

SDR/TAC:IAR/01/16

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
TECHNICAL ADVISORY COMMITTEE

**POVERTY IN MESO-AMERICA:
Tendencies, Causes, and Implications for Agricultural Research**

TAC SECRETARIAT
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
August 2001

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**POVERTY IN MESO-AMERICA:
TENDENCIES, CAUSES, AND IMPLICATIONS FOR AGRICULTURAL
RESEARCH**
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Summary

First, poverty is reviewed at the global level and at the level of Latin American and Caribbean (LAC). On one commonly used measure of poverty, LAC is that developing region of the world with the highest incidence of poor people—slightly over one in every two persons. Worldwide, poverty also turns out to be far more persistent than presumed by the G-8 resolution to halve it by 2030. Less surprising, perhaps, is that it is shown to be predominantly a rural problem, even in the rapidly urbanizing LAC region.

In the 1990s, poverty's persistence around the world was due to increased income inequality within countries and patterns of economic growth that widened gaps between rich and poor countries. That poverty is a rural problem is hardly surprising, given its chief determinants: fewer owned assets, lower returns to those assets, greater variability in asset amounts and returns through time, low levels of public sector social spending, and locational factors (e.g., remoteness and accessibility). But within LAC, it is also an agricultural problem. Campaigns to reduce poverty should not only give top priority to rural areas, but within rural areas, agriculture should come in first for attention.

No evidence was found to support three plausible hypotheses concerning recent trends in poverty, including its persistence: that the pervasive "opening" and "globalization" of the world's economies worked against poverty reduction; that natural resources degradation reinforced poverty; or that rising rural non-farm employment led to greater poverty.

Against this backdrop, the paper then turns to a characterization of poverty in Meso-America (Puebla to Panama), taking each country as a case study. With 60 percent of this region being poor and 40 percent extremely poor, the incidence of poverty is higher than for the world as a whole and roughly twice as high as for the LAC region. Too, it is observed that the incidence of poverty tends to decline on passing from the north to the south of the region; the incidence of poverty improved in the 1990s, except in the two most northern countries; rural poverty is everywhere more intense than urban poverty; and most of the poor are in rural areas (except in Mexico).

Highlights of the country case studies indicate that poverty could probably be eradicated from Costa Rica and Panama with a small fraction of the government's budget; Mexico's commitment to a pro-rural social development budget may show the way (if not at least one way) for countries of the region to alleviate poverty; the centrality of agriculture to

¹ Prepared for "Regional Research Priorities," a meeting in Mexico City, May 2-4, 2001, organized by FORAGRO. Development of the paper was supported by the Technical Advisory Committee (TAC) of the Consultative Group on International Agricultural Research (CGIAR) and the Regional Fund for Agricultural Technology (FONTAGRO). Much of the literature and data on which the paper is based were graciously supplied by staff of the World Bank and the Inter-American Development Bank, and have been summarized in another paper presented at the Mexico City meeting, "Poverty: A Review with Emphasis on Meso-America and a Proposal Integrating Agricultural Technology in a Comprehensive Regional Poverty Reduction Strategy." The author is grateful for comments on an earlier draft from Alain de Janvry. The contents of the paper are the sole responsibility of the author, however.

economic upturns and poverty reduction was exemplified by Nicaragua's economic recovery of the 1990s; Honduran poverty is linked to hillside resource degradation and deforestation, even though the linkage is not always present in other developing countries; the El Salvador case most clearly demonstrates that good rural jobs and better rural incomes require complementary capital and investments; and Guatemala, where poverty is severe, widespread, increasing, and ethnic, is the toughest challenge to poverty reduction in Meso-America.

Implications for agricultural research? Repeatedly, multiple factors are shown to cause poverty. This being the case, agricultural research cannot successfully attack poverty alone, but in union with organizations that can support and manage other poverty determinants. Integrating a comprehensive rural poverty reduction campaign, however, will require, first, better data with standard contents, uniform indicators, and statistical confidence and, second, more in depth study of specific agricultural determinants, production systems, and the relationships between socioeconomic variables, on the one hand, and abiotic and biotic variables on the other. The insufficient study of poverty's rural and agricultural determinants has shackled understandings of the causes and remedies of poverty.

The successful design of poverty reduction programs will require that the better data and more thorough analyses be applied to examinations of the occupations of the poor. To be analyzed is the poverty incidence by rural occupational class, and the requirements of exiting poverty within a class, or of exiting poverty from one class to move on to another with higher incomes. The implication is that agricultural research can do much more than merely improve the enterprise returns for poor producers engaged exclusively in farming. For example, in the case of poor farmers also working in higher paying rural non-farm wage jobs, agricultural research might devise means by which on-farm labor time could be conserved so more time might be available to spend in higher paying rural non-farm positions.

I. Introduction

This paper is divided into four sections. The one which follows briefly describes trends in poverty and inequality at the global and regional (Latin America and the Caribbean, LAC) levels and explores some possible reasons for the slow rates of reduction in poverty around the world. Section III then characterizes poverty and its chief determinants in Meso-America, treating each country in the region as a case study. Finally, Section IV draws out from the preceding sections the major implications of the analysis of poverty for agricultural research.

II. An overview of poverty

Poor people anywhere in this world live without fundamental freedoms of action and choice. They suffer material deprivation that keeps them from a life that everyone values. They face vulnerability to ill health, disasters, and violence. They are exposed to ill treatment by institutions of society, and are powerless to change this treatment and influence key institutional decisions.

The prime determinants of poverty in all these dimensions include the assets belonging to the poor, their returns, and the variability of those assets and returns. The assets are generally categorized into human, physical, natural, financial, and social assets. This has been explained in the following terms:

“[the poor are poor]. . .because they have few assets. . .and also because the productivity of their assets is low. The assets are meager not only in quantity but also in quality (e.g., low levels of schooling are usually combined with poor quality of schooling). The low productivity of assets results from a combination of government failures and imperfect or incomplete markets” [López and Valdés, 2000].

Asset amounts, returns, and variability can be expected to capture the principal effects of economy-wide policies and performance on poverty. However, two additional determinants should be added: “geography” (because, in part, economic growth leads to increasing concentrations of the best industries and labor resources) and “social spending” through in kind and cash transfers (although the data used to study poverty, particularly household survey data, do not always account for this spending).

Poverty and its determinants can be influenced favorably by action taken in three areas (and all should be present in any poverty reduction program because of strong complementarities among them) [World Bank, 2001a]:

- promoting opportunity (the core policies are viewed as growing the economy through private investment and technological innovation that raise competitiveness and new market opportunities; expanding into international markets in carefully designed ways so necessary adjustments can be anticipated; building the assets of poor people by focusing more public resources on the poor; addressing asset inequalities by gender and ethnic, racial, and social divides; and getting infrastructure and knowledge to poor rural and urban areas);
- facilitating empowerment (laying the political and legal basis for inclusive development by state institutions; creating public administrations that foster growth and equity; promoting inclusive decentralization and community development; reducing gender inequity; tackling social barriers; and supporting poor people’s social capital); and
- enhancing security (against uncontrollable events like illness, violence, economic shocks, bad weather, and natural disasters).

A. Poverty and inequality trends

The data on poverty are fraught with problems

Before presenting data on poverty, the reader should be warned that the information suffers problems, which have not been addressed or corrected in this paper. Instead, once the data source itself was selected, the data have been reported as found. It is common practice to adjust welfare indicators for underreporting in survey information; and errors can be easily incurred in making such adjustments. Definitions of rural or urban areas vary widely. This affects not only the size of the urban and rural populations, but also the intensity of the poverty problem by area. Too, the household survey data, which are widely used here, have country coverages that are frequently incomplete—in particular, part of the rural sector is sometimes simply left out. Furthermore, there are weaknesses in many surveys as a result of not capturing fully incomes from non-wage labor sources. Survey methodologies invariably

change over time, and sometimes these changes are not well documented, making risky the comparisons of the incidences of poverty in different years. Finally, up-to-date population expansions may be missing by which to project data from surveys to the country².

Poverty appears to be persistent around the world³

The world's extremely poor population, earning less than US\$1 a day, fell from 28 to 24 percent between 1987 and 1998. Hence, about one quarter of the world is extremely poor; and almost half is poor, living on less than US\$2 per day. Three out of four poor persons live in rural areas. At this low rate of decline of poverty in the 1987-98 period, extreme poverty is unlikely to be reduced by half by 2015—the international development goal accepted at the Year 2000 G-8 Okinawa Summit. The number of extremely poor in all developing regions increased 12.0 percent, if China is excluded (1.3 percent with China). LAC's extremely poor increased 23 percent, putting its rate of increase of the extremely poor in second place among all developing regions, just behind Sub-Saharan Africa (up 34 percent, 1987-98).

If the extreme poverty line is adjusted from \$1 a day to equal one third of the average consumption level in 1993 for each country (called the “relative extreme poverty line”), LAC's incidence of poverty is higher than that for any other world region, namely, 51.4 percent in 1998, reflecting the region's higher consumption levels and great income inequality. The comparable figure for all developing regions is 32 percent, and for the same regions, excluding China, 37 percent. Allowing for different levels of consumption in a country recognizes that a poor person needs higher consumption when living in a rich country in order to participate as fully in that society as in a poorer one.

Global causes for global trends

Why was there not more progress against poverty?⁴ What went wrong? Rising inequality was part of the reason. The world distribution of consumption in 1985 was such that it did not take much of an increase in overall inequality to wipe out the benefits to the world's poor of modest growth in consumption per capita [Ravallion, 1997]. But the growth divergence by country seen in the 1980s and 1990s—whereby growth rates tended to be lower in poorer countries—appears to be a far more important reason for the low rate of aggregate poverty reduction. The table below illustrates this growth divergence.

² Much of the data presented in this paper for Meso-America, for example, conflict with a respected source, namely, ECLAC, 2000. The latter source has not been favored, however, because of frequent inconsistencies with other, related economic events.

³ This section was drawn principally from World Bank, 2001a.

⁴ This question was asked by two World Bank researchers recently [Chen and Ravallion, 2000], and the responses provided in this paper follow their responses.

Table 1—Selected countries: Illustrating the “growth divergence”, 1980-96

Years	Coefficient of Variation, GDP per capita, 61 countries
1980	0.757
1985	0.787
1990	0.898
1995	0.829
1996	0.829
1980s	0.779
1990s	0.821

Kanbur and Lustig, 1999

Growth concentrated in sectors from which the poor derive most income can be associated with declining income inequality. Further, if income inequality is initially high, a particular annual rate of growth may lead to less poverty reduction than when initial inequality is low. There is also the possibility that more equal income distributions can themselves accelerate economy-wide growth. Hence, a double win can result from improving income distribution: faster growth and poverty reduction.

Two reasons for a “rural-first” poverty reduction strategy

Further study is required, but the preceding propositions lead to a rural-first strategy for poverty reduction because that is where most of the poor are and poverty reduction there should improve income inequality, which will hasten economy-wide income growth.

Another important reason for a rural-first poverty reduction strategy, particularly in the case of Latin America and the Caribbean (LAC), is the finding that almost two thirds of the change in LAC in the number of rural poor relative to the number of urban poor has been due to migration [de Janvry and Sadoulet, 2001]. It goes without saying that many of the poor who left rural areas have contributed to increasing poverty in urban areas. Hence, assigning first priority to rural poverty provides another kind of double win: poverty reduction in rural areas and less poverty created in urban areas.

LAC poverty is importantly rural and agriculturally based⁵

In Latin America and the Caribbean, 41 percent of the poor are in rural areas. Furthermore, poverty is twice higher in rural than urban areas and extreme poverty is thrice higher. In 1998, the region was at its 1986 poverty incidence levels, with more extremely poor rural than urban dwellers. Inequality, a cause of this poverty, is still high. Multivariate regression analyses of household survey data from 17 LAC countries led to the conclusion that families with more children, younger heads, and female heads are more prone to poverty. Too, lower attained education levels, employment in agriculture, working in small firms, and being a non-migrant and an indigenous person were all found to increase the chances of being poor.

⁵ Unless otherwise noted, this section draws principally on Wodon, et.al, 2000.

Rural non-farm (RNF) activities account for 40 percent of total rural income in LAC. They absorb most of the women in the rural wage-labor force (between 60 and 90 percent). Wage employment in the service sector is the major RNF income source, and RNF income has been found to be one to five times more than farm wage employment income [Reardon, Berdegue, and Escobar, 2001].

B. Have market reforms made the poor poorer?

Reforms of domestic and international markets represent one of the most pervasive policy events of recent years, especially in LAC. Have they produced growth? Have they delivered benefits to the poor? Or is it possible that these pervasive policy events help explain the slow progress against poverty reduction in the 1987-98 period?

Case studies were conducted to address the first of these questions [World Bank, 2001a]. In LAC, it was concluded that in all cases (Argentina, Brazil, Costa Rica, Mexico, and Peru) additional per capita income growth resulted from market reforms—on average, around two percent annually in the 1990s.

Were benefits delivered to the poor? It was concluded that all income groups benefited about equally from market reforms, although some groups do end up paying the costs, for example, groups in commodity sectors which lose their protection against imports [World Bank, 2001a].

