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POVERTY IN MEXICO: AN EMPIRICAL ANALYSIS

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ABSTRACT

The main objective of this paper is to measure the incidence of poverty in Mexico using the 1984 Income-Expenditure Survey. The contribution is threefold. First, poverty is estimated using three poverty measures and a range of six poverty lines available for Mexico. Second, the study compares the resulting estimates with those of other available studies based on the same survey. Third, it provides a profile of poor households in terms of their relative position, material conditions, and demographic, educational, and occupational characteristics.

RESUMEN

El principal objetivo de este trabajo consiste en medir la incidencia de la pobreza en México utilizando la encuesta de ingreso y gasto de 1984. La aportación es triple. Primero, la pobreza se estima utilizando tres medidas de pobreza y un rango de seis líneas de pobreza disponibles para México. Segundo, el estudio compara las estimaciones resultantes con aquéllas de otros estudios disponibles basados en la misma encuesta. Tercero, proporciona un perfil de las familias pobres en términos de su posición relativa, condiciones materiales, y características demográficas, educacionales y ocupacionales.

Introduction

The main objective of this paper is to measure the incidence of poverty in Mexico using the 1984 Income-Expenditure Survey. The contribution is threefold. First, poverty is estimated using three poverty measures: the head-count ratio, the normalized poverty gap, and the "distribution sensitive" Foster et al. P_2 index,[1] and a *range* of six poverty lines available for Mexico. The range of six poverty lines will also be used to determine whether the incidence of poverty is unambiguously higher for rural compared to urban households.[2]

Second, the study compares the resulting estimates with those of other available studies based on the same survey. This enables us to check how poverty estimates vary depending on the treatment given to the data. In particular, we shall be able to check the sensitivity of poverty measures to making the survey data compatible with National Accounts.

Third, it provides a profile of poor households in terms of their relative position, material conditions, and demographic, educational, and occupational characteristics.

Measuring Unit, Poverty Lines, and Poverty Measures

Measuring Unit

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1 See Foster, Greer and Thorbecke (1984).

2 Rural households are those located in "low density" areas, and urban households are those located in "high density" areas. High density areas are those municipalities that fulfilled at least one of the following: to have at least one township with more than 15,000 inhabitants; to have total population equal to or higher than 100,000; to have the capital of the state; or to belong to one of the twelve metropolitan areas (Ciudad de México, Guadalajara, Monterrey, León, Merida, Chihuahua, San Luis Potosí, Puebla, Veracruz, Orizaba, Torreón, and Tampico).

The calculations presented below use as the measuring unit the *per capita* total income[1] (monetary plus non-monetary) of households for the third quarter of 1984. The income figure is that given by the survey and it was not adjusted to make totals compatible with National Accounts (see Appendix for further discussion). Since 1984 was a year with somewhat high monthly inflation rates, all incomes were converted to June 1984 prices using the corresponding Consumer Price Indices.[2] The conversion adjusted for inflation. The reason for using per capita income rather than total household income is straightforward: that household size varies inversely (and substantially) with income.[3]

Total income was preferred to total expenditure because of the following: When asked about their income, the surveyed households always referred to the same time period (monthly income during the previous six months). The figure for quarterly income was obtained by adding the six months of income and then dividing by two. On the other hand, the questions on expenditure patterns referred to different time periods, ranging from the previous week for foodstuffs to the previous six months for durables. In order to obtain quarterly figures, the weekly and six-monthly expenditures were blown up or scaled down, respectively, by simple arithmetic transformations.

Care should be taken because the procedure used to calculate total expenditures may introduce different biases in the measured variables depending on their initial time reference. When inflation is zero or low and real incomes are relatively constant, there will not be a bias (or it may be negligible). When inflation is moderate or high, however, the bias can be substantial.

Poverty Lines

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1 The income is net of direct taxes and other contributions such as social security, etc.

2 Since the codes allow one to identify the ten-day period in which the household was surveyed, the adjustment for inflation can be done very accurately.

3 Household size, however, was *not* converted to “adult equivalent units.”

There is no clear consensus in the literature about when a household or an individual should be defined as poor. The most common approach found in empirical studies is to exogenously define the cost of a minimum food basket, augmented by a chosen factor such as the reciprocal of the estimated share of food in total spending,[1] or the estimated minimum to which non-food expenditures can be compressed.[2]

Given the widespread differences of opinion,[3] and the fact that value judgments are at the very essence of the definition of the poverty line, several authors recommend the use of more than one criterion[4] in the definition of poverty. For example, instead of using only one poverty line one should use a range of possible alternative poverty lines, and then judge the results for the entire range.

The use of a range is particularly important when making comparisons across socioeconomic groups, between countries, or over time. It is quite possible that for some values of the poverty range one finds that poverty has increased, whereas for other values it has declined or remained the same. When the results are the same for the entire range, the conclusion about the direction of the change is unambiguous.

In Table 1 we present six available poverty lines which have been used to measure poverty in Mexico. The poverty lines range from US $50.61 per capita per quarter (Levy's "ultra-poverty" line) to US $238.83 per capita per quarter (Hernández-Laos' "moderate poverty" line). It is useful to investigate which criteria were followed by each author.

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1 This approach was proposed by Orshansky (1965) and has been applied by, for example, Altimir (1982b) and CEPAL (1990) for Latin America. In the latter two the share of food in total spending is assumed to be around 50 percent; thus, the "moderate" poverty line is twice the cost of the minimum food basket.

2 Lipton (1983), for example, found that non-food expenditures can be compressed to 20 percent of total spending. In such a case the poverty line is equal to 1.25 the required expenditures on food. This approach was followed by Levy (1990) to define the ultra-poverty line. (Levy has a more recent version of the paper; this section is essentially unchanged (Levy, 1991).

