying the classification methodology to the 1985 MPHS data are given in Appendix A. The updated (1989) estimates of extreme poverty for the various groups are presented in Tables 3.2 (rural population) and 3.3 (urban population). In the rural areas, six groups contained a total of 1.6 million extremely poor people. Four of these groups were in the agricultural sector. The prevalence of extreme poverty in the agricultural groups exceeded 80 percent (see fourth column of table). Nearly 90 percent of the total population of these six groups was estimated to be extremely poor.

In the urban areas, nine groups contained 366 thousand extremely poor people. This represented about 25 percent of the total population of these groups. It is noteworthy that 238 thousand of the extremely poor urban population worked as farmers in the agricultural sector. In other words, 65 percent of the urban poor are associated with work in the agricultural sector. The other significant pockets of urban poverty were to be found among unskilled workers in the industrial sector (58 thousand) and among personal service workers in the services sector (31 thousand).

The prevalence of poverty in non-agricultural urban groups is much lower than the prevalence of poverty in agricultural groups. The highest rate of poverty among the non-agricultural urban groups was 39 percent (for services workers in industry); however, this group had a relatively small population of 9 thousand, so that the absolute number of persons in extreme poverty was small. Other groups had a large population with a lower prevalence of extreme poverty that resulted in a larger absolute number of poor persons. Personal services workers in the service sector is a case in point, as is skilled workers in the construction industry.

Extreme poverty is concentrated in the agricultural sector. Most agricultural workers--whether they have land and regardless of rural or urban residence--are judged to be in extreme poverty by the criterion used for this study.

Table 3.2. Estimates of Extreme Poverty: Rural El Salvador, 1989

Economic Sector	Occupational Group	Group Population (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	825	99	815
Agriculture	Peasants	825	99	815
Agriculture	Unskilled Workers	5	83	4
Agriculture	Services	6	93	6
Construction	Skilled Workers	84	4	3
Services	Services	120	4	5
Total		1,865		1,648

Source: Sigma One Corporation.

Table 3.3. Estimates of Extreme Poverty: Urban El Salvador, 1989

Economic Sector	Occupational Group	Group Population (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	240	99	238
Industry	Merchants	26	6	2
Industry	Skilled Workers	137	5	7
Industry	Unskilled Workers	270	22	58
Industry	Services	9	39	3
Construction	Skilled Workers	120	9	11
Commerce	Merchants	425	2	10
Commerce	Services	24	23	6
Services	Services	233	13	31
Total		1,484		366

Source: Sigma One Corporation.

The non-agricultural urban population in extreme poverty numbered 128 thousand in 1989. This represented 10 percent of the population of the nine groups that were likely to contain significant numbers of poor people.

Table 3.4 presents a summary of poverty conditions in 1989. Clearly, extreme poverty is primarily a rural phenomenon. The total number of persons living in extreme poverty exceeds 2 million; more than 80 percent of this number (1.6 million) live in rural areas. The prevalence of poverty among the rural population was 62 percent, whereas the prevalence of poverty among the urban population was 15 percent. The concentration and acuteness of extreme poverty in the rural areas has increased in the last four years. The principal causes of this are the implicit and explicit policies that have depressed agricultural prices of both basic grains and exportable agricultural commodities; undoubtedly, these conditions have been exacerbated by the earthquake and the civil conflict.

3.2 Description of Extremely Poor Groups

The names of the groups in this analysis used the 1985 MPHS naming convention. This is based on the International Uniform Industrial Classification System for economic sectors and the International Uniform Occupational Classification System for occupations. To a large extent, the names are self explanatory. However, we also used complementary information from other studies to glean additional insight into the characteristics of the groups. These studies included the one on basic grain producers in El Salvador (Comité de Apoyo al Desarrollo Económico y Social de Centro América (CADESCA), 1989); a United Nations report on rural poverty in El Salvador (1986); and two studies of displaced persons (MIPLAN/Comisión Nacional de Asistencia a la Población Desplazada (CONADES), 1987; Contracting Corporation of America, 1985). This information on the rural and urban population groups classified as extremely poor is presented below.