In short, market reforms were growth-promoting, poverty-reducing, and income inequality-neutral. The disappointing progress against poverty has not been due to market-related reforms.

C. Has natural resources degradation reinforced poverty?

Poverty, but especially rural poverty, has been presumed to be worse in marginal, unfavored environments. But the evidence does not support this, beginning with a much-referenced study that found only 47 percent of the world's poor in marginal rural zones [Leonard, et. al., 1989]. Since then numerous studies in LAC have arrived at a similar conclusion [M. Renkow, 2000; S. Scheer, 2000].

This reflects the diversity of income-generating paths taken by the rural poor and the differing weights assigned each path in different regions. In addition, there is evidence that people change their methods of managing plants and animals and make improvements in their natural resource management practices in response to declines in productivity that result from more intensive land use—by adopting, for example, “dual-purpose technologies” (technologies which increase agricultural productivity and resource conservation simultaneously). The big question is what conditions induce this response and how might it be reinforced by public policy? Interesting suggestions include compensating the poor for conserving natural resources, developing and promoting more dual-purpose technologies that are appropriate for the poor, and promoting low-risk perennial production in poor, marginal areas [S. Scheer, 2000].

D. Does rural non-farm (RNF) employment reduce poverty?

RNF income is significant, accounting for 40 percent of all rural incomes in LAC. Comparable percentages for Africa are 45 and for Asia, 35, implying that the LAC RNF income share is rather similar to those two other developing regions. The global evidence suggests that the share RNF income represents of all rural incomes does not vary systematically with per capita GDP levels.

Wage employment in the service sector is the major source of RNF income, especially so in rural areas nearby tourist services and rural roads; and RNF incomes are highest for people who are better educated with access to infrastructure (roads, electricity, and water hookups) [Reardon, Berdegúe, and Escobar, 2001].

Table 2—LAC: Rural non-farm income by country as a percent of all rural income

Country	Survey year	RNF income as percent of all rural income
Brazil	1997	39
Chile	1997	41
Colombia	1997	50
Costa Rica	1989	59
Ecuador	1995	41
El Salvador	1995	38
Haiti	1996	68
Honduras	1997	22
Mexico	1997	55
Nicaragua	1998	42
Panama	1997	50
Peru	1997	50

Source: Reardon, Berdegúe, and Escobar, 2001.

In half of the countries reviewed, farm employment was decreasing while RNF employment growth was positive in every country. Furthermore, RNF income was one to five times greater than farm wage employment income in all countries, except where the commercial farm is prevalent, or where the poor predominate, especially the landless poor. This led one study to view farm wage labor as a refuge for landless people who cannot qualify for RNF employment, or for whom opportunities do not exist.

For this paper, the critical question is, “Does RNF employment reduce poverty?” Although leaning towards a positive reply to this question, the recent review of the evidence in LAC was somewhat ambivalent on this point, and the evidence itself covered only three countries:

“. . .the studies . . .tended to find that more non-farm employment, all else equal, reduces the incidence of poverty. . .but tends to increase interhousehold income inequality. The latter especially holds if the employment in question is the high entry

barrier, high payoff . . . high productivity [type]. The catch is that the latter are also the main types of RNF employment that move households out of poverty, that are not merely survival options and holding patterns to keep households from sinking further into despair” [Reardon, Berdegúe, and Escobar, 2001].

Further study of this matter is required.

III. Characterizing poverty and its determinants in Meso-America⁶

In the past 50 years, Central America’s population has more than tripled to 35 million people. The current natural growth rate is 2.6 percent per year; with net outmigration, the actual population growth rate comes to around 2.5 percent, being somewhat higher in Belize, Honduras and Nicaragua and lowest in Panama and El Salvador. One in five persons is indigenous and almost one in three is Guatemalan. Over half (51.8 percent in 1998) lives in rural areas. Nicaragua has the smallest share of rural dwellers (41.2 percent), while Guatemala has the largest (61.0 percent). Population density works out to 65 inhabitants per square kilometer, with significant variation among countries. El Salvador (the smallest country of the seven) has 288 inhabitants per square kilometer while Nicaragua and Panama have only about 35 and Belize has but 10.

Life expectancy has jumped from 45 years in 1950-55 to 69 years in 1995-2000, with a greater gain in life expectancy having been made for women than for men. Infant mortality fell dramatically in the same period, from 143 per 1,000 live birth to 37. More than 80 percent of children under one year of age are vaccinated; and polio and diphtheria have been eliminated from the region.

Looking at the past 50 years, Central American GNP per capita growth accelerated in the 1960s and actually fell in the 1980s; in all other decades (the 1950s, 1970s, and the 1990s), it evidenced the same reasonably modest rate, namely, 1.7 percent per year. In 1920, the two largest economies were El Salvador and Guatemala, representing almost 60 percent of regional GNP. By the 1990s, the two largest economies were Costa Rica and Guatemala, representing over 60 percent of regional GNP. Nicaragua is now the second poorest country (after Haiti) in the Western Hemisphere

About 60 percent of all Central Americans are poor and 40 percent are extremely poor. These poverty incidences exceed those for the world and are roughly two times the all-LAC incidences of poverty, particularly those for extreme poverty. This reflects two-digit unemployment rates in some countries (10 percent unemployment overall), underemployment (40 percent of all jobs are created in the informal sector), and generally low wages (20 percent of the salaried urban population is paid less than the minimum wage). It may also reflect the effects of the fact that over one quarter of Central America is at risk of flooding and one third is at risk of drought [CIAT, 2000a].

⁶ The introductory section which follows draws mainly on Government of Costa Rica, 1999b.

Table 3—Meso-América and LAC: The indices* and tendencies of poverty and extreme poverty (EP) by country and rural and urban areas

Country or Region	Poverty Index	EP Index	Poverty Change, 1990s	Urban Poor Index	Rural Poor Index	Urban EPs Index	Rural EPs Index	Rural Poor/All poor
Costa Rica (1999)**	28	13	↓	20	29	11	15	58
El Salvador (1994)	66	27	↓	56	77	20	35	62
Guatemala (1989)	75	58	↑	47	86	20	72	85
Honduras (1999)	66	49	↓	57	75	37	61	55
Mexico (1996)	62	30	↑	53	85	18	61	33
Nicaragua (1998)	48	17	↓	31	69	7	29	??
Panamá (1997)	37	19	↓	15	65	3	39	52
LAC (1998)	36	18	↑ (1986-98)	27	54	11	31	41

* The indices shown above are “Headcount Indices”, or the percent the (type of poor) represents of the total reference population. ** Numbers in parentheses are the reference years.

The main conclusions concerning poverty to be drawn from the above table are that:

- the incidence of poverty tends to decline on passing from the north to the south of the region;
- the poverty incidence improved in the 1990s, except in the two most northern countries;
- rural poverty is everywhere more intense than urban poverty;
- the rural sector is the principal source of poverty, except in Mexico; and
- in view of the preceding two observations, rural poverty should be assigned first priority in any campaign to reduce poverty.

Human development and per capita income indices for the region place it close to the Republic of China in world terms. But differences in the Human Development Index (HDI)⁷ are striking: for Costa Rica, the HDI equals that of Portugal, but Nicaragua’s HDI is like that of Iraq [Government of Costa Rica, 1999b].

⁷ The Human Development Index is a simple average of three indices, life expectancy, educational attainment, and GDP per capita.

A. Costa Rica

This wealthy country has low poverty rates; half of the extremely poor are occupied in agriculture.

There are fewer studies of poverty in Costa Rica than for other countries of Meso-America. The sampling methodology of household surveys changed in 1999, making for data that are better, but less comparable through time.

The country's poverty levels are generally lower than those of any other country in the region. In 1999, 20.6 percent of all families (23.7 percent of all individuals) were classified as poor and 6.7 percent (7.5 percent of all individuals) were classified as extremely poor. Almost half of all poor households, as well as about two fifths of extremely poor households, were found in the Central Region, including San José. Nonetheless, almost half of the extremely poor is occupied in agriculture. The poor and extremely poor find almost as much employment in the informal sector. The figures for poverty and extreme poverty are believed to represent some decrease in poverty through time, owing to Costa Rica's healthy growth of GDP. During the 1990-99 period, GDP increased 31.5 percent [Government of Costa Rica, 1999a].

Poor households have more members (4.7 on average); and there are both more children and more old persons per person in the household who is of working age (15 to 64 years old). Poor households have fewer employed persons, more open unemployment, and fewer numbers of hours worked per week. They also evidence lower levels of education, with the extremely poor showing lowest levels of schooling [Government of Costa Rica, 1999a].

B. El Salvador⁸

The latest estimate of the incidence of poverty puts El Salvador well above the LAC regional average, but with relatively less extreme poverty. Landing in the most productive rural occupations requires human capital (education), natural capital (cultivable land), and physical capital (electricity).

There is considerable debate surrounding poverty in El Salvador—how widespread it is, where it is concentrated, and the chief characteristics of the poor—prompted partly by old data and other data shortcomings.

“. . .there is no clear consensus as to the magnitude and dimensions of the poverty problem in El Salvador” [Lanjouw, 2001].

The data of Table 4, based on a 1994 household survey, shows that rural poverty was higher than urban poverty, although the poverty incidence ratios (rural/urban) are not as dramatically high as for other countries of Meso-America. The rural-urban distinction practically disappears, when Metropolitan San Salvador is removed, probably because the country's definition of urban areas biases them to encompass more poverty by taking all municipal centers to be “urban”. It is believed that the incidence of poverty in urban areas dropped substantially during the 1990s (by 26 percent), while rural poverty dropped only slightly (by seven percent) [BID, 2000].

⁸ This section draws heavily on Lanjouw, 2001

In 1994, 36 percent of the economically active rural population was in the non-farm rural sector, with the largest share working in the commerce and service sub-sectors (mainly females), while farming occupied 44 percent of the rural population (predominantly males) and agricultural labor accounted for another 20 percent (chiefly males). The rural population accounted for half the population of El Salvador—about the same as is found for Costa Rica and Honduras.

Poverty levels seem to decline as the occupation of at least one household member moves from agricultural toward rural non-farm activities (Table 5). The combination of agricultural labor and non-farm labor yields the average extreme rural poverty incidence for the country. That incidence rises for farming and, then, still more for agricultural labor employment. The best off segment of the extremely poor rural population earns non-farm income from non-wage sources. Almost 80 percent of all RNF enterprises involve commerce, brick and pottery production, food processing, and wood and textile production—all of which are potentially linked to the agricultural sector.

Table 4—El Salvador: The incidence of poverty, 1994

Area	Incidence of Poverty	Incidence of Extreme Poverty
El Salvador	0.66	0.27
Urban	0.56	0.20
Rural	0.77	0.35
West	0.72	0.33
Urban	0.68	0.28
Rural	0.75	0.38
Central 1	0.75	0.32
Urban	0.74	0.31
Rural	0.76	0.33
Central 2	0.76	0.34
Urban	0.70	0.36
Rural	0.79	0.32
East	0.74	0.35
Urban	0.67	0.30
Rural	0.79	0.38
San Salvador	0.40	0.08

Source: Lanjouw, 2001

Women fare somewhat better in the rural work force than men. This is explained by the fact that 72 percent of economically active rural women work outside agriculture [BID, 2000]. In 11 Latin American countries, similar data can be found: between 65 percent and 93 percent of employed rural women engage in non-farm jobs [Reardon, Berdegue, and Escobar, 2001].

Multivariate probit regression analyses of the economically active rural population, grouped into high-productivity rural jobs and low-productivity rural jobs, showed that education was key to gaining high-productivity jobs, as was cultivating land and having an

electricity connection. Estimated coefficients for other variables were not statistically significant in high-productivity jobs. Furthermore, being female, being younger, not cultivating, and being further from a school increased the probability of landing in a low-productivity rural job.

Table 5—El Salvador: Rural household activities and extreme poverty, 1994

Household occupational characteristics	Percent of population	Incidence of extreme poverty
Agricultural labor and farming	5.0	54.7
Agricultural labor only	9.6	48.7
Agricultural labor, farming, and non-farm employment	2.7	43.9
Farming only	26.1	41.5
Farming and non-farm employment	19.9	35.9
Agricultural labor and non-farm employment	9.1	35.2
Non-farm employment only	26.0	20.3
Non-farm income from non-wage sources	1.6	16.3

Source: Lanjouw, 2001. For a household to be categorized as “farming only”, at least one household member must be engaged in farming as a principal occupation. Similarly, if categorized as “agricultural labor and farming”, at least one household member must be engaged principally in farming and one principally in farm labor. . The data did not identify second and third occupations of the same individual. The poverty incidence was based on per capita household poverty, where poverty was measured with reference to consumption, not income.

In short, urban poverty in El Salvador is modest in Meso-American terms, rural/urban poverty is less intense, and rural non-farm activities appear to be poverty reducing. Most extreme rural poverty is associated with being an agricultural laborer; farmers are somewhat better off. The highest-productivity rural jobs require human capital (education), natural capital (agricultural land under cultivation), and physical capital (electricity).