3 These differences will be observed later when the different studies on Mexican poverty are reviewed.

4 See, for example, Sen (1979) and Atkinson (1987).

Levy.[1] The moderate poverty line—according to the author—is from COPLAMAR's (1982) definition of a "minimum consumption basket," which includes food and non-food items. The ultra-poverty line is equal to the cost of one of COPLAMAR's recommended "minimum nutrients" food baskets,[2] multiplied by 1.25.[3]

Hernández-Laos.[4] The moderate poverty line is also supposed to be the one recommended by COPLAMAR (1982) and used by Levy. However, the actual poverty lines used by each author are not the same. The discrepancy cannot be explained by the fact that Levy's is in January 1984 prices and Hernández-Laos' is in prices from the first quarter of 1984. The ultra-poverty line is an "infra minimum consumption basket," which includes food, housing, health, and education. The source is the same study by COPLAMAR.

CEPAL.[5] The moderate poverty line was calculated following a "basic needs" criterion. The food component was determined by estimating the cost of a food basket satisfying nutritional requirements in both urban and rural areas, while total expenditures were assumed to be twice the required food expenditures in urban areas and seventy-five percent higher in rural areas. The ultra-poverty line includes the required food expenditures only. The lines reported in Table 1 are averages of the urban and rural poverty lines weighted by population.

Conceptually, all the definitions follow similar lines. There is a required minimum spending on food, and the allowance for non-food expenditures can vary from zero to fifty percent of total spending defining the range from indigence to moderate poverty. Poverty lines that are about equal to the income level that covers a minimum food basket are similar: compare CEPAL's and Levy's ultra-poverty lines. The consensus disappears when non-food items are

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1 Levy (1991), note on p. 28 and pp. 24A-24B.

2 COPLAMAR (1982), pp. 100-107. The selected "food basket" by COPLAMAR was No. 5 (out of 15).

3 Following Lipton (1983).

4 Hernández-Laos (1990), pp. 267-270. Also see Hernández-Laos (1989).

5 CEPAL (1990), pp. 23-26.

introduced. For example Hernández-Laos' ultra-poverty line (which includes non-food items) is even higher than CEPAL's moderate poverty line.

Poverty Measures

The three poverty measures estimated in this study include the head-count ratio (H), the normalized poverty gap (HI), and the P_α for α =2, which will be called the FGT index.[1]

There are at least two important reasons why the selection of the appropriate poverty index should be of practical concern. First, policy analysts and policy-makers are interested in finding a measure of poverty that captures the several dimensions of poverty, and that provides a relatively robust ordering when poverty changes are measured over time.[2] Second, given a poverty line the choice of the poverty index will determine the optimal allocation of government resources to minimize poverty. The use of the head-count ratio suggests that government resources should be allocated to those just below the poverty line so as to reduce the head-count ratio at the fastest pace. On the contrary, using the FGT, the optimal allocation would call for resources to be given to the poorest of the poor.

Although a number of poverty indices and their properties have been developed,[3] the one used most widely is the head-count ratio.[4] The head-count ratio is often preferred because it is relatively easy to calculate and interpret. However, as the recent (and not so recent) literature has shown, the head-count ratio has many shortcomings. First of all, the head-count ratio gives an estimate of the number of people falling below a certain poverty line but does not

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1 For a methodological discussion on poverty indices and their properties see, Sen (1976); Foster, Greer, and Thorbecke (1984); Foster (1984); and Atkinson (1987).

2 The problem arises, in our view correctly so, when one tries to determine whether poverty has increased or decreased using a poverty range rather than a poverty line. When using a poverty line, the answer is unambiguous. The results, however, could be reversed even under small changes of the poverty line. Thus, one requires additional criteria, such as the poverty gap and the distribution sensitive P_2, to decide in what direction poverty has changed.

3 The array of possibilities includes, for example, the ubiquitous head-count ratio, the normalized deficit, the Watts measure, the Clark et al. measure, the Foster et al. P_α measures, and the Sen index.

4 At the risk of spelling out the obvious, the head-count ratio is the fraction of the population with incomes below a chosen poverty line.

capture the depth of their poverty. Secondly, the head-count ratio, by applying equal weights to the poor as to the very poor, treats poverty as a discrete rather than continuous characteristic. The head-count ratio is insensitive to variations in the degree of poverty and to transfers from poorer to richer households as long as the relative number of poor units does not vary.

These considerations have led to the development of alternative indices[1] with desirable properties. First, there is an argument in favor of using an index that is a continuous function of income, thereby reflecting the non-discrete nature of poverty (monotonicity axiom). Second, there are also good reasons in favor of using an index which is "distribution sensitive" (transfer axiom). The first property is satisfied by the normalized poverty gap, which is the average income shortfall among the poor.[2] However, even though this index is non-discrete and measures the degree of poverty, it is not "distribution sensitive". The index which is *both* a continuous function of income and sensitive to the distribution of income *within* the poor is the FGT index.

Suppose a government wants to be "Rawlsian" and thus needs to use a measure which is more sensitive to the changes in income of the poorest of the poor. Which index should it use? The FGT index is the only one of the three that satisfies this criterion, because it assigns weights to households that vary inversely with their income. In contrast, if the head-count ratio were used, a redistribution of income from the very poor to the poor would show up as an improvement, i.e., a decline in the headcount ratio, if the latter end up with an income above the poverty line.[3]

The head-count ratio, the poverty-gap, and the FGT index all belong to the so-called P_α measures of poverty. The P_α class of measures can be interpreted as a weighted sum of the poverty gap ratio with the weights equal to zero for H (head-count ratio), equal to one for HI (normalized poverty gap), and equal to the poverty gap ratio itself for the FGT index. As it was

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1 See the survey by Foster (1984).

2 That is, the total amount by which incomes fall below the poverty line expressed as a percentage of the poverty line multiplied by the head-count ratio.

3 For a thorough discussion of this see Bourguignon and Fields (1990).

mentioned above, H satisfies neither the *monotonicity* nor the *transfer* axiom, HI satisfies the *monotonicity* axiom only, while the FGT satisfies both.

In mathematical form the three poverty measures are:

$$H = P(0, z^*) = q / n$$

$$HI = P(1, z^*) = 1/ n \sum_{i=1}^{q} [(z^* - y_i) / z^*]$$

$$FGT = P(2, z^*) = 1/ n \sum_{i=1}^{q} [(z^* - y_i) / z^*]^2$$

where n is the total number of households, z* is the poverty line (or range of poverty lines between z- and z+), y_i is the unit's income, and where q is the number of units for which ($z^* - y_i$) is positive. In the case where z* is a range, there will be as many P(.) as there are poverty lines. The value of α can be interpreted as a measure of "society's aversion to poverty". That is, larger values of the parameter indicate that a greater weight is attached to the poverty gap of the poorest unit.