3.2.1 Rural Poverty Groups

Farmers. This group is made up of rural households whose incomes are derived from economic activities directly related to the agricultural sector. Most of this group probably comprises small agricultural producers and peasants. Small agricultural producers are likely to be subsistence farmers with a limited area for

Table 3.4. Summary of Poverty Conditions in El Salvador, 1989

Region	Population (000)	Extremely Poor (000)	Distribution of Poverty as Percent of	
			Regional Population	Total Poor
Rural	2,658	1,648	62	82
Urban	2,436	366	15	18
Total	5,094	2,014	40	100

Source: Sigma One Corporation.

planting (less than 2 hectares); they frequently do rural wage work. Peasants depend on either rented or borrowed parcels of land; they are generally workers or day laborers for seasonal agricultural work. For this study the changes in the relative price of exportables was assumed to generate higher incomes for the small agricultural producers relative to the peasants, because the small producer can respond to higher prices by increasing output (and therefore incomes).

Unskilled Workers. This group is made up of households that depend on incomes from activities in the agricultural sector, generally seasonal labor. These occupations are characterized by manual labor. Generally, the types of activities undertaken are planting, weeding and harvesting of crops, livestock tending, etc. Although these are normally temporary or part-time jobs, some of these workers have established a more permanent relationship as full-time employees of cooperatives and haciendas.

Skilled Labor. This refers to those rural households that depend on wage labor in the trades. By this we mean specialized labor which requiring significantly more training than that needed by unskilled labor. Examples are carpenters, roofers, glass cutters, plumbers, etc. They probably engage in work as independent contractors.

Personal services. This group consists of rural households depending on incomes from salaried work in personal services within the agricultural and services sectors. These are occupations such as peons, stevedores, sweepers, waiters, watchmen, guards, etc. In many instances, they are task-oriented or seasonal part-time jobs.

3.2.2 Urban Poverty Groups

Farmers. Since this is the largest single urban poverty group, further analysis should be carried out to better identify these households. We believe that the majority (between one-half to two-thirds) of these households actually live in semi-urban areas. The definition of an urban area in the MPHS is "the seat of the municipality and judged to be urban by the municipal authorities, even though the locality may not constitute what is generally considered an urban area in terms of population density, public facilities, etc." (MPHS, 1985). Thus, the majority of this

group probably lives in villages and may have more in common with the rural small farmers than with other poor urbanites. An indicator of this is that in 1985 this group had a mean income per wage earner of approximately C/.300 per month while the equivalent rural groups' mean monthly income was approximately C/.200.

Skilled Labor. This group consists of households supported from more specialized salaried work within the industrial and construction sectors. It is probable that these work activities are seasonal and that some of these households were displaced by the civil conflict. This group is relatively well-off, but has poor households at the bottom of its scale.

Unskilled Workers. This is a large group whose incomes depend on part-time work, principally in the industrial sector. Their work is generally characterized by manual labor in plants that manufacture food and drink products, chemicals and furniture. Many of these households were displaced by the civil conflict. This group is likely to be the largest non-agricultural urban poverty group in the short run under structural adjustment.

Merchants. This group is engaged in the independent sale of retail products. Some of these may be displaced households. They constitute a major portion of the informal sector. Their activities are related to the industrial and commercial sectors.

Personal services. This group depends on incomes from salaried personal services occupations within the industrial, commerce, and services sectors. Their work is probably seasonal; examples are peons, carriers, street sweepers, watchmen, guards, etc. It is likely that many of these households belong to the group of displaced persons.

It should be noted that this identification does not constitute a formal nutritional functional classification, because it lacks important information such as that related to nutritional status, health, access to water sanitation, education, and other important indicators of the conditions of living for the households involved.

4. RESULTS

This section presents the estimates of extreme poverty based on applying the scenarios in Section 2 with the classification methodology described in Section 3. The discussion is limited to the baseline scenario of no structural adjustment and the most severe scenario (III in Table 2.2). To recap, in scenario III the exchange rate and trade policy reforms are assumed to lower the relative price of importables (industrial goods) by 20 percent and to raise the relative price of exportables (agricultural goods) by about 25 percent. The results generated under scenarios I and II would fall somewhere between those of the baseline case and those of scenario III. The structural adjustment program is assumed to be implemented at the beginning of 1990. Section 4.1 presents the short-run effects of the structural adjustment program, where the short run is the end of 1990. Section 4.2 presents the long-run effects, defined as the end of 1994.