C. Guatemala

Guatemala is more rural than other Meso-American countries, poverty is severe and widespread—and appears to have been increasing—and indigenous people make up much more of the population (40 percent) than elsewhere.

The currently available poverty data for Guatemala are dated, being derived from a National Demographic Household Survey applied to over 9,000 households in April-July 1989. A new data set should be available from the World Bank later this year in a poverty assessment, now under preparation. Another and similar set of data was generated in 1986-87.

In 1991, the 1989 and the 1986-87 data sets were studied, along with a third data set from 1980 [Melenderas and Cabrera, 1991]. It was found that poverty was increasing in

Guatemala—headcount indices of 63.4, 83.4, and 89.0 for 1980, 1986-87, and 1989, respectively. Studies of households by the Economic Commission for Latin America and the Caribbean, ECLAC, using the 1980 and 1986-87 data, likewise pointed to increasing poverty, although ECLAC’s values of the headcount indices were rather different.

A poverty assessment for Guatemala [World Bank, 1995] presented the data of the table below, also based on the National Demographic Household Survey of 1989. It concluded that:

“Even when varying methodologies are used, . . .the conclusion remains the same: . . .poverty in Guatemala is widespread and severe.”

Table 6—Guatemala: Headcount poverty indices by area, 1989

Region	Percent of total population	Percent of all poor	Poor headcount index	Extremely poor headcount index
Guatemala City and other urban areas	21.3	15.4	47.1	20.3
Rural areas	78.7	84.6	85.7	71.9
All Guatemala	100.0	100.0	75.2	57.9

Source: World Bank, 1995

There was little in the country’s economic performance from the early 1980s to the middle part of the decade just past to lead to anything but an expectation of increasing poverty. Oil price hikes and coffee price declines issued in a period of economic deterioration in 1980 that lasted to 1986, after which recovery was on average slow. Real GDP per capita declined by about 15 percent in the 1980-85 period. The Cerezo Administration (1986-91) succeeded in stabilizing the economy and reforming exchange rates and trade policies, but did not succeed in making needed fiscal adjustments, which became a reoccurring problem. Revenues did not keep pace with government expenditures over a long period of time. By the early 1990s, this problem had produced cumulative cuts in real expenditures on health of 80 percent below 1980 levels and cuts in education of one third. Investments by government in agriculture were down 70 percent over the same period of time.

Then, in May 1993 the President suspended articles of the Constitution and dissolved the Congress and the Supreme Court—unpopular measures leading to his ouster and a worsening macroeconomic crisis.

In the early 1980s, agricultural exports and overall economic performance could have been improved by devaluation. Finally, when that occurred in 1984-85, supply increased and the demand for the labor of the (rural and urban) poor expanded. An important response was seen in non-traditional agricultural exports, which rose 16 percent in the 1986-89 period. Smallholder agriculture was reasonably quick to diversify into non-traditional agricultural exports, chiefly fruits and vegetables. However, the Bank of Guatemala failed to curtail inflationary pressures partially induced by the devaluation; and, in 1990, inflation jumped 60 percent. This led to a round of real wage reductions, which affected most adversely the poor.

A salient feature of Guatemala's population today, and back at the time of the Bank's poverty assessment, was that almost 40 percent of the people were indigenous, one of the highest concentrations in LAC. Eighty percent of the indigenous population was rural, and over 90 percent in poverty, while only 66 percent of the non-indigenous population was poor.

As found elsewhere, almost 80 percent of household heads without schooling were poor, while only about half of household heads with primary schooling was poor (see table below).

Table 7—Guatemala: Headcount poverty indices by schooling level, 1989

The schooling level of household head	Extremely poor households	Poor households	Non-poor households
No schooling	61.5	78.8	21.2
Primary schooling	24.3	48.1	51.9
Secondary schooling	7.0	16.1	83.9
Higher	5.7	8.6	91.4

Source: World Bank, 1995

While females headed one sixth of all households, female headed households had lower incidences of poverty and extreme poverty than male headed households. Presumably, this is explained by the fact that female heads were also older, presided over smaller households, were twice as likely to be employed as professionals, managers, or office workers, and were less likely to be employed in agriculture.

About 60 percent of the poor received their primary incomes from agriculture. If 85 percent of the poor were in rural areas, there is the implication that a small share was in non-farm rural employment, i.e., that such employment was a somewhat less significant source of employment than in other countries in the region. Interestingly, the non-poor and the poor received most income from working in agriculture and commerce. But a third major source of income for the non-poor was social services, while for the poor that third source was manufacturing.

A multivariate regression was estimated for almost 9,000 households in which the dependent variable assumed values of "1" for the poor and "0" otherwise, with poverty being a function of household per capita income [World Bank, 19995]. The statistically most significant coefficients were estimated for family size (larger families resulted in a higher probability of poverty) and indigenous populations (for which the probability of being poor was higher), while it was found that the probability of being in a poor household was lower for more years of schooling completed and larger houses (more rooms). Also higher, but statistically less significant, probabilities of poverty were found for household heads in the middle years (21 to 45 years old), for households in the Northwestern Region, and for rural inhabitants, after taking account of all other regional and locational differences.

The 1989 Gini Index of income inequality for all households was estimated to equal 0.60; for rural households and urban households the comparable estimates were 0.54 and 0.53, respectively, indicating similar levels of inequality in rural and urban areas.

D. Honduras

Natural resources are at major risk: most farming is done on hillsides; and firewood consumption, the source for 65 percent of all energy, is causing rapid deforestation.

The most determinant causes of the country's poverty are thought to be insufficient GDP growth, low investment, reduced labor productivity, and high population growth rates [Government of the Republic of Honduras, 2000]. The current population growth rate is 2.8 percent per year, giving Honduras one of the highest rates in LAC. In addition, there is some evidence that growth has less effect on poverty in Honduras than in other countries in the region, suggesting that it has not been sufficiently broad-based [World Bank, 2000b].

Nonetheless, the incidence of extreme poverty appears to have diminished, if 1991 is compared with 1999. However, comparing 1992 with 1999 suggests that little change has occurred. By averaging these different end points it can be said that poverty diminished, falling from a 1991/92 average of 72 percent to a 1998/99 average of 65 percent. This is seen as well in the HDI reported in the UNDP's Human Development: Honduras 1998. Life expectancy increased in the 1990s, educational achievement rose, chiefly at the primary level, and preventive health care improved, as evidenced by a drop in the incidence of infectious diseases and other diseases that can be prevented by vaccination. Polio was eradicated. The percent of the population with no unmet basic needs rose dramatically from 33 to 53 percent of the population between 1990 and 1997 [World Bank, 2000b].

Table 8—Honduras: Poverty incidence measures, percent of total population, selected year, 1991-99

Year	Extremely poor	Poor	Below poverty line	Non-poor
1991	54.2	20.6	74.8	25.2
1992	47.4	22.5	69.9	30.1
1998	45.6	17.5	63.1	36.9
1999	48.6	17.3	65.9	34.1

Table 9—Honduras: Poverty incidence measures, by area, percent, selected years, 1991-99

Year	Rural Extremely Poor	Rural below poverty line	Urban Extremely Poor	Urban below poverty line
1991	59.9	79.6	46.7	68.4
1992	53.9	76.5	39.2	61.6
1998	55.4	69.2	35.7	57.0
1999	60.9	74.6	36.5	57.3

Source: World Bank, 2000b for both Tables 8 and 9

Clearly, poverty is a rural phenomenon in Honduras, as seen in the above table. It is more intense there and extreme poverty may have worsened. Furthermore, three quarters of the population that is poor is concentrated in just four departments, Choluteca, Valle, Intibucá, and Lempira, in the western and southern reaches of the country. Income inequality is high in LAC terms and appears to be rising--chiefly because of a rise in rural income equality (Table 10).

Table 10—Honduras: Income-based Gini Indices by area, selected years, 1992-99

Date	National	Urban	Rural
1992	0.551	0.537	0.488
1995	0.575	0.539	0.568
1996	0.583	0.542	0.544
1998	0.590	0.532	0.588
1999	0.578	0.521	0.552

Source: World Bank, 2000b.

The determinants of poverty have been identified, using multivariate regressions on a sample household survey [Government of Honduras, 2000; World Bank, 2000b]. It was concluded that poverty increases for:

- the above mentioned four departments, in the “poverty corridor”;
- increasing numbers of children in households, especially where there are more under five years of age;
- female headed households (by 15 to 30 percent);
- lower levels of schooling for the household head;
- the unemployed, underemployed, and self-employed;
- no migration experiences by the household head; and
- household heads in the agricultural and livestock sectors.

There was also evidence in the results that younger household heads were more likely to be poor. Furthermore, as is the case elsewhere, the poverty reduction gains of education seem to rise with the years of schooling attained. Two income earners are required in order to pull a household out of poverty, except in the case where the household head has attained the highest level of schooling. Finally, working in smaller firms increased the probability of being poor.

There has been rapid growth in women’s labor force participation (from 30 to 39 percent in the 1990s), unemployment is low (about four percent), and estimates of underemployment are not high (around seven percent). Wages are termed “low”, but grew 12 percent in real terms during the 1990s. Schooling achievements are lower than most of Honduras’ neighboring countries, except El Salvador. Not only do the returns to schooling rise at an increasing rate with the number of schooling years completed, but an extra year of primary schooling raises wages 10 percent, for example, while an extra year of secondary schooling raises them by 15 percent.

Wage labor accounts for 36 percent of all rural labor, compared with 59 percent in urban areas. Urban wages are 50 percent higher than comparable rural wages, and average school attendance in urban areas is seven years, but barely 3.8 years in rural areas. Thus, self-

employed workers and unpaid family workers account for a larger share of the rural labor force. Among 330,000 agricultural producers, 62 percent are poor small farmers or farm laborers. Almost 20 percent in these latter categories are temporary farmers (*precaristas*) and 42 percent are small farmers who have settled on plots as sharecroppers, lessees, authorized colonists, or as mere occupants.

Rural non-farm employment constitutes a major share of the rural labor force⁹. The landless and residents of small rural towns participate most intensively. Poor families gravitate toward farm wage employment, while higher income households engage in non-farm wage and non-farm self-employment. The better educated persons tend toward non-farm wage employment [Ruben and Van den Berg, 2001].

An OAS study found that 32 percent of the national territory is subject to overexploitation, with 73 percent of annual food crops, 62 percent of perennial crops, and 40 percent of livestock farming being conducted on hillsides, on which 56 percent of the population lives. A major cause of deforestation is firewood consumption: 65 percent of the energy generated in the country comes from firewood [World Bank, 2000].

A government-financed study found that water resources bear the brunt of the country's environmental problems. They are affected by hydrofecal pollution that is caused by the lack of sanitation infrastructure, and by sediment coming from degradation of the higher river basins, not to mention increasing chemical contamination by waste waters discharged by industrial plants and solid waste dumped on the side of the rivers running through major cities. This is compounded by solid waste dumping where much of the population is concentrated. The country lacks sanitary land fills and good waste management practices.

Hurricane Mitch had predictable effects: it was estimated that damages amounted to US\$3.8 billion, equivalent to 70 percent of GDP, and replacement costs could equal GDP for one year (US\$5.0 billion); poverty increased, and the increase occurred chiefly in rural areas where the majority of the poor are located; and children's participation in the labor market rose sharply, though this figure for Honduras has been historically higher than in other LAC countries [BID, 1999].

As reconstruction is completed, the World Bank believes that more emphasis should be placed on sound macroeconomic policies, increasing competitiveness (Honduras is believed to be less competitive than Costa Rica, El Salvador, Guatemala, and Nicaragua), and improved governance and state reform [World Bank, 2000b].

E. Mexico

Because rural poverty is so intense, the Mexican government decided in 1998 to designate three quarters of its budget for social development to the rural sector.

In the tables that follow, extreme poverty includes nationally almost 30 percent of the Mexican population (these people cannot afford basic food needs), and more moderate

⁹ The figure provided was 68 percent of the rural labor force [Ruben and Van den Berg, 2001]. But it is difficult to accept alongside the share that RNF income represents of all rural income, reported to be 22 percent [Reardon, Berdegue, and Escobar, 2001]. Were this author to have to choose among these figures, I would tend to believe that RNF income is underestimated.

poverty runs at twice that level (these people cannot afford some non-food needs). Both national poverty measures trended down in the 1984-94 period. But then an economic crisis shook the country in 1995, producing an upward trend in both types of poverty. Poverty is much higher in rural than urban Mexico, but over three times higher in rural areas in the case of extreme poverty in 1996—a situation equaled only by Nicaragua in Meso-America. Rural poverty of both types has been increasing since 1989—or well before the crisis of 1995—while urban poverty turned up in response to the crisis. However, the ratios of rural to urban extreme poverty and moderate poverty have been rising steadily since 1984, disregarding the extreme values taken by both ratios in 1994. This higher poverty intensity in rural Mexico has justified an explicit pro-rural bias in poverty reduction programs.