Empirical Results

Poverty Incidence

The estimates for the three types of poverty measures and four poverty lines are presented in Tables 2, 3, and 4. Table 2 is for all households, Table 3 for rural households, and Table 4 for urban households.

For all the households taken together the head-count ratio ranges from 71.5 percent to 11.2 percent, the normalized poverty gap from 38.1 percent to 3.4 percent, and the FGT index from 24.6 percent to 1.5 percent.

To check whether rural households are unambiguously poorer than urban households, we compare the head-count ratio for rural and urban households using a range of poverty lines. The result is presented in graph 1, which depicts the head-count ratio for rural and urban households. From the graph it is obvious that the incidence of poverty is *unambiguously* higher among rural households compared to urban households because the rural "poverty curve" is always above and never crosses the urban "poverty-curve." One of the distributions clearly satisfies the so-called first order dominance criterion by inspection. Since the head-count ratio yields unambiguous results for the pair-wise comparison, the ordering is complete. There is no need to do the same exercise with the other two indices.[1]

It has been argued that prices—food prices, in particular—in the rural sectors may be lower than in urban sites. Thus, dominance results could be reversed. The approach followed here to check the robustness of the poverty dominance results is the following: We asked the question, how much lower should urban incomes have to be to reverse the result that the incidence of poverty for rural households is *always* higher than urban households for the entire range of poverty lines? It was found that for the bottom fifty percent of the urban households their income would have to be forty percent lower than rural incomes for the results to be reversed. It is unlikely that rural-urban price differentials would produce real income differentials of that

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1 See Atkinson (1987) and Foster and Shorrocks (1988a and 1988b).

magnitude.[1] So, the dominance results can be taken as fairly robust. Nonetheless, this point should be explored further whenever reliable rural and urban prices become available.

Comparison with Existing Estimates

There are three studies that estimate poverty measures using the 1984 Income Expenditure Survey: CEPAL (1990), Hernández-Laos (1990), and Levy (1990). The results are summarized in Table 5, where our estimates appear in parentheses underneath the corresponding category.

Not surprisingly, our results, using the same poverty lines, do not coincide with those of the others. Levy's estimates are systematically higher, whereas Hernández-Laos' and CEPAL's are systematically lower. For example, the difference between Levy's (81.1 percent) and Hernández-Laos' (59.9 percent) estimates of the proportion of individuals in moderate poverty, using the same poverty line, is about 21 percentage points.

In the Hernández-Laos and CEPAL studies, the information was made compatible with the National Accounts. This is most likely the main explanation for the difference between Levy's results and "ours," on the one hand, and CEPAL's and Hernández-Laos', on the other. Survey incomes and expenditures will increase (though not uniformly) when they are adjusted to match the National Accounts. Hence, households and individuals below the poverty line before the adjustment are no longer classified as poor after the adjustment. However, Hernández-Laos' data adjustment process yields a larger discrepancy between his and the unadjusted cases than does CEPAL's. The difference between the adjusted and unadjusted data estimates is equal to 8.1 percentage points for moderate poverty and 4.7 percentage points for ultra-poverty when using CEPAL's, in contrast with 21.1 and 29.6, respectively, when using Hernández-Laos'. More

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1 CEPAL (1990), for example, finds that in Mexico, food prices in rural areas are twenty percent below prices in urban areas, p. 23.

needs to be known about the adjustment procedures followed by Hernández-Laos and CEPAL to explain the difference, and, also, to be able to determine which of the adjusted-data estimates are more "credible."

Levy does not expand the sample. However, this does not explain the difference between his estimates, which are around six percentage points higher for moderate poverty and two percentage points higher for ultra-poverty, and ours.[1] Levy also uses total expenditures as the measuring unit. This should have made his estimates *lower* than ours, since expenditures exceed income for all but those in the highest deciles. Thus, using total expenditures should have raised the number of households classified as non-poor. As matters stand, there is no clear explanation for the difference between Levy's estimates and ours. Levy's results, one should note, are the highest of those available: 72.8 percent of the households and 81.1 percent of the individuals are moderately poor, and 13.2 percent and 19.5 percent are ultra-poor, respectively.

Demographic, Educational, Occupational Characteristics and Material Conditions of the Poor

Relative Position of the Poor

It was determined in the previous section that somewhere between ten and fifteen percent of the households are hardcore-poor,[2] and somewhere between thirty-eight and seventy-two percent are moderately poor. One can observe the relative position of the ultra and moderately poor within the entire income distribution spectrum in Table 6. The lowest decile (which includes the majority of the ultra-poor) receive less than 1.7 percent of total household

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1 To test this the poverty measures were estimated using the unweighted sample data and the difference was of the order of one percentage point (higher with the unweighted as compared to the weighted sample).

2 In terms of having incomes that fall below the minimum recommended food intake. That is why we left out Hernández-Laos' estimate.

income, and close to 1.5 percent in per capita terms. Their per capita income is more than twenty times lower than the per capita income of the top decile.

Demographic Characteristics of the Poor

The lowest decile is composed predominantly of rural and agricultural households, while from the third decile onward the majority of households are urban and non-agricultural (see Table 7). However, even though the poorest households are mostly rural and/or agricultural, about fifteen percent of the hardcore poor are neither. Not surprisingly, the hardcore poor have the highest average household size, the lowest proportion of income earners within the household, and the highest dependency ratio. As income rises, all these variables move in the "right" direction.

Material Conditions of the Poor

The lowest decile, defined by income criteria, are also poor in terms of access to services and living conditions (see Table 8). In the lowest decile only fourteen percent of the households have sewage, 51.3 percent have running water, 6.8 percent have refrigerators, and the number of persons per room is 5.13. All these improve with income. However, around the fifth decile there are still fifty percent of households without sewage. As expected, the average material conditions are considerably worse in rural areas, although they are much more equally distributed than income.[1]

Educational and Occupational Characteristics of the Poor

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1 Compare Tables 6 and 8.