4.1 Short-Run Effects of Structural Adjustment on Population in Extreme Poverty

Under the relative price and income changes of scenario III and assuming that the economic growth rates anticipated by the program's proponents were achieved, little change in the prevalence of extreme poverty in the rural areas would be observed (Table 4.1). This is true whether the comparison is with the 1989 estimates of poverty or with the 1990 baseline values.

However, in the urban areas there is likely to be a significant increase in the prevalence of extreme poverty (Table 4.2). The proposed structural adjustment measures would increase the incidence of extreme poverty in the non-agricultural, urban occupational groups from 128 thousand to almost 300 thousand. The prevalence of poverty would increase markedly among unskilled workers in industry (from 22 percent to 46 percent) and among personal services workers in the service sector (from 14 percent to 28 percent). Without structural adjustment, in the short run, conditions would remain about the same as they have been.

The distribution of the urban poor as a percentage of the total poor under structural adjustment would increase to 25 percent, compared with a baseline value of 18 percent (Table 4.3). The prevalence of poverty among the rural population would remain virtually unchanged under structural adjustment, whereas the

Table 4.1. Estimates of Extreme Poverty: Rural El Salvador, 1990

Economic Sector	Occupational Group	Group Population (000)	No Structural Adjustment		With Structural Adjustment	
			Percent likely to be Poor	Probable number of Poor (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	846	99	837	94	798
Agriculture	Peasants	846	99	837	99	839
Agriculture	Unskilled Workers	5	84	4	87	5
Agriculture	Services	6	94	6	95	6
Construction	Skilled Workers	86	4	3	11	9
Services	Services	123	4	5	11	14
Totals		1,912		1,692		1,671

Source: Sigma One Corporation.

Table 4.2. Estimates of Extreme Poverty: Urban El Salvador, 1990

Economic Sector	Occupational Group	Group Population (000)	No Structural Adjustment		With Structural Adjustment	
			Percent likely to be Poor	Probable number of Poor (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	246	99	244	100	245
Industry	Merchants	26	7	2	20	5
Industry	Skilled Workers	140	5	7	16	23
Industry	Unskilled Workers	276	22	62	46	127
Industry	Services	9	39	4	66	6
Construction	Skilled Workers	123	9	11	21	26
Commerce	Merchants	435	3	11	8	33
Commerce	Services	25	24	6	43	11
Services	Services	239	14	33	28	68
Totals		1,519		380		544

Source: Sigma One Corporation.

Table 4.3. Summary of Poverty Conditions in El Salvador, 1990

Region	Population (000)	No Structural Adjustment			With Structural Adjustment		
		Extremely Poor (000)	Distribution of Poverty as percent of		Extremely Poor (000)	Distribution of Poverty as percent of	
			Regional Population	Total Poor		Regional Population	Total Poor
Rural	2,724	1,692	62	82	1,671	61	75
Urban	2,497	380	15	18	544	22	25
Total	5,221	2,072	40	100	2,215	42	100

Source: Sigma One Corporation.

prevalence of poverty among the urban population would increase from 15 to 22 percent. Because most of the extremely poor live in rural areas, the prevalence of extreme poverty in the total population would increase only slightly under structural adjustment, from 40 to 42 percent.

4.2 Long-Run Effects on Population in Extreme Poverty

The long-run (1994) effects of the structural adjustment program on rural poverty would be to reduce the number of extremely poor people by more than 200 thousand in comparison with the baseline (Table 4.4). While rural poverty would be reduced somewhat, the prevalence of extreme poverty would remain just under its 1985 level. Most of the rural population would remain under conditions of extreme poverty because their poverty is so deep.

In the absence of the reforms, the number of urban persons in extreme poverty would grow from 366 thousand in 1989 to 542 thousand in 1994. In estimating extreme poverty in 1994 with and without the structural adjustment program, we found that at least half of the urban poor--more than one quarter of a million persons--live in households whose incomes derive from the agricultural sector. We think this is an artifact of the way an urban area is defined: "the seat of the municipality and judged to be urban by the municipal authorities, even though the locality may not constitute what is generally considered an urban area in terms of population density, public facilities, etc." (MPHS, 1985). The evidence available to us through the MHPS suggests strongly that the majority of this group are persons living outside the principal metropolitan areas of San Salvador and La Libertad in areas which might be more appropriately called villages. It should thus be treated primarily as a rural population group.