Table 11—Mexico: Extreme poverty incidence by area, percent, selected years, 1984-96

Year	Extreme Urban Poverty	Extreme Rural Poverty	National Extreme Poverty
1984	21.4	48.0	31.2
1989	18.1	41.8	27.0
1992	16.8	44.7	24.4
1994	10.9	49.8	21.5
1996	18.2	60.5	29.7

Source: World Bank, 1999

Table 12—Mexico: Poverty incidence by area, percent, selected years, 1984-96

Year	Urban Poverty	Rural Poverty	National Poverty
1984	54.0	74.7	61.5
1989	50.7	69.3	57.8
1992	49.1	73.3	55.7
1994	40.6	78.8	51.0
1996	53.3	84.8	61.9

Source: World Bank, 1999.

Income inequality is high in Mexico (Table 13). Furthermore, national inequality was worsening to 1994, but then improved. Urban inequality essentially shadowed this national trend (75 percent of the population is urban) while rural inequality declined after 1984, but increased after 1994. The resulting rise in urban and rural inequality dampened the positive effects of growth on poverty reduction. This was especially the case in rural areas where practically no growth was recorded between 1984 and 1996. Hence, rising inequality largely accounted for the recent rise in rural poverty.

Whatever may be said of income and consumption measures of poverty since the 1980s, non-monetary measures of well-being have improved: education, health, housing, and nutrition.

Table 13—Mexico: Income inequality, Gini Indices, selected years, 1984-96

Year	National	Urban	Rural
1984	0.456	0.444	0.448
1989	0.499	0.505	0.444
1882	0.506	0.501	0.439
1994	0.523	0.508	0.419
1996	0.510	0.493	0.452

Source: World Bank, 1999

To identify income/poverty determinants, the following sets of variables were regressed on the log of per capita nominal income for 1989, 1992, 1994, and 1996, divided by the relevant poverty line: geographic location; demographic variables; schooling levels of the household head and spouse; and occupation variables for the household head (sector of employment and position occupied) [World Bank, 1999]. Household surveys for the 1989-96 period were the data source. Separate regressions were estimated for rural and urban households.

Income in 1996 was found to rise with highest statistical significance in both urban and rural households (unless otherwise noted) with:

- smaller family size (fewer babies, children, and adults),
- older household heads,
- non-female household heads,
- higher schooling levels completed by household heads and spouses (though the gains are somewhat lower in rural areas),
- positions not as agricultural workers (being true for urban and rural households), and
- positions as business owners (being true for urban and rural households).

In addition, important income differences were associated with each state (geographic location), even after netting out the effects of demographic, schooling, and occupation variables. Yucatan, plus three other states closest to Guatemala in the South Region of the country (Chiapas, Guerrero, and Oaxaca), were associated with largest negative income effects among rural households, amounting to between 43 percent and 49 percent (Table 14). These particular geographic effects were also all highly significant statistically. However, because a variable for ethnicity was not included, these results may be capturing the effects of the large indigenous populations in these states.

Largest negative income effects for location among urban households were again associated with Chiapas and Yucatan. But Guerrero's was small and insignificant. Oaxaca's was significant and relatively large, namely, -20.0 percent. These results suggest that the exit path from rural poverty involves improving opportunities and productivity in agriculture and rural areas of all states, except Guerrero, where employment through migration and residence, or through part-time work, in urban areas appears to be a potential path out of rural poverty.

Mexico's spending for social development has increased 28 percent (1995-99) while the programmable budget increased only 15 percent. Its specific poverty reduction strategy involves broad based (not targeted for the poor) and targeted policy interventions. Those targeted for the poor deal with human capital (education, health, nutrition), employment

opportunities, and social infrastructure in poor areas (better services and physical capital). While in 1994 these expenditures were equally divided between rural and urban areas, rural areas are now to get 75 percent. Preventative and curative health is a focus of programs for the rural poor, as is Procampo (a cash transfer program to facilitate transition to a rural market economy, rated as effective in reducing rural poverty), Alianza (a matching grants scheme to boost investments by producers, which has not been as effective in reducing poverty, especially among ejidatarios), and Procede (a land titling program, created in 1992, which has earned some positive marks).

Table 14—Mexico: Largest negative state effects on household by area, 1996

State	Rural Households	Urban Households	Potential exit path from rural poverty
Yucatan	-49.4*	-33.4*	#1
Guerrero	-49.4*	0.3	#2
Chiapas	-47.0*	-32.2*	#1
Oaxaca	-42.8*	-20.0*	#1

* Statistically significant

#1 - Chiefly, improve agriculture and rural area opportunities, mixed with some urban employment

#2 - Principally, urban employment

F. Nicaragua

In Nicaragua's post-1993 recovery, agriculture was the "motor" as a result of the growth of traditional exports and basic grains, which was linked into other sectors of the economy. Income inequality improved.

Poverty in Nicaragua is distinctive for four reasons. First, its environment has been more unstable than is the case for any other country. Nicaragua has been shaken by formidable political upheavals and natural disasters every two or three years, on average, over the past three decades, as seen in the chronology below:

<u>Event</u>	<u>Year or Time Period</u>
Somoza Regime	1930-79
Managua Earthquake	1972
Sandinista Revolution	1979
U.S. Embargo	1983-90
Civil War	1983-90
Hurricane Joan	1988
Election of Pres. Chamorro	1990
Tidal Wave	1992
Volcanic Eruptions	1992, 1994
El Niño	1996-98
Hurricane Mitch	1998

Second, and simultaneously, the long-term trend of GDP and consumption per capita fell significantly for 15 years—they were more than halved in value between 1978 and 1993. Again, few countries have experienced such a negative trend. This was due to the civil war and revolution, the accompanying destruction of human and physical capital, the loss of fiscal and monetary discipline, the closure of the economy, the discouragement of private domestic and foreign investment, and a rise in the real exchange rate.

Regrettably, poverty estimates are unavailable before 1993, but they could not possibly have shown improvement in the 1978-93 period, given the two sets of events just mentioned, unless there was a dramatic increase in the commitment to social services targeted to the poor. But that, it appears, did happen: social services rose from 5.2 percent to 11.8 percent of GDP in the 1970/75–1994 period and held their own as a share of central government spending, while government spending was being diverted to defense, police, and debt service. The result: “. . . welfare as measured by social indicators actually improved. . . even as private consumption was falling”—including life expectancy, infant mortality, and primary school enrollments [World Bank, 2001]. This is a third distinctive feature of the evolution of poverty in Nicaragua.

Fourth, the post-1993 recovery of the country’s economy was led strikingly by agriculture. It was truly that “motor” of economic development and growth, referenced in the literature repeatedly. In the 1993-98 recovery period, agriculture grew at 10 percent annually on average, while all other sectors averaged growth of about 2.4 percent per year. Accounting for one quarter of GDP, agriculture thus contributed half of the growth of 4.3 per cent per year in Nicaragua’s total GDP. The most dynamic sources of agriculture’s growth were export crops (coffee, sugar, and bananas, yields for which rose significantly) and basic grains (beans, corn, and rice, with their combined harvested area rising 60 percent).

Most poor people were engaged as agricultural wage laborers—60 percent of the poor and 75 percent of the extremely poor in 1998—and wage employment incomes doubled between 1993 and 1998, largely as a result of the creation of 200,000 new jobs in agriculture. This coincided with the release of people from civil conflict and war, which permitted the rapid expansion in the land area harvested in basic grains, for the most part. (Real wages actually fell slightly, and agricultural self-employment shrank by almost a third.)

In Nicaragua, the most prosperous rural households have no land, earn no agricultural wages, are self-employed in the non-farm rural sector, and live in the Pacific Region. These households also all evidence highest levels of schooling attainment, best access to infrastructure (paved roads, electricity, and piped water), and best access to financial resources.

Table 15—Nicaragua: Poverty headcount indices by region, 1993 and 1998

Region	Extreme Poverty Headcount Index, 1993	Extreme Poverty Headcount Index, 1998	Poverty Headcount Index, 1993	Poverty Headcount Index, 1998
National:	19.3	17.3	50.3	47.9
Urban	7.3	7.6	31.9	30.5
Rural	36.3	28.9	76.1	68.5
Pacific:				
Urban	6.4	9.8	28.1	39.6
Rural	31.6	24.1	70.7	67.1
Central:				
Urban	13.3	12.2	49.2	39.4
Rural	47.6	32.7	84.7	74.0
Atlantic:				
Urban	7.9	17.0	35.5	44.4
Rural	30.3	41.4	83.6	79.3

World Bank, 2001, page 11

Most of the rural poor are in the Central Region. It also accounts for 95 percent of all coffee production, some tobacco, and much of Nicaragua's bean production. Because of the linkages of coffee and tobacco to other sectors, especially through cleaning, packing, and transportation, agriculture's growth in the Central Region not only reduced poverty, but contributed to the recovery of the non-agricultural sectors.

Non-farm income is very important for Nicaraguan rural households, accounting for 41 percent of their income—much more important than farm wage labor income. Three quarters of non-farm rural income is earned in service industries, and half of the service industry income is earned in commerce. Education, road access, and access to electricity and water appear to be important to higher level non-farm incomes [Corral and Reardon, 2001].

The poor are forced to be much more dependent than the rich on agriculture, and when they are able to diversify into non-farm activities, they are caught in low-return jobs.

Keeping the agricultural recovery going is judged to be the major challenge ahead for poverty reduction by Nicaragua. It is felt that this can be done by expanding further export-oriented agriculture, especially through commodity diversification; raising productivity levels of most commodities, which are low by Central American standards; and fostering non-farm rural activities.

G. Panama

Poverty and extreme poverty have fallen significantly since 1983, even though inequality is quite high—as high as it is in Brazil and South Africa.

In the Panamanian case, a poverty study was recently completed [World Bank, 2000c], based on 4,938 households and 21,410 individuals in the 1997 Living Standards Measurement

Survey (LSMS)¹⁰. Poverty was measured by consumption expenditures which are believed to be more reliable indicators because they exclude transitory economic effects [World Bank, 2000c].

Panama's GDP per capita was US\$3,080 in 1997—high in Meso-American terms. Yet, the table which follows shows that almost two fifths of the population is poor and one fifth is extremely poor—about equal to the LAC-wide averages and lower than found in most Meso-American countries, except Costa Rica. The incidence of poverty is highest in rural areas, still accounting for two fifths of the total population, and highest among the indigenous population. Fully 95 percent of indigenous peoples are poor and almost 90 percent are extremely poor. This population segment is growing fastest.

Table 16—Panama: Poverty headcount indices by area, 1997

Area	Percent of national population	Percent poor	Percent extremely poor
All Panama	100.0	37.3	18.8
Urban areas	55.6	15.3	3.1
All rural areas	44.4	64.9	38.5
Rural non-indigenous	36.9	58.7	28.7
Rural indigenous	7.6	95.4	86.4

Source: World Bank, 2000c

Eradicating poverty in the Panama case (bringing the incomes of the poor to the poverty line through direct transfers) would require spending on poverty only six percent of the total public spending on higher education in 1996. The only other country in Meso-America with similar prospects of eradicating poverty is, perhaps, Costa Rica.

Although there are big differences in household survey data sampling procedures and methodology over time, the World Bank concluded that since 1983 poverty and extreme poverty have fallen by roughly nine percentage points. Life expectancy has risen, infant mortality has fallen, and all educational indicators have improved over this same period of time.

Income inequality is high in Panama. The Gini Index based on consumption was 49 in 1997, but the more conventionally used income inequality Gini Index was 60. This puts income inequality in Panama on a par with Brazil and South Africa—two countries with most inequality in the world. The bottom quintile of the population consumed 3.5 percent of total consumption and received 1.5 percent of total income in 1997. The richest quintile accounts for 53 percent of all consumption expenditures and receives 63 percent of total income.

Poverty is chiefly associated with employment in the informal sector (blue collar day laborers, domestic employees, or self-employed workers), or the agricultural sector. Disparities in educational attainment also produce poverty. The non-poor on average have attained 9.3 years of schooling while the poor have attained only 5.2 years. The results of the

¹⁰ Panama had 650,726 households at the national level and 2.7 million individuals in the national population in 1997.

household survey attributed the inability of the poor to attend school to the direct costs of attending, even though it appears that the quality of schooling is also inferior. The poor and indigenous have less access to health care, and this is reinforced when the poor are in rural areas. The poor have less land and smaller parcels, lower quality housing, and less access to many basic services (piped water, sanitation services, garbage collection, telephone connection, and gas/electricity, although the degree of urbanization appears to be almost a more important determinant of the availability of gas/electricity). Credit markets work against the poor, but the poor are said to possess more social capital.

The preceding characterization of poverty was largely confirmed by multivariate regression analysis. Looking at aggregate poverty, it was found in a probit, multivariate regression that the probability of being poor increases significantly (statistically speaking) for the following determinants:

- agricultural employment,
- lower educational levels,
- smaller land holdings (even if titled),
- an absence of basic services (e.g., water),
- limited access to credit,
- exclusion from certain social/community organizations,
- remote locations, and
- larger households.

These aggregate results are largely identical to those obtained for the case of just the urban sector, possibly because Panama was predominantly urban in 1997 (56 percent of the population lived in those areas).

An analysis was conducted of rural poverty, using data from 2,186 households. The variables examined can be categorized as household social characteristics, income generating variables, community social characteristics, economic environmental variables, and infrastructure variables.