The hardcore poor's heads of household are highly uneducated: about ninety percent of them have had no instruction, or did not finish primary school (see Table 9). This situation improves with income, but the moderately poor are also largely uneducated: over sixty percent of them either have had no instruction or have not finished primary school. Educational skills are, as would be expected, concentrated at the top: almost ninety percent of the households whose head had finished university were in the top thirty percent of the population.

Compared to the rest of the population, the ultra-poor households have more heads who are self-employed, and fewer who are wage earners (see Table 10). Of those who are wage earners, a considerably large proportion work as agricultural workers. It is interesting to note that the fraction of employers (especially small employers) is not very different for the hardcore poor than for the rest.

Most of the heads who are agricultural workers belong to the lowest deciles: about eighty percent of them are in the lower fifty percent of households, while the opposite occurs for non-agricultural workers.[1] Those heads who are employers or self-employed, do not follow such a clear pattern. In terms of income sources, the ultra-poor seem to derive about a third of their income from "profits" (see Table 11). However, this may actually be imputed wages to the self-employed, who do not count their labor time as a wage-generating activity. Non-monetary income is more important for the ultra-poor (about one third of total income). The other third is comprised by income derived from wages. Wage income becomes increasingly important from deciles II to VII when its share begins to decline, but not very significantly.

The household heads of the hardcore poor are essentially "blue collar" and agricultural workers (see Table 12). As income rises the shares of agricultural heads of household and of blue-collar workers decline, while that of tertiary activities and white-collar workers rise. Blue-collar and agricultural workers are more concentrated at the bottom end of the distribution of

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1 Lustig (1990), "The Incidence of Poverty in Mexico, 1984: An Empirical Analysis," Mimeo, Brookings Institution, October, Table 27.

income, while white-collar workers, supervisors, managers, and owners are more concentrated at the higher ranges. So are those heads involved in tertiary activities.[1]

APPENDIX

Data Source

All of the calculations presented here were made using the third quarter of the Income-Expenditure Survey for 1984, carried out by the National Institute of Statistics, Geography and Informatics (INEGI), an agency of the Ministry of Budgeting and Programming in Mexico.[2] The number of observations in the survey is equal to 4,735 households,[3] which when weighted by the corresponding expansion factors is converted into 14,988,551 households (and 75,584,331 individuals). The accuracy of the data obtained in electronic format was *confirmed* by comparing it with the figures published by INEGI (1989).

There were four independent surveys during the four quarters of 1984.[4] The number of observations for the four quarters added together is 18,950 households. Since Levy's study (1990) showed that the incidence of poverty is almost the same from quarter to quarter,[5] only one of the quarters was used here so as to facilitate the computational task. Of the four quarters, the third captures living conditions in 1984 with more accuracy because the income recorded in each quarter of the survey is an average of the income received during the preceding six months.

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1 Lustig (1990), Tables 25 and 27.

2 Instituto Nacional de Estadísticas, Geografía e Informática (INEGI), Secretaría de Programación y Presupuesto.

3 The computations were made on a sample that is twenty-three observations short of the original number because some of them had to be dropped. Fortunately the twenty-three observations are randomly distributed and not concentrated in any particular income level.

4 Plus a "pilot" survey in the fourth quarter of 1983 which is not in use.

5 Levy (1990).

The survey was drawn using a stratified and multi-stage sampling method.[1] It is a representative sample for the population as a whole, and for high (here called *urban*) and low density (here called *rural*) households.[2] Further disaggregations may not be statistically valid. In particular, disaggregating by state, for example, may yield distorted results.[3]

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1 For a complete discussion of the sampling procedure and characteristics of the survey, see INEGI (1989).

2 High density households are those located in municipalities that satisfied at least one of the following: to have at least one township with more than 15,000 inhabitants; to have total population equal or higher than 100,000; to have the capital of the state; to belong to one of the twelve metropolitan areas (Ciudad de México, Guadalajara, Monterrey, León, Merida, Chihuahua, San Luis Potosí, Puebla, Veracruz, Orizaba, Torreón, and Tampico.

3 Levy (1990) uses the survey disaggregating by state and finds that some calculations are not even feasible, let alone distorted. For example, Levy is not able to decompose the poverty index for rural households by state because some states have no rural households in the sample.

Comparison with National Accounts

In order to check the accuracy of the information included in the Survey, some authors recommend that it be compared with the National Accounts.[1] The Mexican National Accounts, however, do not produce a concept of income that is suitable for comparison with the Survey's. Total income in the Survey is about forty percent of total disposable income in the National Accounts. This figure is similar to that found for other Mexican Surveys.[2]

Hernández-Laos (1989) and CEPAL (1990) have adjusted the 1984 Mexican survey data to make it compatible with the National Accounts.[3] In this author's view the adjustment procedure is risky, since too many unchecked assumptions have to be made. In particular, the assumptions regarding the size of undistributed profits, and the allocation of the "unaccounted" income. Even if the adjustment is made by income category, one is never sure about the degree of the distortion that is introduced since the Mexican National Accounts do not produce household accounts.[4] The unpalatable choice is between accepting the under-reporting given by the survey data, or the questionable assumptions of the adjustment process.

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1 See Altimir (1982b) and Atkinson and Mickelwright (1983), for example.

2 This is the case of the 1977 Survey (Lustig, 1981, p. 97).

3 The interested reader should refer to Hernández-Laos (1989). The method followed by the CEPAL (1990) study is not spelled out in the document. See Altimir (1982a) for similar exercises for the Surveys between 1950 and 1977.

4 As do the National Accounts for Great Britain, for example (see Atkinson and Mickelwright, 1983).

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TABLE 1

MEXICO: AVAILABLE POVERTY AND ULTRA-POVERTY LINES[1]

(June 1984 pesos)

Author	Poverty		Ultra-Poverty	
Levy	Mex$ 39,215.18	US 211.95	Mex$ 9,372.12	US 50.61
Hernández-Laos	Mex$ 44,228.18	US 238.83	Mex$ 26,219.56	US 141.58
CEPAL	Mex$ 20,116.33	US 108.63	Mex$ 10,460.89	US 56.49

Sources: Levy (1991), Hernández-Laos (1990), CEPAL (1990).