Under the structural adjustment program, by 1994 the number of non-agricultural urban poor would fall to 114 thousand from its 1989 level of 128 thousand (Table 4.5). In contrast, without the reforms the number of non-agricultural poor would rise to 271 thousand from the 1989 level. Considering the rapid population growth, the structural adjustment program would generate a significant decline in urban poverty. In the urban area, the largest pockets of extreme poverty among the non-agricultural sectors in absolute numbers would be 58 thousand persons in households whose principal wage earners are unskilled workers

Table 4.4. Estimates of Extreme Poverty: Rural El Salvador, 1994

Economic Sector	Occupational Group	Group Population (000)	No Structural Adjustment		With Structural Adjustment	
			Percent likely to be Poor	Probable number of Poor (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	934	100	930	82	769
Agriculture	Peasants	934	100	930	96	899
Agriculture	Unskilled Workers	6	93	5	69	4
Agriculture	Services	7	97	7	84	6
Construction	Skilled Workers	95	9	9	2	2
Services	Services	136	10	13	3	4
Totals		2,112		1,894		1,684

Source: Sigma One Corporation.

Table 4.5. Estimates of Extreme Poverty: Urban El Salvador, 1994

Economic Sector	Occupational Group	Group Population (000)	No Structural Adjustment		With Structural Adjustment	
			Percent likely to be Poor	Probable number of Poor (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	271	100	271	98	265
Industry	Merchants	29	14	4	5	2
Industry	Skilled Workers	154	11	18	4	6
Industry	Unskilled Workers	305	36	111	19	58
Industry	Services	10	56	6	35	3
Construction	Skilled Workers	135	19	25	6	8
Commerce	Merchants	481	6	30	2	7
Commerce	Services	27	39	11	17	5
Services	Services	264	25	66	10	25
Totals		1,519		542		379

Source: Sigma One Corporation.

in the industrial sector and 25 thousand persons in households engaged in personal services activities in the service sector. It should be noted that the prevalence of poverty in these groups under structural adjustment is about one-half of what it would be without the program.

In summary, by 1994, the prevalence of extreme poverty would decline by 10 percent, from 40 percent to 36 percent of the total population (Table 4.6). In the absence of the structural adjustment program, the prevalence of poverty would continue to rise. With the structural adjustment program, there would be approximately 373 thousand fewer poor persons in 1994 than in the absence of the program. With the structural adjustment program, agricultural GDP would rise by about two-fifths by 1994 and non-agricultural GDP would rise by about one-fifth (Table 2.2). However, more than half the rural population would remain under conditions of extreme poverty, because their poverty is so deep.

Table 4.6. Summary of Poverty Conditions in El Salvador, 1994

Region	Population (000)	No Structural Adjustment			With Structural Adjustment		
		Extremely Poor (000)	Distribution of Poverty as percent of		Extremely Poor (000)	Distribution of Poverty as percent of	
			Regional Population	Total Poor		Regional Population	Total Poor
Rural	3,007	1,894	63	78	1,684	56	82
Urban	2,756	542	20	22	379	14	18
Total	5,763	2,436	42	100	2,063	36	100

Source: Sigma One Corporation.

5. RECOMMENDATIONS

The principal question this study addressed centered on the need for a targeted food program as a "safety net" to protect persons likely to be adversely affected by the proposed structural adjustment program. We found that poverty in El Salvador was associated primarily with the population living in rural areas or with employment in the agricultural sector. These persons are the ones most likely to benefit from the proposed structural adjustment program through significant increases in average household incomes by 1994. Nonetheless, the extent and intensity of rural poverty in El Salvador is so severe that a majority of the rural population and people employed in the agricultural sector will remain in conditions of extreme poverty.

With respect to the urban population, we found that the structural adjustment program would reduce the prevalence of extreme poverty over the period 1989 to 1994. In estimating extreme poverty in 1994 with and without the structural adjustment program, we found that at least half of the urban poor--more than one quarter of a million persons--live in households whose incomes derive from the agricultural sector. The absolute number of persons in extreme poverty associated with non-agricultural occupations is actually reduced from its level in 1989 as a result of the structural adjustment program. Thus, in terms of reducing the prevalence of extreme poverty, the structural adjustment program would primarily benefit the non-agricultural urban population. The best strategy for protecting the food security of the non-agricultural urban population is to implement the structural adjustment program.