The regression analysis on the rural sector was launched with numerous location dummy variables and none of the continuous variables. This resulted in being able to classify correctly 76 percent of the households as “poor” or “non-poor”. The location dummies were then replaced with the continuous variables available, after eliminating some because of concerns about the direction of their causation, their significance, and their high correlation with other included variables. In the final analysis, using 53 independent variables, 80 percent of households were correctly classified as “poor” or “non-poor”—not really much improvement over the results with the location dummies alone. This provides an interesting justification for area-specific poverty reduction strategies.

The following remarks report on the statistically most significant estimated coefficients of the regression with largest rural poverty reduction impacts:

- unpaved access roads appear to be associated with greater poverty (a finding similar to the effects of “remoteness” in the urban sector, although the variable, “remote or inaccessible area,” had a much smaller marginal effect than did unpaved access roads in rural areas);
- farms specializing in the production of fruits and vegetables tended to be associated more with non-poor rural households;

- households in which a household member belongs to an indigenous association increases significantly the probability of being poor (which may really be saying that being indigenous impacts poverty); and
- rural households with five hectares or less of farmland are more likely to be poor (including even those with irrigated farmland, although the irrigation variable may have been mis-specified).

Another set of variables appeared to be statistically significant, but to have just a slightly smaller impact on poverty:

- the availability of electric lights reduced poverty;
- the existence of a warehouse in the community reduced the probability of poverty;
- a local community government committee reduced the probability of poverty;
- farms from all other size classes increased poverty;
- commodity specialization in farming, as well as livestock production systems, reduced the probability of being poor; and
- having a household member in a cooperative was associated with reduced poverty.

Taking these results together, it is concluded that in Panama four factors most impact poverty:

- infrastructure development, or physical capital (warehouses, access roads, and electricity);
- production systems, an element of natural capital (fruits and vegetables, livestock, and specialization);
- social capital (local government committees and membership in cooperatives); and
- membership in an indigenous group, or being indigenous.

Not as important are elements of human capital--found to be significant uniformly in other countries of the region--and components of financial capital.

IV. *A dozen implications for agricultural research*

A uniform data set, or kind of “data bank”, needs to be assembled on poverty and its determinants in Meso-America to guide integrated anti-poverty campaigns.

The opening remarks of this paper concerning the problems surrounding the data on poverty lead to the implication that, for purposes of orienting and guiding agricultural research and related poverty reduction programs, the extant household survey data generated by the World Bank, IADB, and USAID need to be carefully screened and assembled into a “uniform data set” (UDS) on poverty and its determinants in Meso-America for recent years and at least one earlier year in the 1990s (to provide a point of comparison, a benchmark) . Adjustments should be performed to make the data as comparable among countries of the region as possible. These data would then be available to backstop project design, implementation, and evaluation efforts, including agricultural research projects; and they would serve as a benchmark, or check, against which later-stage progress in poverty reduction projects could be compared. What’s needed is to standardize their content, make indicators more uniform, and generally to make them more comparable and statistically reliable.

Decision data for agricultural researchers should be incorporated in the household survey data.

The implications of the poverty analysis presented here could be strengthened for purposes of guiding agricultural researchers in assessing their potential contributions to poverty reduction by linking in natural resource, abiotic (temperature, rainfall, day length, soil order information, and the like) and biotic data (e.g., pests and diseases). CIAT has demonstrated that much of the needed data are available from secondary sources [Wortman, 1998].

One way by which these additional data could be inserted into the household surveys is by defining:

$$P = f(D_1; D_2),$$

where P is the income poverty measure being used and the D's include all determinants of poverty. After estimating a side relation between each determinant and the available data on natural resource, abiotic, and biotic variables (ABBC), P can be redefined as

$$P = f[g(ABBC); D_2],$$

where it is assumed that a statistically significant relation was only found between ABBC and the rural poverty determinants in D₁. Information from farmers, agricultural researchers, and other knowledgeable professionals would serve to corroborate and expand on these findings.

Because poverty in Meso-America is affected by multiple variables, a true integration of efforts is called for.

From results of the multivariate regression analyses of existing household survey data, this paper has reported that higher incomes (not being poor) were associated with statistical significance in two or more countries with the following variables, grouped by asset category:

Financial capital

Use of credit; access to credit markets

Human capital variables

Smaller, older families, headed by males

Being not indigenous

Having more years of schooling completed

Not being employed as a wage laborer in agriculture

Holding positions in the non-farm rural sector

Being a small business owner in the rural non-farm sector

Natural capital variables

Location, place of residence and work

Agricultural production systems (not squarely natural capital, but reflecting it in part)

Physical capital variables

Access roads (remoteness was sometimes associated with poverty)

Community warehouses

Electricity

Water connections

Not working in small firms (this probably implies some specialization of effort which may also imply more schooling)

Residing in homes with more rooms

Social capital variables

Belonging to social, community and government committees/organizations

Membership in cooperatives

These results have important implications for technology development undertakings. They say that agricultural research (or even a health, education, or infrastructure development program) is unlikely to have success unless it joins forces with other agencies and organizations responsible for improving all (or at least “key”) assets of the poor. A truly integrated effort is called for.

“Poverty corridors” are candidates for area-specific agricultural research initiatives.

In most all countries, a component of natural capital, “geography” or “location” turned out to be a potent source of poverty, after account had been taken of all other independent variables. This was clearly seen, for example, in areas of the four states of the Southern Region of Mexico and in areas within four departments of Honduras. If one of these “poverty corridors” has not recently experienced agricultural research and technology improvement, it should constitute a prime candidate for an area-specific, concentrated effort.

Results of the estimates available of the determinants of poverty repeatedly pointed to indigenous populations as being rural, agricultural, and very poor. Along with education, being a member of an indigenous population was one of the most significant human capital variables to emerge from the available analyses of Meso-American countries. These populations are grouped in specific areas, for the most part, and already possess some significant forms of social capital. But they have been somewhat neglected to date by agricultural research and technology improvements. Therefore, such poverty should be potential targets for integrated, area-specific campaigns of poverty reduction that include agricultural research.

Poverty reduction programs, including agricultural research, can be most usefully guided by thorough-going analyses of occupations, with special reference to the poor.

A rural poverty reduction effort has really four options: it can reduce unemployment, it can increase the returns and volume of employment for existing rural occupations (e.g., increase the productivity of farmers), it can promote occupational change that enhances total remuneration (e.g., help farmers enter new rural business enterprises), and/or it can help create new occupational options (e.g., developing a new agriculturally-based industry in a rural area). Whatever is done, significant occupational analyses of the poor will need to be performed to guide decision-making. This effort should be complemented by analyses of the sustainability and competitiveness of the enterprises from which a particular pattern of occupations results. (The competitiveness analysis should also help examine and identify new occupational options, not just those already available.) This approach also clearly illustrates that agricultural research has many more roles to play in reducing poverty than

that of improving enterprise returns for poor producers who are only farming—a point which is illustrated by several of the implications described below.

Agriculture should be assigned first priority in poverty campaigns.

Within the rural sector, the data from several countries, most particularly those reported here from El Salvador, suggest that agriculture receive first priority. The table below, which draws mainly on the El Salvador data, modified slightly to make them consistent with data reported for other countries in the preceding section, shows that the average per capita poverty incidence for households whose members function in agriculture in one or another way is higher than that for households working only in the rural non-farm sector. The implication: a rural poverty campaign should attack poverty in agriculture, first.

Table 17—Meso-America: Rural household activities and extreme poverty

Household occupational characteristics	Percent of population	Incidence of extreme poverty
1. Agricultural labor and farming	5	55
2. Agricultural labor only	10	49
3. Agricultural labor, farming, and non-farm employment	5	44
4. Farming only	25	40
5. Farming and rural non-farm employment	20	36
6. Agricultural labor and non-farm employment	10	35
7. Only in the non-farm rural sector	25	20

The returns to farming should first be attacked through agricultural research.

For those poor households with farmers and laborers, i.e., households in the first three lines of Table 17, salaried work is obviously undertaken only because farming is not sufficiently remunerative to avoid poverty. Hence, the exit path from poverty should be improvements in the productivity, profitability, and competitiveness of existing farms, or perhaps the acquisition of additional land, should the scale of the enterprise be the chief constraint. If the basic problems are the limits imposed on access to more land to raise household incomes, and profitability cannot be raised sufficiently on the existing enterprises to escape poverty, complementary non-land assets may need to be acquired that would permit farmers to leap-frog to Line #5, combining farming with rural non-farm wage labor. As was reported in the cases of several countries, earning higher wages in the rural non-farm sector requires complementary capital, especially higher levels of skill training and education.

The implication is that agricultural research will need to assess carefully whether it can raise farmer returns sufficiently from the existing production system, or some other that

it introduces, to provide an exit from poverty. If it cannot because of land constraints, it should work with sister agencies to explore opportunities for producers to acquire additional land. And if additional land is unavailable, it might help farmers acquire the additional complementary assets (e.g., education) required to leap-frog to one of the Lines #5 through #7.

Households with only on-farm laborers should acquire assets that will permit them to qualify for higher wage jobs, or jump to more remunerative positions.

For households in poverty and with members working only as on-farm wage laborers, there is a presumption that their access to land has been blocked. If they cannot acquire the use of land through some arrangement, moving up to Line #4, they will need to acquire other complementary assets (education, in particular) which will permit leap-frogging from Line #2 to (say) Line #6 or Line #7, or earning higher wages as agricultural laborers and, thus, exiting from poverty.

Agricultural research might seek to raise the returns to labor, or labor productivity.

Since households in poverty in Lines #1 through #3 could all benefit from increased on-farm labor returns, agricultural research could not only seek to improve the returns to farming, but to improve them in ways which end up raising the demand for labor and labor productivity. One way this might be done is through a shift in production systems among farms hiring labor towards commodities that are more demanding of labor—for example, towards fruits and vegetables. Alternatively, cultural practices might be altered to intensify labor use and raise the demand for labor. This could be accomplished by a shift toward irrigated production, for example. Certainly, “make-work” schemes should not be proposed, as those would restrict commodity competitiveness and not be viable in the longer-run.

Agricultural research might find ways to conserve on-farm labor time, when producers are exclusively occupied in farming, or are already engaged in rural non-farm employment.

Households with Line #3, #4, #5, and #6 characteristics clearly seek to expand the time they devote to non-farm rural employment because the table indicates that returns there are higher than they are in agriculture. This being the case, agricultural research might focus on ways to reduce the on-farm production cycle. This should shift interest from commodities like sugarcane, eggs, milk, and tobacco production, for example, to commodities with either a shorter production cycle (e.g., vegetables), or more flexible periods of short attention throughout the year (e.g., some tree crops).

Agricultural research can develop paths from poverty for the non-farm rural sector by working on “double-edged” commodities.

It was earlier noted that some strong linkages exist between growth in the agricultural sector and the non-farm rural sector. In Nicaragua’s post-1993 recovery, for example, the agricultural commodities that enjoyed growth were also commodities with strong linkages into the non-farm rural and the urban sectors of the economy, with the result that growth in agriculture promoted recovery of the general economy. For example, were agricultural research to concentrate on such commodities as sugar, grapes, citrus, milk, and coffee, income and employment benefits would be derived from the associated expansion in the non-

farm rural sector for purposes of processing, industrializing, and generally readying these commodities for sale.

Increasing food supplies should reduce their costs, raising real incomes of both the urban and rural poor.

Where food prices are supply-sensitive, technology-induced production increases should be pro-poor because the food price decline will raise real incomes of poor people who typically spend most of their resources on food. It needs to be noted that the opening of national economies to international markets in recent years, discussed at the outset of this paper, has eroded some of the gains from this strategy while concentrating more of the benefits of technology-induced production increases in the hands of producers and farm workers.

ANNOTATED BIBLIOGRAPHY

Banco Interamericano de Desarrollo (BID). 2001a. Desarrollando la Economía de Puebla a Panamá. Papers from a Regional Workshop. Washington, D.C.: BID.

The IADB has been working to identify restrictions to the development of the rural economy and poverty reduction in the Meso-American Region. This workshop called on several specialists to make presentations in the areas of macroeconomic policy and the rural economy, options for poverty reduction, linkages between commercial policies, competitiveness and poverty, transactions costs to access markets, basic rural services and information, rural finance, rural institutional development, and environmental and social vulnerabilities. Two conclusions were highlighted: poverty is a rural problem in the region; and, in spite of rising social expenditures, rural incomes are lagging. Hence, some priority should be placed on expanding rural economic activities and increasing employment and rural incomes.

Banco Interamericano de Desarrollo (BID), SDS/POV. 2001b. Household surveys. Unpublished. Washington, D.C.: BID.

The Bank has available 46 household surveys for various years for countries of Meso-America. These can only be accessed by a staff member of the Bank

Banco Interamericano de Desarrollo (BID), Departamento Regional de Operaciones II. 2000. Unlocking the Economic Potential of Rural El Salvador. Washington, D.C.: BID

Deals with the economic environment and incentives for rural growth, the labor market, the rural productive sector, and then related and social support sectors. A strategy for unlocking the economic potential of rural areas of the country is then proposed. The labor market section builds on the conclusion that remunerative employment must be found. This means a retooling of agriculture and an expansion of non-agricultural enterprises. Human resource development is also underlined. The rural strategy involves increasing competitiveness, improving the mobility of goods, services, information and labor; enhancing the human and natural resource base; and strengthening rural local institutions and municipal management.