[1] All the poverty and ultra-poverty lines were converted to June 1984 pesos per quarter per capita. For definitions see text. The lines were converted to dollars using the average free exchange rate for 1984: MEX$ 185.19/dollar.

TABLE 2

MEXICO: INDCIDENCE OF POVERTY AND ULTRA-POVERTY FOR HOUSEHOLDS

Total Units (1984/3rd quarter)

Poverty Lines[2]	Head Count Ratio[3] (percent)	Normalized Poverty Gap[4] (percent)	FGT Index[5] (percent)	Source of Poverty Lines[6]
US$ 50.61	11.2	3.4	1.5	Levy: Ultra-Poverty
US$ 56.49	14.7	4.4	2.6	CEPAL: Ultra-Poverty
US$ 108.63	38.1	15.3	8.1	CEPAL: Moderate-Poverty
US$ 141.58	49.9	22.0	12.5	Hernández-Laos: Ultra-Poverty
US$ 211.95	66.5	34.2	21.5	Levy: Moderate-Poverty
US$ 238.83	71.5	38.1	24.6	Hernández-Laos: Moderate-Poverty

Source: Author's calculations based on the Mexican Income Expenditure survey for the third quarter of 1984.

2 Per capita per quarter at constant June 1984 prices.

3 Households with per capita income below the poverty line as a proportion of total households.

4 Income gap multiplied by the head count ratio.

5 This is the Foster, Greer, and Thorbecke (1984) index. For more details see text.

6 For definitions and sources see text and Table 1.

TABLE 3

MEXICO: INCIDENCE OF POVERTY AND ULTRA-POVERTY FOR HOUSEHOLDS

RURAL UNITS
(1984/3rd quarter)

Poverty Lines[7]	Head Count Ratio[8] (percent)	Normalized Poverty Gap[9] (percent)	FGT Index[10] (percent)	Source of Poverty Lines[11]
US$ 50.61	23.5	7.2	3.7	Levy: Ultra-Poverty
US$ 56.49	29.5	9.2	4.1	CEPAL: Ultra-Poverty
US$ 108.63	59.8	27.3	15.3	CEPAL: Moderate-Poverty
US$ 141.58	72.3	36.4	22.2	Hernández-Laos: Ultra-Poverty
US$ 211.95	84.4	50.7	34.6	Levy: Moderate-Poverty
US$ 238.83	86.5	54.6	38.4	Hernández-Laos: Moderate-Poverty

Source: Author's calculations based on the Mexican Income Expenditure survey for the third quarter of 1984.

7 Per capita per quarter at constant June 1984 prices.

8 Households with per capita income below the poverty line as a proportion of total households.

9 Income gap multiplied by the head count ratio.

10 This is the Foster, Greer, and Thorbecke (1984) index. For more details see text.

11 For definitions and sources see text and Table 1.

TABLE 4

MEXICO: INCIDENCE OF POVERTY AND ULTRA-POVERTY FOR HOUSEHOLDS

URBAN UNITS
(1984/3rd quarter)

Poverty Lines[12]	Head Count Ratio[13]	Normalized Poverty Gap[14]	FGT Index[15]	Source of Poverty Lines[16]
	(percent)	(percent)	(percent)	
US$ 50.61	4.7	1.4	0.7	Levy: Ultra-Poverty
US$ 56.49	6.7	1.9	0.9	CEPAL: Ultra-Poverty
US$ 108.63	26.5	8.9	4.2	CEPAL: Moderate-Poverty
US$ 141.58	37.9	14.3	7.3	Hernández-Laos: Ultra-Poverty
US$ 211.95	57.0	25.4	14.5	Levy: Moderate-Poverty
US$ 238.83	63.5	29.3	17.3	Hernández-Laos: Moderate-Poverty

Source:Author's calculations based on the Mexican Income Expenditure survey for the third quarter of 1984.

[12] Per capita per quarter at constant June 1984 prices.

[13] Households with per capita income below the poverty line as a proportion of total households.

[14] Income gap multiplied by the head count ratio.

[15] This is the Foster, Greer, and Thorbecke (1984). For more details see text.

[16] For definitions and sources see text and Table 1.

TABLE 5

A Comparison of Available Estimates on the Incidence of Poverty and Extreme-Poverty: 1984

	Head Count Ratio				Compatible with National Accounts [b]	Weighted Sample [a]	Data Adjusted for Inflation
	Households		Individuals				
	Income (%)	Expenditures (%)	Income (%)	Expenditures (%)			
Levy[c]/(Our Estimate) [d]							
Poverty	na (66.5)	72.8	na (75.3)	81.1	No (No)	No (Yes)	Yes (Yes)
Extreme-Poverty	na (11.2)	13.2	na (15.5)	19.5	No (No)	No (Yes)	Yes (Yes)
Hernández-Laos[c]/(Our Estimate) [d]							
Poverty	na (71.5)	na	58.5 (79.6)	59.9	Yes (No)	Yes (Yes)	No (Yes)
Extreme-Poverty	na (49.9)	na	29.9 (59.5)	23.8	Yes (No)	Yes (Yes)	No (Yes)
CEPAL[f]/(Our Estimate) [d]							
Poverty	30.0 (38.1)	na	na (47.4)	na	Yes (No)	Yes (Yes)	Not Clear (Yes)
Extreme-Poverty	10.0 (14.7)	na	na (20.0)	na	Yes (No)	Yes (Yes)	Not Clear (Yes)

a Method of adjustment is described in Enrique Hernández-Laos, "Medición de la intensidad de la pobreza y de la pobreza extrema en México (1963-1988)," in *Investigación Económica*, no. 191, (January-March 1990), pp. 265-89; not described in CEPAL, "Magnitud de la pobreza en America Latina en los años ochenta," LC/L.533 (Santiago, 1990).

b Sample was expanded to universe with given weighting factors.

c Santiago Levy, "Poverty in Mexico: Issues and Policies," (mimeo, World Bank, Washington: June 1990). Poverty lines and household expenditures are in January 1984 prices, per quarter, per capita. Households are ranked by per capita expenditures.

d Numbers in parentheses are from author's calculations using the same poverty lines converted to June 1984 prices. Data comes from the same survey for the third quarter only. Households are ranked by income per capita.

e Hernández-Laos (1990). Poverty lines are in 1984 (average) prices, per annum, per household (household size assumed to equal 4.9 members). Households are ranked by income (expenditure) per household.

f CEPAL (1990). Poverty lines and incomes are in second semester 1988 prices, per month, per capita and converted back to 1984 prices by the author. Does not say how households were ranked.