During the 1989 to 1994 period, approximately one quarter of a million urban persons in the agricultural sector are, and would remain, extremely poor by the criterion used for this study. While this number does not change appreciably as a result of the reforms, there is a question as to whether this group should be the beneficiaries of a targeted food program. A complete answer to this question would require additional information to that available to us for this study. In particular, this population group may constitute part of the displaced persons problem. Alternatively, this population group could be misclassified as an urban population group given the definitions used for determining urban areas in El Salvador.

If a significant number of the urban agricultural workers are part of the displaced persons group, then undoubtedly there is a need for specific attention to this group. However, in our opinion, this attention should be directed to them in their condition as refugees, since their plight is not a result of the functioning of the economic system. If, on the other hand, this group is an artifact of the statistical system of El Salvador, then it would be dangerous to address its needs as an urban population when it may actually be a rural population group.

It is therefore the principal conclusion of this study that there is no need for an additional targeted food program to compensate or protect the persons adversely affected by the proposed structural adjustment program. We believe that interventions in the food system would be antithetical to the purposes of the structural adjustment program. Even implementing a highly targeted program carries with it the grave risk of institutionalizing the existing distortions to the agricultural pricing system. This would negate the beneficial effects of the proposed reforms and perhaps severely aggravate the public finance situation that the country faces.

There is, however, a very strong need for addressing the chronic problems of extreme poverty that have persisted in El Salvador and that have become acute in recent years as a result of economic distortions, civil conflict and natural disasters. One of the best instruments for addressing the problem of chronic poverty is the proposed structural adjustment program. However, these reforms are not likely to be sufficient in alleviating the chronic poverty conditions. They need to be supplemented with activities that facilitate the response of the private sector (especially in the rural areas) to the opportunities created by the improved incentives which will face the agricultural sector.

The specification and design of such support activities were not the purpose of this study. However, some of the options that might be considered by the proponents of the structural adjustment program would include enhancements to the private marketing agribusiness system, investments in rural infrastructure, support systems such as agricultural research and extension, and market news and information systems.

Even though the prevalence of urban poverty would fall significantly as a result of the structural adjustment program, concerns would remain about what ought to be done for the urban population in extreme poverty. We estimate that in 1994 this population will be approximately 114 thousand persons, probably living in the primary metropolitan areas of San Salvador and La Libertad. Since they would be concentrated in the unskilled industrial and service occupations, they might constitute a political impediment to the implementation of the structural adjustment program. Rather than making these persons wards of a food assistance program, a preferred strategy would focus on improving their ability to earn incomes. Therefore, highly targeted programs of job training assistance for the industrial workers and entrepreneurial assistance for the service workers might be high pay-off investments for these groups without running the risk of distorting the food marketing and production system.

Additionally, it should be recognized that poor households are poor not only because they cannot purchase adequate diets, but also because they are unable to purchase other basic necessities such as health care, education, clothing, housing and transportation to work and to market places. These areas present opportunities for assisting the extremely poor at solving their problems of poverty. The proponents of the structural adjustment program and the government of El Salvador should consider the level of new investment required in public services, such as the health, education, sanitation and the transport system. Additional investments in these areas should include incorporating poor households in public works programs, such as building health centers, schools, etc. In these activities, food aid could be used directly as compensation, for example, food for work. Indirectly, local currency proceeds of programmed food assistance could be used to provide the moneys necessary to compensate participants in public works programs for their time, thus supplementing their incomes in the short run at the same time that the basic infrastructure is developed.

These type of programs, as well as food distribution programs themselves, also carry an inherent risk of becoming institutionalized as welfare programs. Therefore, these initiatives would require careful analysis to identify those who will remain in chronic poverty and those whose poverty is transitional. Persons in the former group require permanent and generalized income transfers, such as those provided

by the social security system. Persons in the latter group may be candidates for self-terminating programs that assist in the economic transition.

This distinction between permanent income transfers and transitional assistance as an aid to responding to improved incentives is an important consideration in the dialogue between the government of EL Salvador and the donor community. Permanent income transfers should be institutionalized in the fiscal budget and funded from the recurring revenues of the government. Programs that facilitate the transition to the new structure of incentives could be legitimately considered candidates for economic and development assistance programs (i.e., those with a limited time horizon).