Banco Interamericano de Desarrollo (BID), Departamento Regional de Operaciones II. 1999. Honduras Post Mitch. Documento de Trabajo. Washington, D.C.: BID.

This publication identifies problems, which are constraining the rural economy; then, it describes policy, investment, and technical cooperation proposals that can contribute to their solution.

The agricultural sector in 1999 accounted for half of the GNP, 63 percent of exports, and half of all employment. Hurricane Mitch hit Honduras in October 1998. The decade of the 1980s produced no change in per capita GNP and increases in the incidence of poverty, while the 1990s witnessed economic growth and reductions in the incidence of poverty. Still, per capita GNP is not above the 1980 level, and the incidence of poverty is highest among countries of the Hemisphere. Interestingly, Honduras has registered more progress in terms of social policy than it has in poverty reduction and income growth.

Significant problems identified were:

- Increases in the real exchange rate and high interest rates.
- Disincentives to export and complicated export requirements, non-uniform import tariffs, and quantitative import restrictions.
- Natural resource degradation, coupled with strategic and institutional deficiencies.

- Poor rural road maintenance, owing to a lack of definition concerning their ownership and insufficient mechanisms in place for their rehabilitation and maintenance.
- Poor coverage of electricity in rural areas.
- Underdevelopment of telecommunications, and their concentration in urban areas.
- Health and education facilities have advanced, but remain weak in rural areas.

Proposed remedies were the following:

- Formation of a Rural Cabinet, composed of Secretaries with influences in the rural sector.
- Strengthening of institutions of importance to the rural sector, and the removal of important restrictions to rural growth and infrastructure development.
- Establishment of the Honduras Fund for Rural Investment to finance local-level infrastructure and basic services projects in rural areas.
- Financing for rural infrastructure projects with national and regional dimensions.

Chen, Shaohua and Martin Ravallion. 2000. How did the world's poorest fare in the 1990s? Internet accessed paper. Washington, D.C.: World Bank.

The paper assesses progress in reducing consumption poverty in the developing and transition economies in 1987-98. They use the usual monetary definition of poverty, but also take to be poor those people who have unusually low consumption levels relative to others in the same country. They also modify poverty lines for exchange rate and PPP changes.

The new estimates based on PPP exchange rates suggest less progress in reducing poverty. Too, if China is excluded, the total number of poor has risen steadily over the 1987-98 period. They also conclude that, without the East Asian crisis, poverty would have fallen by more. Over the whole period, the poverty rate changed little in LAC, though there are signs of a small net gain to the poor in the 1990s. East Asia came in third in terms of the incidence of poverty initially, but its rapid reduction in poverty up to the crisis meant that Latin America overtook it in the middle of the 1990s.

Allowing for different levels of consumption in a country was done to recognize that a poor person needs higher consumption when living in a rich country in order to participate fully in that society. They assumed that to be deemed "not poor" a person must meet both the \$1 per day absolute consumption standard and consume more than some proportion of the mean consumption in the country of residence. "We set the constant of proportionality to avoid social exclusion at one third." The greatest impact of this new measure was on LAC because the region now emerges as the one with the highest incidence of poverty, with slightly over half the region's population in poverty. But much more than half of the populations of South Asia and Africa lie below LAC's mean poverty line.

Why was there not more progress against poverty? What went wrong? Rising inequality was one fact. The world distribution of consumption in 1985 was such that it would not take much of an increase in overall inequality to wipe out the benefits to the world's poor of modest growth in consumption per capita. In another paper, Ravallion estimated that a four percent increase in the world's Gini index would be sufficient (over a 15 year period) to wipe out the gains to the poor from a sustained one percent per annum rate of growth in consumption per capita. It has been estimated that the index rose five percent between 1988 and 1993, and this effectively served to wipe out global growth for the poor. The unconditional growth divergence seen in the 1980s and 1990s—whereby growth rates have tended to be lower in poorer countries—appears to be a far more important reason for the low rate of aggregate poverty reduction than rising inequality within poor countries themselves. This is not intended to downplay national inequality: there is evidence that initial inequality is too high in some countries to assure poverty-reducing growth, even when the fundamentals are conducive to growth.

Corral, Leonardo and Thomas Reardon. 2001. Rural Nonfarm Incomes in Nicaragua. World Development, Vol. 29, No.3, March, pages 427-42

This paper looks at non-farm incomes of rural Nicaraguan households, using the 1998 Living Standards Measurement Survey (LSMS). Rural non-farm income was found to constitute 41 percent of rural household income, and also to be more important than wage labor income. Most rural non-farm income is wage employment, and three quarters of it is derived from the service sector. Education, road access, and access to electricity and water were found to be important to non-farm incomes.

Davis, Benjamin and Raffaella Siano. 2001. Issues and concepts for the Norway-funded project, "Improving Methods for Poverty and Food Insecurity Mapping and its Use at the Country Level". Draft paper.

The referenced project is expected to result in four outputs within the next three years: a global GIS database geared towards poverty and food insecurity; a synthesis of the state-of-the-art GIS technology for mapping food insecurity, poverty, and vulnerability; mapping completed in six countries in different developing regions of the world; and an active web-based network on food insecurity and poverty mapping.

It is pointed out that poverty maps do not represent causal linkages but rather visual correlations, and interpreting causality can lead to serious policy and analytical mistakes. However, one could define rural poverty zones and then analyze household data for each grouping. Groupings are confirmed by experts, participatory fieldwork techniques, and secondary data linked geographically. The point is made that few linkages have been found between poverty and the environment, though this may be due to technical, estimation, or data limitations. Seven different studies are referenced in this regard.

It is mentioned that the World Bank has supported a major FAO farming systems study involving a detailed georeferenced typology of farm production systems for the developing world.

De Janvry, Alain and Elisabeth Sadoulet. 2001. Concepts for an Approach to Rural Development in Mexico and Central America: Regional Development and Economic Inclusion. Unpublished manuscript. Berkeley, CA, University of California.

Attacking poverty in Central America and Southern Mexico requires focusing on rural poverty and its contributions to urban poverty. The paper thus describes (characterizes) the nature of poverty, its causes (determinants), and possible strategies out of poverty for different types of rural poor.

They claim that inequality is lower in the rural than in the urban sector. In spite of statements to the contrary from the World Bank, they conclude that inequality has been cyclical, moving in a negative relation with the economy, but observe that in most recent cycles inequality has not followed (negatively) the economic cycles. They also find a strong urban bias in the provision of social and other services.

Their analysis of the determinants of poverty shows that poverty is reduced by:

- Larger land holdings, particularly irrigated land holdings
- More animals
- Older household heads
- More adults in the household
- Not having a female headed household
- More schooling of the household head
- More assets supporting migration

- Not being an indigenous household
- Being a smaller family
- Having fewer children under 10 years of age
- Having fewer elders in excess of 60 years of age

There are three key assets to escape poverty for the Mexican ejido: land (measured in rainfed equivalent hectares), human capital (measured as educated equivalent adults), and U.S. migration capital (the number of individuals in the extended families with a migration experience). De Janvry and Sadoulet found that households with low human capital and no migration assets need at least 25 hectares of rainfed land to escape poverty. Households with either human capital or migration assets need only eight hectares. Household with both human capital and migration assets need only two hectares. This points to the fact that there are multiple paths out of poverty. As households accumulate more than one asset, their likelihood of escaping poverty rises rapidly. Therefore, the pluriactive path, involving some agricultural production and other activities in the non-farm rural or urban sectors, is probably the most effective strategy.

Because the rural poor have high exposure to shocks and high levels of risk aversion, local safety nets must be made available, or the poor may be compelled to take drastic and irreversible actions when faced with shocks.

They also argue that inequality (assets and incomes) is an obstacle to rural development. With high inequality, local governments are at risk of being captured by the non-poor, land is stressed by the poor, the linkage to environmental degradation is tightened, and cross-class conflicts arise which contribute to the segmentation of transactions.

Low asset productivity for assets of the poor may be influenced by

- Policy, especially growth-promoting policies, and growth promotion where greater equality exists;
- market failures, for example, credit access by the poor, their high transactions costs of accessing markets, and the lack of availability of insurance and emergency assistance;
- institutional gaps relating to property rights with implications for the land rental market, access to technical assistance and appropriate technologies, rural infrastructure;
- access to public goods;
- regional effects, including the quality of the agroecological environs and opportunities for pluriactivity, all of which strongly suggest that local poverty reduction efforts should be complemented by regional development strategies; and
- social relations (peace, rule of law, and conflict resolution mechanisms).

The provision of basic needs continues to be biased against the rural sector—education, health care, safe water, sewage disposal, and electricity. There are few instances of direct transfers operating in LAC. Safety nets should be styled for chronic poverty, shocks, and economic transitions.

The discussion is summarized by saying that two fundamental mechanisms are operating to determine rural poverty: access to assets and the regional context, which influences the productivity of the assets over which the poor have control. Thus, regional development is a pre-condition to successful rural development and successful rural development requires control over productive assets by the rural poor.

This leads to the presentation of a new “strategy” for poverty reduction, which emphasizes efforts to make assets more productive and to provide additional assets.

Concerning the productivity of assets of the rural poor, it can be improved by

- Coordinating macro/sectoral policies with rural development policies and rural poverty reduction;
- Fostering regional development with a territorial approach (not a sectoral approach);
- Decentralization and strengthened local governance;
- Making market works with new institutional arrangements for microfinance, co-financed technical assistance, and service cooperatives to reduce transactions costs;
- Expanding the public goods that are provided, seeking co-investment with the private sector;
- Regionalizing technology generation through a mechanism like FONTAGRO; and
- Integrating natural resources management in rural development.

Dollar, David, and Aart Kraay. 2000. Growth is Good for the Poor. World Bank, Development Research Group, Washington, D.C.

These authors show that, in a sample of 80 industrialized and developing countries, macroeconomic policies which result in stable monetary policies, openness to international trade, and moderate-sized government sectors raise average per capita incomes and the incomes of the poor by the same amount, thus not altering initial inequality.

Echeverría, Ruben. 2000. Opciones para reducir la pobreza rural en América Latina y el Caribe. Revista de la CEPAL, 70 (April), 147-60.

Economic Commission for Latin America and the Caribbean, ECLAC. 2000. Social Panorama in Latin America, 1999-2000. Santiago, Chile: ECLAC.

The poverty data included in this volume are rather different from those contained in this paper. Too many times, however, they proved to be inconsistent with other facts. For this reason, they were not used.

Economic Commission for Latin America and the Caribbean, ECLAC. 1999. CentroAmerica: Cambio institucional y desarrollo organizativo de las pequeñas unidades de producción rural. Santiago, Chile: ECLAC.

Government of Costa Rica. 1999a. Estado de la Nación, Sexto Informe. San José, Costa Rica: email publication at www.estadonacion.or.cr

A brief section on poverty is available in Chapter 2, dealing with equity and social integration. It starts out by observing that 20.6 percent of all families are classified as poor and 6.7 percent are classified as extremely poor in 1999, in spite of significant economic growth, which increased family incomes by 31.5 percent from 1990 to 1999. In both cases, these percentages appear to represent increases. The incidence of poverty is 23.7 percent; the incidence of extreme poverty is 7.5 percent. Almost half of the poor households (47.2 percent) were found in the Central Region, including San José, and 41.1 percent of the extremely poor were found in the same Region. Nonetheless, 48.1 percent of the extremely poor were occupied in agriculture.

Poor households have more members (4.7 on average) and there are both more children and more oldsters per person of working age (15 to 64 years of age). Poor households were also found to have fewer employed persons and more open unemployment, as well as fewer numbers of hours worked per week; the poor were engaged chiefly as domestic help and as self-employed. Forty-one percent of the poor and 44 percent of the extremely poor were working in the informal sector, while only 29 percent of the non-poor work in the same sector. Poor households have lower levels of education; extremely poor households have least education.

In 1999, the sample of households surveyed was changed, which improved the data but made them less comparable with earlier years.

Government of Costa Rica. 1999b. Estado de la Región de Centro América. San José, Costa Rica: email publication at www.estadonacion.or.cr

A useful source of basic descriptive data on the region, drawn on in preparing this paper.

About 60 percent of all Central Americans are poor and 40 percent are extremely poor. This reflects two-digit unemployment rates in some countries (10 percent unemployment overall), underemployment (40 percent of all jobs are created in the informal sector), and generally low wages (20 percent of the salaried urban population is paid less than the minimum wage).

Human development and per capita income indices for the region place it close to the Republic of China. But differences in the HDI are striking: for Costa Rica, the HDI equals that of Portugal, but Nicaragua's HDI is like that of Iraq.

Government of the Republic of Honduras. 2000. Interim Poverty Reduction Strategy (IPRS) Paper. Tegucigalpa, Honduras: Government of Honduras.