TABLE 6

MEXICO: DISTRIBUTION OF INCOME AND AVERAGE INCOME (1984, 3RD QUARTER) (a,d)

	Total Household Income (b,c)		Total per Capita Income (e,f)	
Household Deciles	**Total (%)**	**Total Cumulative %**	**Total (%)**	**Total Cumulative %**
I	1.73 (28,208.6)	1.73	1.54 (6,190.12)	1.54
II	3.11 (50,835.3)	4.84	2.65 (10,680.56)	4.19
III	4.22 (68,834.4)	9.06	3.55 (14,295.79)	7.74
IV	5.31 (86,791.0)	14.37	4.63 (18,651.42)	12.37
V	6.42 (104,879.9)	20.79	5.85 (23,573.91)	18.22
VI	7.88 (128,779.8)	28.67	7.36 (29,649.79)	25.58
VII	9.75 (159,114.6)	38.42	9.45 (38,051.87)	35.3
VIII	12.21 (199,416.1)	50.63	12.11 (48,753.85)	47.14
XI	16.77 (273,970.9)	67.4	17.04 (68,621.85)	64.18
X	32.6 (532,865.9)	100.00	35.82 ((151,587.99)	100.00
TOTAL	100 (163,648.7)		100 (41,005.63)	

TOTAL INCOME GINI		**PER CAPITA INCOME GINI**
.4384	Total	.4881
.4106	Rural	.4808
.4147	Urban	.4574
.4673	Agriculture	.5124
.4083	Non-Agriculture	.4529

Source: Author's calculations based on data from INEGI, Income-Expenditure Survey: 1984, Third Quarter.

(a) As a proportion of total households within group.
(b) The number in the parentheses is average total household income per quarter in June 1984 pesos.
(c) Households are ranked by total household income, and the data is all for 1984, 3rd quarter.
(d) Income includes both monetary and non-monetary income.
(e) Households are ranked by total per capita income.
(f) The number in parentheses is average per capita household income per quarter in June 1984 pesos.

TABLE 7

MEXICO: SOCIO DEMOGRAPHIC CHARACTERISTICS OF HOUSEHOLDS
(1984, 3rd Quarter)

		Intra - Deciles				Inter - Deciles							
Household Deciles (a,b)	Average Per Capita Income (Pesos/Qtr) (c)	Rural (%)	Urban (%)	Agrriculture (%)	Non-Agriculture (%)	Rural (%)	Urban (%)	Agriculture (%)	Non-Agriculture (%)	Male Heads Household (%)	Household Size	Ratio-Income Earners/ Household Size (%)	Ratio-Members under12/ Household Size (%)
I	6190.12	72.5	27.5	66.6	33.4	20.9	4.2	22.7	4.7	91.1	7.0	23.2	45.2
II	10680.56	58.1	41.9	51.9	48.1	16.7	6.4	17.7	6.8	91.0	6.55	26.3	42.2
III	14295.79	47.6	52.4	44.8	55.2	13.7	8.0	15.3	7.8	85.9	5.97	29.7	36.8
IV	18651.42	35.6	64.4	31.8	68.2	10.2	9.9	10.8	9.7	88.2	5.5	34.0	31.3
V	23573.91	37.7	62.3	29.8	70.2	10.8	9.6	10.2	9.9	88.1	5.17	34.1	30.9
VI	29649.78	30.1	69.9	17.1	82.9	8.7	10.7	5.8	11.7	80.3	4.83	37.5	27.3
VII	38051.87	17.4	82.6	11.7	88.3	5.0	12.7	4.0	12.5	83.7	4.64	41.6	24.3
VIII	48753.06	18.1	81.9	13.4	86.6	5.2	12.6	4.6	12.3	79.9	4.09	48.1	21.7
IX	68621.85	17.0	83.0	14.2	85.8	4.9	12.7	4.7	12.2	79.5	3.8	52.7	19.7
X	151587.99	13.8	86.2	12.4	87.6	4.0	13.2	4.2	12.4	79.2	3.07	60.7	12.6
Total	41005.63	34.8	65.2	29.4	70.6	100	100	100	100	84.7	5.06	38.8	29.2
Rural	25451.35									87.7	5.3	35.7	32.5
Urban	49303.51									83.1	4.94	40.4	27.4

Source: Author's calculations based on data from INEGI, Income-Expenditure Survey: 1984, Third Quarter.

(a) As a proportion of total households within group.
(b) The total number of households is 14,928,934. Households are ranked by total per capita income.
(c) In June 1984 pesos. Income includes monetary and non-monetary income.

TABLE 8

MEXICO: MATERIAL CONDITIONS OF HOUSEHOLD INTRA- AND INTER-DECILE (1984, 3rd Quarter) (a,b)