REFERENCES

- CADESCA/CEE. 1987. Análisis del Sistema de Producción de Granos Básicos. Reunión del Grupo de Apoyo. Comité Técnico Regional Eje II.
- Contracting Corporation of America. 1985. Encuesta Base de la Población Desplazada. Report prepared for USAID/El Salvador. San Salvador.
- Cramér, H. 1971. Mathematical Methods of Statistics. Princeton: Princeton University Press.
- Dornbusch, R. May 1974. Tariffs and Nontraded Goods. Journal of International Economics 7. 177-185.
- Franklin, David L. and Alberto Valdés. May 1987. The Effect of Trade Policies on Relative Prices and Households' Real Incomes and Food Consumption Patterns. Peru, 1964-1982. Prepared for IFPRI Workshop on Trade and Macroeconomic Policies' Impact on Agricultural Growth.
- García García, Jorge. June 1981. The Effects of Exchange Rates and Commercial Policy on Agricultural Incentives in Colombia: 1953-1978. Research Report 24. IFPRI: Washington, D.C.
- Heller, P. S., A. L. Bovenberg, T. Catsambas, K. Chu, and P. Shome. May 1988. The Implications of Fund-Supported Adjustment Programs for Poverty: Experiences in Selected Countries. Occasional Paper No. 58. IMF: Washington, D.C.
- Instituto de Nutrición de Centroamérica y Panamá (INCAP). Junio 1988. Situación Nutricional de El Salvador: 1980-1987. División de Nutrición y Salud.
- INCAP. 1986. Programa de Alimentación a Grupos. Su Integración en Programas y Estrategias de Desarrollo en Centroamérica y Panamá. Memorias del Seminario Sub-regional, celebrado en la Ciudad de Antigua, Guatemala entre el 25 y 29 de Julio de 1986. Guatemala, C. A.
- INCAP. 1985. Análisis Uniformes de Datos Antropométricos para Sistemas de Vigilancia Alimentaria Nutricional. Informe 5. El Salvador. Guatemala.
- International Monetary Fund. September 1986. "Fund Supported Programs, Fiscal Policy, and Income Distribution." Occasional Paper No. 46. IMF: Washington, D.C.
- Jardine, V., G. M. Scobie, and D. L. Franklin. January 1989. The Incidence of Trade Policies on Agriculture: The Case of Ecuador, 1965 - 1986. Prepared for USAID/Ecuador. Sigma One Corporation: Research Triangle Park.
- Jolly, R. 1985. Adjustment with a Human Face. Barbara Ward Lecture. Development Rome: SID.
- Joy, J. and P. Payne. 1975. La Nutrición y la Planificación del Desarrollo Nacional. In Alimentación y Nutrición (FAO), Vol. 1 No. 4.
- Lewis, H. G. May 1975. Notes on Partial Equilibrium Analysis. Working Paper No. 69. Princeton University.