The paper views poverty as a multidimensional term, using principally the 1999 Household Survey data. Therefore, different methodologies are used to examine poverty and different relationships between poverty and a number of different variables are analyzed. A first conclusion is that the most relevant factor in determining poverty is insufficient per capita income growth which is due to low labor productivity, low investment levels, and the high rate of growth of the population. The current population growth rate is 2.8 percent per year, giving Honduras one of the highest rates in LAC.

Chapter II consists of the diagnostic assessment of poverty.

The determinants of poverty were identified, using the regression method. It was concluded that poverty increases for:

- the mentioned four departments, in the “corridor of poverty”;
- increasing numbers of children in households, especially where there are more under five years of age;
- female headed households;
- lower levels of schooling for the household head;
- the unemployed, underemployed, and self-employed; and
- workers in the agricultural and livestock sectors.

There has been rapid growth in women's labor force participation (from 30 to 39 percent in the 1990s), unemployment is low (about four percent), and estimates of underemployment are not high (around seven percent). Wages are termed “low”, but grew at around 12 percent in real terms during the 1990s. Schooling achievements are lower than most of Honduras' neighboring countries, except El Salvador. The returns to schooling rise at an increasing rate with the number of schooling years completed. An extra year of primary schooling raises wages 10 percent while an extra year of secondary schooling raises them by 15 percent.

An OAS study found that 32 percent of the national territory is subject to overexploitation, with 73 percent of annual food crops, 62 percent of perennial crops, and 40 percent of livestock farming being conducted on hillsides, on which 56 percent of the population lives. Urban wages are 50 percent higher than comparable rural wages, and average school attendance in urban areas is seven years, but barely 3.8 years in rural areas. Another major cause of deforestation is firewood

consumption. It was estimated that 65 percent of the energy generated in the country comes from firewood!

Hurricane Mitch had predictable effects: ECLAC estimated that damages amounted to US\$3.8 billion, equivalent to 70 percent of GDP, and replacement costs could equal GDP (US\$5.0 billion); poverty increased, and the increase occurred chiefly in rural areas where the majority of the poor are located; and children's participation in the labor market rose sharply, though this figure for Honduras has been historically high in comparison with other LAC countries.

International Center for Tropical Agriculture, CIAT. 2000a. Two Papers. Using information to improve decision making. From indices to policy implications. Cali, Colombia: CIAT.

Over one quarter of Central America is at risk of flooding and one third is at risk of drought. Area accessibility are shown both pre- and post-Mitch. They conclude that the poor were not harder hit than others segments of the population. In the second publication, Costa Rica is taken as an example to show how to detect and understand land use trends, how causes of present land use can be identified, and how land use options are explored and compared from a policy perspective.

International Center for Tropical Agriculture, CIAT. The World Bank, and the United Nations Environmental Program. 2000b. Developing indicators: Experience from Central America. Cali, Colombia: CIAT.

Results of a project that developed indicators to measure and track rural sustainability in Central America. This is a "lessons learned" report. GIS data are used, national governments supplied information, a consultative process was used, and the data, tools, and project outputs were widely distributed.

International Center for Tropical Agriculture, CIAT. 1999. Annual Review. Cali, Colombia: CIAT.

It is said here that the Center has not incorporated income data from household surveys to measure poverty, but it does employ "unmet basic needs" (UBN) non-monetary, social indicators. It can be seen in maps here that export crops are grown in the region where there is nearby access to ports. Interesting data here on non-farm rural employment as a percent of total rural employment: Costa Rica (59 percent, 1998), El Salvador (38 percent, 1995), Honduras (38 percent, 1998), Mexico (37 percent, 1994), Nicaragua (42 percent, 1998), Panama (50 percent, 1997), and an average of 13 countries for which data were available (43 percent).

Isgut, Alberto. 2000. Rural Poverty in Honduras: An Assessment from the 1998 Household Survey. Washington, D.C.: INDES-IADB.

Kanbur, Ravi and Nora Lustig. 1999. Why is Inequality Back on the Agenda? Washington, D.C.: Inter-American Development Bank.

They claim that there has been a turn-of-the-century resurgence of interest in inequality and distribution by reason of five facts: (1) the incorporation of imperfect information and imperfect markets in analytical frameworks, which has connected equity and efficiency; (2) although there is no systematic empirical relationships between inequality and growth, increasing recognition of the fact that specific policy instruments for growth can affect inequality; (3) the aggregate measures of inequality, Gini Coefficients, have changed (sometimes dramatically) for some countries, as evidenced by the below table for countries in LAC (and not systematically with respect to income changes); (4) the determinants of these changes in inequality are not known; and (5) inequality among nations appears to be growing, with the poor countries appearing to be "trapped" in poverty.

On their final point, inequality across nations has been steadily increasing. “Poverty traps” have been arising, probably because of low investments in human capital, political instability, and protracted adverse shocks. Incomes become barely enough for subsistence, and savings rates fall below depreciation rates. This “sticks” the country in a low-level equilibrium trap of sorts. It may be filled with good investment opportunities, but there are insufficient resources domestically to do anything about them. Foreign investment and foreign aid could fix this unless political risks loom large and foreign aid is turned off by reason of misbehavior by the country. In any event, they remark that there is a dismal record of breaking the poverty trap with foreign aid.

Lanjouw, Peter. 2001. Non-farm Employment and Poverty in Rural El Salvador. World Development, Vol. 29, No. 3. March, pages 529-47.

Two data sets are analyzed. While the rural poor are mainly agricultural laborers and marginal farmers, some non-farm activities are also of importance to the poor. Non-farm activities account for much rural employment and income for both the poor and the non-poor. But the poor are engaged in “last resort” non-farm activities that are not associated with high levels of labor productivity. The non-poor are in productive non-farm activities which are potent forces for upward mobility. Significant correlates of high productivity occupations include education, infrastructure, location, and gender.

Lanjouw, J.O., and P. Lanjouw. 1994. Rural Nonfarm Employment: A Survey.” Policy Research Working Paper 1462. World Bank, Washington, D.C.

Leclerc, D., A. Nelson, and E.B. Knapp. 1999. Extension of GIS through poverty mapping: the use of unit-level census data. Cali, Colombia: International Center for Tropical Agriculture, CIAT.

Unit-level data from the 1988 population and 1993 agricultural censuses of Honduras have been integrated into a GIS. Indicators from local informants in 90 communities are extrapolated to the entire country, using proxy indicators computed from well-correlated census data.

Melendreras, L., and R Cabrera. 1991. Mapeo de la Pobreza en Guatemala. Proyecto Instituto Nacional de Salud, Ministerio de Salud Pública y Asistencia Social. Guatemala City, Guatemala: Ministerior de Salud Pública y Asistencia Social.

Using data of the National Demographic Household Survey for 1980, 1986-87, and 1989, they estimated poverty indices and characterized poverty in ways that were similar to the World Bank’s study. They formed a solid basis for the World Bank undertaking.

Narayan, D., R. Chambers, M. Shah, and P. Petesch. 1999. Global Synthesis: Consultations with the Poor. Washington, D.C.: World Bank.

Ravallion, Martin. 1997. Can high inequality developing countries escape absolute poverty? Economic Letters, Vol. 56, pages 51-57.

He looks at two propositions. The first, the “induced growth argument,” is that higher inequality may entail a lower subsequent rate of growth in average income and, hence, less progress in reducing poverty. This seems plausible to the extent that inequality fosters distortionary policy interventions which impede growth and higher densities of credit-constrained people subjected to credit rationing and the like who are unable to take up productive investment options. The second is the “growth elasticity argument”, or what I might call the “accounting argument”. Higher inequality will entail the poor gaining less in absolute terms from growth; the poor will have a lower share of both total income and its increment through growth; and thus the rate of poverty reduction must be lower. At maximum inequality—when the richest person has everything—absolute poverty will be unresponsive to growth.

These propositions are tested using household surveys for 23 developing countries. He finds that at the lowest Gini index in the sample (0.25) the growth elasticity is 3.33, while at the highest (0.59) it is only 1.82. At the mean value of the Gini index (0.41), the growth elasticity of poverty reduction is 2.62. Hence, a higher initial level of inequality tends to entail a lower rate of poverty reduction at any given positive rate of growth. Too, if inequality is sufficiently high, countries may well see little or no overall growth. If this occurs, and income growth does little to reduce poverty, there could be a worsening in poverty on both counts.

Reardon, Thomas, Julio Berdegú, and German Escobar. 2001. Rural Nonfarm Employment and Incomes in Latin America: Overview and Policy Implications. World Development, Vol 29, No. 3. March 2001, page 395-409.

Rural non-farm incomes (RNFIs) average 40 percent of rural incomes in LAC. Non-farm wage incomes exceed self-employment incomes, RNFI exceeds farm wage incomes by a large margin. The RNF employment of the poor tends to be the low-paid non-farm equivalent of semi-subsistence farming. RNF jobs cannot be developed at the expense of programs promoting agricultural development.

Renkow, Mitch. 2000. Poverty, productivity, and production environment: a review of the evidence. Food Policy, Vol. 25, No. 4, March, pages 463-78.

Present data concerning the debate revolving around the effects on various populations, especially the poor, of different allocations of research effort between marginal and favored production environments. Variations in the income-generating activities engaged in by the poor are examined, and the ways in which specific technology packages affect the economic well being of different types of households.

Ruben, Raúl and Hafrry Clemens. 1999. Desarrollo rural y políticas agrarias en Centroamérica: Tendencias, estrategias y alternativas desde un enfoque neo-institutional. San José, Costa Rica: CDR-ULA.

Ruben, Ruerd and Marrit Van den Berg. 2001. Nonfarm Employment and Poverty Alleviation of Rural Farm Households in Honduras. World Development, Vol. 29, No. 3, March, pages 549-60.

The national income and expenditure survey for 1993 and 1994 was used. Non-farm wage and self-employment is most important to middle and higher income strata. Access to non-farm wage employment is confined to educated individuals that belong to large households, while female members of wealthier households are mainly involved in self-employment.

Scheer, Sara J. 2000. A downward spiral? Research evidence on the relationship between poverty and natural resource degradation. Food Policy, Vol 25, No. 4, August, pages 479-98.

A downward spiral is not seen. Much micro-scale evidence challenges this concept. The other factors affecting poverty-environment interactions are discussed. To improve poverty and the natural resource base requires increasing poor people's access to natural resources, enhancing the productivity of their natural resource assets, and involving local people in resolving public natural resource management concerns.

Sebastian, Kate L., and Stanley Wood. 2000. Spatial Aspects of Evaluating Technical Change in Agriculture in Latin America and the Caribbean. Unpublished draft. Washington, D.C.: International Food Policy Research Institute, IFPRI

This report describes the general framework and the specific location attributes developed to enable and support a spatially based approach to agricultural research evaluation and priority setting in LAC. The impact of new technology depends on its adoption in farmers' fields, and many of the factors that shape adoption decisions have, themselves, important spatial dimensions. By placing agriculture in a spatial context, the approaches described provide location-specific linkages to key physiographic, soil, water, and biodiversity resources. And by incorporating geographically referenced information on population, community and household characteristics, and physical infrastructure, we can also be more specific about other socioeconomically important outcomes of technical change.

Solís, Clara. 1999. El desarrollo rural sostenible en el marco de una nueva lectura de la ruralidad. San José, Costa Rica: IICA.

Valdés, Alberto and Johan Mistiaen. 2000. Rural Poverty in Latin America: Recent Trends and New Challenges. Rome, Italy: FAO.

Wodon, Quentin, Rodrigo Castro-Fernandez, Kihoon Lee, Gladys Lopez-Acevedo, Corinne Siaens, Carlos Sobrado, and Jean-Philippe Tre. 2001. Poverty in Latin America: Trends (1986-98) and Determinants. Washington, D.C.: World Bank. March 4th draft.

This is viewed by the Bank as an "update" of the Year 2000 study by Wodon, et. al. Household survey data from 17 Latin American countries were used, including Costa Rica, Guatemala, Honduras, El Salvador, Mexico, and Nicaragua, to do two things: assess the extent of poverty in LA and its trend in the past 15 years; and to provide an analysis of the determinants of poverty. In the absence of other poverty-related variables, income was used to measure the headcount index of poverty, the poverty gap, and the squared poverty gap. The extreme poverty line was based on the cost of country-specific food basket providing 2,200 kcal per day per person. Moderate poverty equaled twice the food poverty lines in urban areas, and 1.75 times the extreme poverty line in rural areas. These were adjusted through time using CPI data. Poverty levels matter to people, while trends in poverty matter for public policy. Further, a poverty level is normatively defined and subjective, while a trend is neither normative nor subjective.

Wodon estimated an elasticity of poverty reduction to growth equal to about -1.0 in another study (Wodon, et.al., 2000), meaning that economic growth results in poverty reduction. They claim that "there is a strong link between growth and poverty".