Household Deciles	Average Per Capita Income (Pesos/Qtr) (c)	Sewage (%) of Decile	Sewage (%) of total (d)	Households with Running Water (%) (e)	Running Water (%) (d,e)	Refrigerators (%) (f)	Refrigerators (%) (d, f)	Cars (%) (f)	Cars (%) (d, f)	Number of Persons Per Room
I	6190.12	14.0	2.6	51.3	6.4	6.8	1.4	0.7	0.5	5.13
II	10680.56	24.7	4.6	66.6	8.3	14.9	3.0	0.9	0.6	4.49
III	14295.79	33.4	6.2	69.1	8.6	21.0	4.2	1.9	1.3	3.68
IV	18651.42	48.2	9.0	76.7	9.6	38.9	7.9	4.2	2.9	3.25
V	23573.91	49.9	9.3	82.5	10.3	50.6	10.2	5.8	4.0	2.74
VI	29649.78	63.1	11.8	86.5	10.8	61.0	12.3	8.7	5.9	2.3
VII	38051.87	72.9	13.6	91.2	11.4	70.3	14.2	21.7	14.8	2.22
VIII	48753.06	70.3	13.1	92.0	11.5	68.4	13.8	17.3	11.8	1.79
IX	68621.85	76.8	14.3	92.3	11.5	77.5	15.7	30.6	20.9	1.51
X	151587.99	82.8	15.4	92.0	11.5	85.8	17.3	54.7	37.3	1.01
Total	41005.63	53.6	100.0	80.0	100.0	49.5	100	14.7	100.0	2.81
Rural	25451.35	22.1	14.4	62.0	27.0	24.5	17.2	4.4	10.4	3.45
Urban	49303.51	70.4	85.6	89.6	73.0	62.9	82.8	20.1	89.6	2.47

Source: Author's calculations based on data from INEGI, Income-Expenditure Survey: 1984, Third Quarter.

(a) As a proportion of total households within group.
(b) The total number of households is 14,928,934. Households are ranked by total per capita income.
(c) In June 1984 pesos. Income includes monetary and non-monetary income.
(d) The values of the entries sum vertically to 100.
(e) Cases where water is piped directly to the dwelling.
(f) Cases where the household owns at least one.

TABLE 9

MEXICO: EDUCATIONAL CHARACTERISTICS OF HOUSEHOLD HEADS INTRA- AND INTER-DECILE (1984, 3rd Quarter) (a,b)

Household Deciles	Average Per Capita Income (Pesos/QTR) (c)	No Instruction (%) (d)	No Instruction (%) (e)	Unfinished Primary School (%) (d)	Unfinished Primary School (%) (e)	No instruction or Unfinished Primary (%) (d)	No instruction or Unfinished Primary (%) (e)	Finished Primary Only (%) (d)	Finished Primary Only (%) (e)
I	6190.12	41.4	20.8	49.3	13.2	90.7	15.9	7.2	3.6
II	10680.56	35.0	17.6	46.9	12.6	81.9	14.3	11.1	5.5
III	14295.79	29.8	15.0	51.3	13.7	81.1	14.2	14.1	7.0
IV	18651.42	27.0	13.6	38.6	10.3	65.6	11.0	23.4	11.6
V	23573.91	19.0	9.6	43.9	11.8	62.9	11.0	22.8	11.3
VI	29649.78	14.9	7.5	39.4	10.6	54.3	9.5	23.4	11.6
VII	38051.87	10.2	5.1	33.4	9.0	43.6	7.6	22.9	11.4
VIII	48753.06	8.9	4.5	31.9	8.6	40.8	7.1	28.3	14.0
IX	68621.85	7.6	3.8	18.7	5.0	26.3	4.6	29.2	14.5
X	151587.99	5.3	2.7	19.7	5.3	25.0	4.4	19.3	9.6
Total	41005.63	19.9	100.0	37.3	100.0	57.2	100.0	20.2	100.0
Rural	25451.35	31.0	54.2	49.8	46.4	80.8	49.1	11.3	19.4
Urban	49303.51	14.0	45.8	30.6	53.6	44.6	50.9	24.9	80.6

Source: Author's calculations based on data from INEGI, Income-Expenditure Survey: 1984, Third Quarter.

(a) As a proportion of total households within group.
(b) The total number of households is 14,928,934. Households are ranked by total per capita income.
(c) In June 1984 pesos. Income includes monetary and non-monetary income.
(d) The codes for the various categories include 0 for no instruction, 1 and 2 for unfinished primary, and 3 for finished primary only. See INEGI's Codes Manual ("Manual de Códigos").
(e) The values of the entries sum to 100 vertically.

TABLE 10

MEXICO: POSITION OF HOUSEHOLD HEAD INTRA-DECILE (1984,3rd Quarter) (a,b)

Household Deciles	Average Per Capita Income (Pesos/Qtr) (c)	A No Position (%) (d)	B Agricultural Workers (%) (d)	C Non-Agr. Workers (%) (d)	D=(B+C) Total Workers (%)	E Small Employers (%) (d)	F Large Employers (%) (d)	G=(E+F) Total Employers (%)	H Self-Employed (%) (d)	I Non-Remunerated (%) (d)	J Cooperatives (%) (d)	K Total (%)
I	6190.12	10.3	24.5	14.7	39.3	6.4	0.9	7.3	41.9	0.9	0.4	100
II	10680.56	9.7	22.1	30.4	52.5	2.4	0.7	3.1	34.3	0.4	0.0	100
III	14295.79	8.5	15.5	30.6	46.1	6.8	0.3	7.2	38.0	0.2	0.1	100
IV	18651.42	14.9	9.9	37.3	47.2	6.1	0.2	6.3	31.4	0.0	0.2	100
V	23573.91	13.0	9.8	42.7	52.5	4.8	0.4	5.2	28.8	0.4	0.1	100
VI	29649.78	18.6	4.8	46.6	51.4	4.5	0.4	4.9	24.8	0.1	0.2	100
VII	38051.87	15.5	2.9	54.1	56.9	2.7	0.6	3.3	23.3	0.9	0.0	100
VIII	48753.06	17.5	2.4	52.5	54.9	3.4	0.4	3.8	23.8	0.0	0.0	100
IX	68621.85	17.3	2.3	54.0	56.3	6.6	0.5	7.1	18.5	0.2	0.6	100
X	151587.99	21.7	1.7	51.2	52.9	8.9	1.8	10.7	14.3	0.1	0.2	100
Total	41005.63	14.7	9.6	41.4	51.0	5.3	0.6	5.9	27.9	0.3	0.2	100
Rural	25451.35	11.3	17.1	19.8	36.9	9.1	1.3	10.4	40.8	0.2	0.4	100
Urban	49303.51	16.5	5.6	52.9	58.4	3.2	0.3	3.5	21.0	0.5	0.1	100

Source: Author's calculations based on data from INEGI, Income-Expenditure Survey: 1984, Third Quarter.