- Lievano, M. and R. D. Norton. June 1988. Food Imports, Agricultural Policies and Agricultural Development in El Salvador, 1960 - 1987. Robert R. Nathan Associates.
- Lizondo, J. S. and P. J. Montiel. March 1989. Contractionary Devaluation in Developing Countries: An Analytical Overview. IMF Staff Papers Vol. 36 No. 1. 182-227.
- Loehr, William. February 1988. Real Exchange Rates in El Salvador. Prepared for USAID/El Salvador.
- Loehr, W., J. C. Protasi, and R. C. Vogel. January 1989. El Salvador's Foreign Exchange Rate System: Problems, Alternatives and Recommendations. The Interamerican Management Consulting Corporation.
- Ministerio de Planificación y Coordinación del Desarrollo Económico y Social (MIPLAN). Encuesta de Hogares de Propósitos Múltiples, Octubre-Diciembre 1985. San Salvador.
- MIPLAN/CONADES. Octubre 1987. La Población Desplazada; acción gubernamental y proyectos, ayuda alimentaria, apoyo internacional. INCAP/Documentos Técnicos No. 10 Reproducciones. El Salvador.
- MIPLAN/Ministerio de Salud Pública y Asistencia Social/INCAP. 1987. Hacia una Política de Ayuda Alimentaria en el Salvador. Informe General y Anexos del Seminario realizado en San Salvador, Marzo 10-12, 1987. El Salvador.
- Ministerio de Salud Pública y Asistencia Social/Ministerio de Educación/INCAP. Febrero 1989. Primer Censo Nacional de Talla en Escuelas de Primer Grado Básico. (Borrador de Informe). El Salvador.
- Osegueda Jimenez, T. Enero 1987. Política de Alimentación y Nutrición como parte de las Estrategias para el Desarrollo Económico y Social en El Salvador. Tesis para obtener el Título de Licenciado en Economía. Facultad de Ciencias Económicas/Universidad de El Salvador. El Salvador.
- Secretaría Técnica Alimentaria (SETA). Marzo 1989. Sistema Institucional. Programa de Trabajo para 1989-1990. Marco Jurídico Institucional. Comité Técnico Asesor. MIPLAN. San Salvador.
- Sjaastad, L. December 1980. Commercial Policy Reform in Argentina: Implications and Consequences. Manuscript.
- Sjaastad, L. and K. W. Clements. May 1981. The Incidence of Protection: Theory and Measurement. Prepared for The Conference on the Free Trade Movement in Latin America, Haus Rissen, Hamburg, Germany.
- United Nations. 1986. Rural Poverty in El Salvador: Basic Elements for an Agricultural Policy.
- Valverde, V. et al. 1978. Clasificación Funcional de Poblaciones des Nutridas en la Republica de El Salvador. Archivos Latino Americanos de Nutrición.

APPENDIX A: ESTIMATES OF EXTREME POVERTY IN 1985

The results of applying the classification methodology to the 1985 MPHS data are presented in Tables A.1 (rural population) and A.2 (urban population). The tables present estimates of the numbers of extremely poor people by population group for 1985. In the rural areas, six groups contained nearly 1.5 million extremely poor people. Four of these groups were in the agricultural sector. The prevalence of extreme poverty in the agricultural groups ranged between 72 and 97 percent (see fourth column of Table A.1). Over 87 percent of the total population of these six groups was estimated to be extremely poor.

In the urban areas, nine groups contained 476 thousand extremely poor people. This represented 36 percent of the total population of these groups. Of the extremely poor urban population, 214 thousand worked in the agricultural sector. In other words, 45 percent of all the urban poor were associated with work in the agricultural sector. Other significant pockets of urban poverty were to be found among unskilled workers in the industrial sector (107 thousand, accounting for 22 percent of the urban poor) and among personal service workers in the services sector (63 thousand, accounting for 13 percent of the urban poor).

Table A.3 summarizes poverty conditions in El Salvador in 1985. The nearly 2 million people in extreme poverty constituted 42 percent of the total population of the country. Clearly, extreme poverty is primarily a rural phenomenon; three-quarters of those in extreme poverty lived in rural areas. Within the rural population, over 60 percent are extremely poor, compared with 22 percent of the urban population.

Table A.1. Estimates of Extreme Poverty: Rural El Salvador, 1985

Economic Sector	Occupational Group	Group Population (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	748	97	723
Agriculture	Peasants	748	97	723
Agriculture	Unskilled Workers	5	72	3
Agriculture	Services	6	87	5
Construction	Skilled Workers	76	10	8
Services	Services	109	11	12
Total		1,692		1,474

Source: Sigma One Corporation.

Table A.2. Estimates of Extreme Poverty: Urban El Salvador, 1985

Economic Sector	Occupational Group	Group Population (000)	Percent likely to be Poor	Probable number of Poor (000)
Agriculture	Farmers	217	99	214
Industry	Merchants	23	19	4
Industry	Skilled Workers	124	15	18
Industry	Unskilled Workers	244	44	107
Industry	Services	8	64	5
Construction	Skilled Workers	108	22	24
Commerce	Merchants	385	8	31
Commerce	Services	22	44	10
Services	Services	211	30	63
Total		1,342		476

Source: Sigma One Corporation.

Table A.3. Summary of Poverty Conditions in El Salvador, 1985

Region	Population (000)	Extremely Poor (000)	Distribution of Poverty as percent of	
			Regional Population	Total Poor
Rural	2,408	1,474	61	76
Urban	2,207	476	22	24
Total	4,615	1,950	42	100

Source: Sigma One Corporation.