The dependent variable for the determinants regressions was the log of per capita income divided by the poverty line. Independent variables included location, household size and composition, characteristics of the head of the household, characteristics of the spouse, ethnic origin of the household head, and whether the head has migrated since birth, or over the past five years. Their main conclusions were that the probability of being poor is higher for:

- families with more babies and children
- families with younger household heads
- female headed households
- lower education levels (which result in larger families)
- heads and spouses, living in rural areas, without a second job
- employment in agriculture
- household heads and spouses employed in smaller firms
- non-migrants
- membership in an indigenous population
- certain locations, geographic areas.

Wodon, Quentin T., with contributions from Robert Ayres, Matias Barenstein, Norman Hicks, Kihoon Lee, William Maloney, Pia Peeters, Corinne Siaens, and Shlomo Yitzhaki. 2000. Poverty and Policy in Latin America and the Caribbean. World Bank Technical Paper No. 467. Washington, D.C.: the World Bank.

This covers the 1986-96 period, with projections to 1998. It is based on household surveys for 12 countries, including Honduras and Mexico from the Puebla to Panama region. The report focuses on the poor; it warns that policies working for the poor may not work for the extremely poor. Used is a framework of three essential elements for poverty reduction: expanded opportunities (e.g., broad-based economic growth); improved security (e.g., safety nets); and wider empowerment (e.g., voice for the poor, influence in institutional programs).

The work on empowerment appears to be just getting under way. In 1999, the Wall Street Journal did an opinion survey in 14 countries. Fully 61 percent of respondents said that their parents lived better than they do, and almost half (46.1 percent) believe their children will live better than they do. Such pessimism may reflect feelings of economic insecurity in the region. Wreniski [1999] said that

“The poor tell us . . . that man’s greatest misfortune is not to be hungry or unable to read, nor even to be without work. The greatest misfortune of all is to know that you count for nothing, to the point where even your suffering is ignored. The worst blow of all is the contempt on the part of your fellow citizens.”

Wood, Stanley, Kate Sebastian, and Sara J. Scherr. 2000. Pilot Analysis of Global Ecosystems. Washington, D.C.: International Food Policy Research Institute, IFPRI, and the World Resources Institute, WRI.

This monograph synthesizes information from national, regional, and global assessments of ecosystems. Information sources include state of the environment reports; sectoral assessments of agriculture, forestry, biodiversity, water, and fisheries, as well as national and global assessments of ecosystem extent and change; scientific research articles; and various national and international data sets. The five ecosystems looked at account for about 90 percent of the earth’s land surface. The primary objective of the analysis is to provide an overview of ecosystem condition at the global and continental levels. A second objective is to identify the most serious information gaps that limit our current understanding of ecosystem condition. Finally, it launches an assessment, a more ambitious, detailed, and integrated assessment of global ecosystems that should help policy and decision making at the national and subnational scale.

World Bank. 2001. Nicaragua Poverty Assessment. Two volumes. Washington, D.C.: World Bank.

World Bank. 2001a. World Development Report 2000/2001, Attacking Poverty. New York, New York: Oxford University Press, Inc.

This is a most interesting report. However, it is less analytical than might have been expected and more normative. There’s lots of “should” recommendations, and it is not at all clear where they may have come from.

However, if the extreme poverty line is adjusted from \$1 a day to equal one third of the average consumption level in 1993 for each country (called the “relative extreme poverty line”), LAC’s incidence of poverty is higher than that for any other world region, namely, 51.4 percent in 1998. The comparable figure for all developing regions is 32 percent, and for the same regions excluding China, 37 percent. This reflects largely LAC’s higher consumption levels and greater income inequality.

Chapter 3 discusses growth, inequality and poverty. It is asserted that, on average, every additional percentage point of growth in average household consumption reduces the share of people living in extreme poverty by 2.0 percentage points. There is then a discussion of sources of growth, and the rural economy is not singled out for any comment at all! It is later asked, “Why are similar growth rates associated with different rates of poverty reduction?” First, it is concluded that there appears to be no systematic relationship between growth and changes in inequality statistics (e.g., the Gini Coefficient). However, if growth concentrates on sectors from which the poor derive most income, such as agriculture, growth can be associated with declining income inequality. Furthermore, if income inequality is initially high, a particular annual rate of growth will lead to less poverty reduction than when initial inequality is low. And there is the possibility (“it can happen”) that more equal income distributions can themselves accelerate growth. Hence, you can possibly get a double win from improving income distribution: faster growth and poverty reduction. These propositions concerning growth and income poverty hold between income growth and non-income poverty, health and education, in particular.

Chapter 4 is entitled, “Making Markets Work Better for Poor People.”

Chapter 5 looks at expanding poor people’s assets and tackling inequalities. Then the Report gets into Empowerment in Part II, beginning with Chapter 6 which is about “Making State Institutions More Responsive to Poor People”. The strategy for empowerment is to

- focus public action on social priorities,
- enable and motivate public administration,
- make the public sector more responsive to client needs,
- curb corruption,
- make the legal system more responsive to poor people,
- promote legal service organizations,
- move programs closer to users,
- create political support for pro-poor actions and coalitions,
- facilitate growth of poor people’s associations,
- foster state-community synergies for growth and poverty reduction, and
- promote democratic politics.

Chapter 7 deals with removing social barriers and building social institutions, where these are taken to include kinship systems, community organizations, and informal networks. There is a thorough discussion of gender discrimination and poverty, social stratification and poverty, and social fragmentation and conflict, and building social institutions and social capital.

Part IV deals with the security component of the strategy. Chapter 8 is about helping poor people manage risk, where risks can be viewed as

- Natural
- Health
- Social
- Economic
- Political
- Environmental.

Seven tools are reviewed: health insurance, old age assistance and pensions, unemployment insurance and assistance, workfare programs, social funds, microfinance programs, and cash transfers. Chapter 9 deals with managing economic crises and natural disasters. Table 9.1, page 163, shows seven crises and the incidence of poverty before the crisis, in the year of the crisis, and after the crisis. In only one case does it appear that the poverty incidence returns to pre-crisis levels after the crisis.

World Bank, with contributions from the International Food Policy Research Institute and the Programa de Asignación Familiar. 2000b. Honduras Poverty Diagnostic 2000. Report No. 20531-HO. Washington, D.C.: World Bank.

This is to contribute to the Poverty Reduction Strategy Paper (PRSP) for Honduras. It does not promise to provide detailed policy options.

Main findings:

- All poverty and extreme poverty appear to have decreased by 10 percentage points or less, 1991-99, but there is uncertainty about this result. Non-monetary indicators (water, electricity, and sanitation) improved, and the percent of population with no unmet basic needs rose from 33 to 53 percent 1990-97;
- The impact of growth on poverty is somewhat smaller than for other LAC countries
- Mitch's impact on poverty looks to be small, but is thought to have been larger.
- Mitch relief efforts have favored centrally located departments.
- Income inequality appears to have increased in the 1990s (not in urban, but in rural areas, as seen in the table which follows, and the World Bank attributes some of this trend to public sector programs)

Looking at poverty determinants in the context of regressions of household survey data, poverty rises in Honduras for:

- Households with more children.
- Smaller numbers of adults.
- Younger household heads.
- Female headed households (by 15 to 30 percent).
- Lower educational levels (e.g., university education of the household head doubles expected income of the household), and the gain in income rises with level of schooling.
- Except for very high levels of schooling attained by the household head, two income earners are required to pull a household out of poverty.
- Households with heads working in agriculture.
- Household heads working in smaller firms.
- Less economic growth; non-monetary indicators improve with growth as well, but urbanization has a more positive impact on social indicators than growth.
- An absence of migration experiences (individuals in households where the head has migrated since birth have per capita incomes that are five to 15 percent high than other households)

Even after controlling for a range of household characteristics, there are significant differences in income associated with geographic region, or area. This gives a rationale for so-called poor areas policies (e.g., investment in infrastructure) because if geographic effects matter for poverty reduction, the characteristics of the areas in which household live must be improved alongside the characteristics of the households themselves.

There is not much consensus about the effects of land titling, and two studies that looked at the effects of technical assistance to farmers arrived at opposite conclusions. And the FHIS was judged an effective tool for purposes of combating poverty.

Honduras provides subsidized electricity and bus transportation in Tegucigalpa. Regrettably, the Bank concludes that the poverty impact of the electricity subsidy is small in comparison to the public cost. Data were unavailable for an assessment of the impact of the bus subsidy on poverty.

Growth in per capita GDP of one percent annually reduced poverty and extreme poverty in Honduras by 0.4 percentage points. This impact is slightly lower than in other Latin American

countries, suggesting that growth is not broad-based enough. In rural areas, the elasticity of growth to poverty is low. Given more poverty in rural areas, and that more than half of the population is rural, the Bank argues that policies making rural growth more broad-based in rural areas should be a priority

World Bank. 2000c. Panama Poverty Assessment. Washington, D.C.: World Bank.

In spite of high GDP per capita, poverty is pervasive and rural-biased. The distribution of key productive assets is not equal. There is also a lack of targeting and efficient social policy. Much is spent, but the poor are not benefited as much as they should be. Poverty reduction now figures as the government's top priority. Quite striking and instructive are findings of the multivariate regressions run on the household data. Several different forms of physical, natural and social capital appear to impact rural poverty. Human capital and financial capital, however, seem to be far less important than the other three asset forms, and less important than they have been found to be in other countries of the region.

World Bank. 1999. Government Programs and Poverty in Mexico. Report No. 19214-ME. Revised Green Cover Draft. Two volumes, Main Report and Background Papers. Washington, D.C.: World Bank.

Extreme poverty includes nationally 30 percent of the Mexican population (these people cannot afford basic food needs), and more moderate poverty runs at twice that level (these people cannot afford some non-food needs). Both national poverty measures trended down in the 1984-94 period. But then an economic crisis shook the country in 1995, producing an upward trend in both types of poverty. Poverty is much higher in rural than urban Mexico, but over three times higher in rural areas in the case of extreme poverty in 1996. Rural poverty of both types has been increasing since 1989—or well before the crisis of 1995—while urban poverty turned up in response to the crisis. However, the ratios of rural to urban extreme poverty and moderate poverty have been rising steadily since 1984, disregarding the extreme values taken by both ratios in 1994. This higher poverty intensity in rural Mexico has justified an explicit pro-rural bias in targeted poverty reduction programs.

Income inequality is high in Mexico (in the table below, the national Gini Coefficient was over 0.5 in 1996). Furthermore, national inequality was worsening to 1994, but then improved. Urban inequality essentially shadowed this national trend (75 percent of the population is urban) while rural inequality declined after 1984, but increased after 1994. The resulting rise in urban and rural inequality dampened the positive effects of growth on poverty reduction. This was especially the case in rural areas where practically no growth was recorded between 1984 and 1996. Hence, rising inequality largely accounted for the recent rise in rural poverty.

To identify income/poverty determinants, the Bank regressed the following sets of variables on the log of per capita nominal income divided by the relevant poverty line: geographic location; demographic variables; schooling levels of the household head and spouse; and occupation variables for the household head (sector of employment and position occupied). Household surveys for the 1989-96 period were the data source. Separate regressions were estimated for rural and urban households. Income was found to rise in both urban and rural households (unless otherwise noted) with:

- Smaller family size
- Older household heads
- Non-female household heads
- Higher schooling levels (though the gains are somewhat lower in rural areas)
- Non-indigenous populations outside rural areas (indigenous populations in rural areas have lower income);

- Work in the non-agricultural sector (interestingly, this effect was not significant in rural households)
- Positions as agricultural workers (being true for urban and rural households)

In addition, important income differences were associated with each state (geographic location), even after netting out the effects of demographic variables, schooling, and occupation variables. Yucatan, plus three other states closest to Guatemala in the South Region of the country (Chiapas, Guerrero, and Oaxaca) were associated with largest negative income effects among rural households, amounting to between 43 percent and 49 percent (see the table that follows). These particular geographic effects were also all highly significant statistically. Largest negative income effects for location among urban households were again associated with Chiapas and Yucatan. But Guerrero's was small and insignificant. Oaxaca's was significant and relatively large, namely, -20.0 percent. These results suggest that the exit path from rural poverty involves improving opportunities and productivity in agriculture and rural areas of all states, except Guerrero, where employment through migration and residence, or through part-time work, in urban areas appears to be a potential path out of rural poverty.

Mexico's spending for social development has increased 28 percent (1995-99) while the programmable budget increased only 15 percent. Its specific poverty reduction strategy involves broad-based (not targeted for the poor) and targeted policy interventions.

World Bank. 1995. Guatemala: An Assessment of Poverty. Washington, D.C.: World Bank.

Wortmann, Charles S. 1998. Atlas of common bean (*Phaseolus vulgaris L.*) production in Africa. Cali, Colombia: International Center for Tropical Agriculture, CIAT.

This compiles data on beans in Africa to serve information needs of bean researchers, rural developers, policy makers, and emergency relief personnel. It results from a collaborative effort by bean researchers who helped collect secondary and primary data and contributed expert opinions. It gives information on 59 variables in 96 bean production areas in Africa, with these areas being grouped into 14 environmental categories. Results of a constraints analysis are also present.

Wreniski, J. 2000. "The very poor, living proof of the indivisibility of human rights." In Q. Wodon, ed., "Extreme poverty and human rights: Essays on Joseph Wreniski." Word processed. Washington, D.C.: World Bank.