(a) As a proportion of total households within group.
(b) The total number of households is 14,928,934. Households are ranked by total per capita income.
(c) In June 1984 pesos. Income includes monetary and non-monetary income.
(d) The position codes used by INEGI are 1 for non-agricultural workers, 2 for agricultural workers, 3 for small employers, 4 for large employers, 5 for the self-employed, 6 and 7 for those working without remuneration, and 8 for members of a cooperative. See INEGI's Codes Manual ("Manual de Códigos").

TABLE 11

MEXICO: DISTRIBUTION OF TOTAL HOUSEHOLD INCOME BY SOURCE (1984, 3rd Quarter) (a)

Household Decile	Average Per Capita Income (Pesos/Qtr) (b)	Non-Monetary (%) (c)	Wages and Salaries (%) (c)	Profits (%) (c)	Rents (%) (c)	Cooperatives (%) (c)	Transfers (%) (c)	Other (%) (c)	Total (%) (b)
I	6190.12	30.3 3.4	33.2 2.0	28.4 3.6	0.1 0.0	0.2 3.8	7.7 2.8	0.0 0.2	100.0 2.6
II	10680.56	22.8 4.4	46.0 4.4	23.1 4.6	0.6 0.5	0.3 13.6	7.2 4.2	0.0 0.6	100.0 4.3
III	14295.79	21.9 5.3	41.2 4.7	29.0 7.1	0.2 0.5	0.2 4.7	7.5 5.2	0.0 0.1	100.0 5.2
IV	18651.42	21.1 5.4	45.0 6.4	24.8 7.5	1.1 2.0	0.1 3.7	7.8 6.8	0.0 0.1	100.0 6.3
V	23573.91	21.3 7.0	46.5 7.9	24.5 8.1	1.2 2.4	0.1 5.5	6.5 7.0	0.0 0.1	100.0 7.5
VI	29649.79	20.5 8.1	49.3 9.8	19.3 7.8	1.3 3.1	0.4 11.8	9.1 10.7	0.1 2.5	100.0 8.8
VII	38051.87	22.6 10.6	52.4 12.9	16.8 8.4	1.2 4.3	0.0 0.0	7.0 8.6	0.0 0.6	100.0 10.9
VIII	48753.06	27.0 14.8	47.2 13.5	16.7 8.5	2.3 8.6	0.0 2.8	6.6 9.6	0.2 10.6	100.0 12.3
IX	68621.85	24.3 16.6	46.0 15.3	18.8 16.9	3.5 19.9	0.4 41.7	6.7 13.2	0.3 20.6	100.0 16.0
X	151587.99	21.6 24.5	43.3 23.3	20.4 27.7	5.0 58.9	0.2 12.4	9.0 31.9	0.6 64.8	100.0 26.1
Total (%) (b)	41005.63	23.3 100.0	45.0 100.0	22.2 100.0	1.7 100.0	0.2 100.0	7.5 100.0	0.1 100.0	100.0
Rural	25451.35	26.9 24.1	32.3 15.0	31.1 35.0	1.0 10.0	0.3 60.0	8.1 26.1	0.1 25.6	100.0
Urban	49303.51	21.4 75.9	51.7 85.0	17.4 65.0	2.0 90.0	0.1 40.0	7.2 73.9	0.1 74.4	100.0

Source: Author's calculations based on data from INEGI, Income-Expenditure Survey: 1984, Third Quarter.

(a) The total number of households is 14,928,934. Households are ranked by total per capita income.
(b) In June 1984 pesos. Income includes monetary and non-monetary income.
(c) The figures in the upper portion of each entry sum to 100 horizontally, and the lower figures in each entry sum to 100 vertically.

TABLE 12

MEXICO: OCCUPATION OF HOUSEHOLD HEADS INTRA-DECILE (1984, 3rd Quarter) (a,b)

Household Deciles	Average Per Capita Income (Pesos/Qtr) (c)	White Collar (%) (d)	Blue Collar (%) (d)	Technician (%) (d)	Supervisor (%) (d)	Manager/ Owner (%) (d)	Commerce Formal (%) (d)	Commerce Informal (%) (d)	No Occupation (%) (d)	Total (%)
I	6190.12	2.9	82.8	0.0	0.0	0.1	2.8	1.1	10.3	100
II	10680.56	5.7	77.5	1.1	0.1	1.1	3.8	1.0	9.7	100
III	14295.79	6.4	71.1	1.6	0.7	1.3	7.9	2.5	8.5	100
IV	18651.42	8.2	66.1	0.9	1.2	0.3	7.6	0.8	14.9	100
V	23573.91	11.4	62.9	0.7	1.5	0.4	8.9	1.2	13.0	100
VI	29649.78	14.3	49.8	4.3	1.8	1.2	7.9	2.1	18.6	100
VII	38051.87	20.5	42.3	2.8	5.3	1.3	10.6	1.7	15.5	100
VIII	48753.06	24.5	43.9	1.0	3.1	0.9	7.8	1.3	17.5	100
IX	68621.85	24.5	30.4	3.8	4.2	5.3	13.4	1.1	17.3	100
X	151587.99	25.2	21.8	2.7	4.5	14.1	9.5	0.5	21.7	100
Total	41005.63	14.4	54.8	1.9	2.2	2.7	8.0	1.3	14.7	100
Rural	25451.35	5.8	72.0	0.9	1.6	1.7	5.9	0.8	11.3	100
Urban	49303.51	18.8	45.7	2.4	2.6	3.1	9.2	1.6	16.6	100

Source: Author's calculations based on data from INEGI, Income-Expenditure Survey: 1984, Third Quarter.

(a) As a proportion of total households within group.
(b) The total number of households is 14,928,934. Households are ranked by total per capita income.
(c) In June 1984 pesos. Income includes monetary and non-monetary income.
(d) The survey codes for white-collar workers are 1, 3, 4, 14, and 17; for blue-collar workers 9-13 and 18-20; for technicians 2; for supervisors 8 and 21; for managers or owners 5-7; for formal commerce 15; and informal commerce 16. See INEGI's Codes Manual ("Manual de Códigos").