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SOME FACETS OF RURAL POVERTY IN COLOMBIA

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Part I: The Macro-Evidence

Identifying the poor, measuring the extent of their poverty and assessing how their circumstances have been affected by economic growth have all become important issues in the discussion of development. This paper describes an attempt to focus on these concerns in the case of Colombia. In that country the evidence suggests that those groups with the lowest incomes have been the smallest beneficiaries from recent economic growth but that their absolute incomes, at least until the current period of rapid inflation, have risen regularly nonetheless. A process of slow but steady trickle-down of the fruits of economic growth to the bottom income groups is observed. The crucial question for economic policy is whether this process can be modified to render a larger and growing share of these benefits to the poorer participants in the Colombian economy.

This paper comes in two major parts. The first, and larger, part reviews and refines the existing studies of, and data on, rural income distribution in Colombia. An initial section presents this empirical work and comments on the quality and distinguishing features of the different studies. This is followed by a section indicating the nature and degree of noncomparability among these studies. The next section is the core of this paper. After establishing a poverty line, it examines recent trends in rural income distribution and concentrates on the decade 1960-1970. It also examines corroborative evidence in the form of real wages received by salaried workers and incomes generated on small farms. Trends in the distribution of real wealth are examined next and some of the prominent characteristics of the poor - region, race, sex and occupation - are discussed subsequently. Changing conditions of health, housing and education in the countryside are considered after that. A final section concludes with a note on desirable directions for future research. In the last part of this paper the concern

is with what light available micro-studies shed on the basic issues just mentioned.

1. Measurements of Rural Income Distribution in Colombia

Beginning with the 1949 World Bank mission headed by Laughlin Currie, the subject of income distribution has attracted much attention in studies designed to monitor Colombia's economic performance. On the basis of fragmentary information the Bank mission surmised that the top 4.4 percent of rural inhabitants received 24 percent of total rural income in 1947.[1] Information was unavailable, however, to explore the distribution of income beneath this top layer. The same problem afflicted a later study by ECLA (United Nations Economic Commission for Latin America). Large-scale entrepreneurs comprising seven percent of the rural population were identified as receiving 29 percent of net agricultural income (income net of depreciation and indirect taxes).[2] Both this study and the earlier Bank report indicate the concentration of income at the top but do little to reveal the depths of poverty experienced by the rest of the rural population.

More detailed and satisfying research efforts began to appear in the 1960's and have continued into the present decade. A thorough examination of rural living conditions and the tenancy structure of agriculture was undertaken by CIDA in the early 1960's.[3] Drawing on the data provided by the 1960 agricultural census and supplementing this source with case studies

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1 World Bank, The Basis of a Development Program in Colombia, Washington, D. C., 1951.

2 United Nations Economic Commission for Latin America, Analysis and Projection of Economic Development: III, The Economic Development of Colombia, Geneva, 1957, page 205.

3 Centro Interamericano de Desarrollo Agrícola (CIDA), Tenencia de la Tierra y Desarrollo Socio-Económico: Colombia, Washington, 1966.

of large and small farmers in various regions of the country, the CIDA study was one of the first to emphasize the startling contrast between the standard of living enjoyed by a relatively few rich farmers and that experienced by Colombia's numerous small farmers. Unequal access to land was clearly and correctly singled out as the major determinant of the enormous disparity in rural incomes. In 1960 about one-half of Colombia's 1.2 million farms were less than three hectares in size while 75 percent of all agricultural land was held in units exceeding 50 hectares. Moreover, the top 6.6 percent of landed farm families controlled 67 percent of agricultural land compared to only 3.6 percent for the bottom 58 percent of farm families.[1] A comparison by farm size of employment relative to land occuppied was equally revealing. The smallest appeared to utilize as much as fifteen times more labour per hectare as the largest farms which were often devoted to extensive cattle raising. Even if the variation across farms in land quality is controlled for and employment is expressed as a ratio of dollars of land utilized, it seems that small farms are about four times as labour intensive as the largest farms. Barraclough and Domike present a useful summary of the CIDA study and compare Colombia's situation with other Latin American countries.[2] Colombia is by no means unique in its highly skewed pattern of land distribution.

Illuminating as it was, the CIDA analysis of income distribution was by and large impressionistic, stopping short of a formal measurement of

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1 A problem with this comparison is that it fails to hold the quality of land constant. A more refined one is by Berry who estimates that the top ten percent of agricultural families, many of whom reside in urban areas, operate three-quarters of land measured by value. See R. Albert Berry and Miguel Urritia, Income Distribution in Colombia, Yale University Press, New Haven, Conn., 1976, page 53. This book contains summaries and extensions of a great deal of Berry's earlier work on agricultural income distribution. For further discussion of the size distribution of landholdings see section 6 below. Many of the very smallest farms are operated by the urban middle-class as weekend retreats.

2 S. Barraclough and A. Domike, "La Estructura Agraria en Siete Paises de América Latina", El Trimestre Económico, April - June 1966.

Table 1

Alternative Estimates of Rural and Agricultural Income Distribution in Colombia

Percentage of Income

Decile	Berry - 1960 Agricultrual Labour Force	Berry - 1960 Rural Labour Force	DANE - 1970 Agricultural Labour Force	Selowsky - 1974 Rural Households	Selowsky - 1974 Rural Families
1	2.24			.45	.7
2	2.87			1.69	3.2
3	3.34			3.21	4.6
4	3.73	25.4	24.4	4.91	5.6
5	4.21			6.74	6.7
6	4.68			8.68	8.1
7	5.78			10.72	9.7
8	7.90	38.1	37.0	12.85	11.7
9	12.77			12.26	15.6
10	52.48	36.5	39.6	36.50	34.1
Gini Value	.58	.42	.45	.48	.40

McLure - 1964 Agricultural Labour Force		Urrego - 1965 Rural Families		Population Census - 1973 Agricultural Labour Force		Population Census - 1973 Rural Labour Force	
Percent of People	Percent of Income	Percent of People	Percent of Income	Percent Of People	Percent of Income	Percent Of People	Percent Of Income
39	15	62.6	30.7	25.5	6.8	26.7	9.5
21	12.4	22	22	34	18.9	35.3	23.1
18	15.2	11	20.7	31.7	35.3	31.2	40.7
13	19			8.83	39	6.8	27.9
8	38.4	4.3	26.3				
100	100	100	100	100	100	100	
Gini Value .47		.41		.47		.39	

size distribution. Relying to some extent on this information but also on national accounts data, Berry integrated statistics on producers' gross incomes with the distribution of labour income and arrived at an estimate of the distribution of personal incomes among earners for income originating within the agricultural sector.[1] His estimate is shown in Table I and confirms the substantial inequality of incomes suspected by the authors of earlier studies. The Gini coefficient of concentration is calculated to be .58, slightly higher than that which has been estimated for urban-based economic activities. The top decile of income recipients garners about one-half of agriculturally produced income while the bottom sixty percent receives only about one-fifth of that total.

While there can be little doubt that the overall picture of distribution sketched by Berry is reliable, some uncertainty is attached to the income shares of those at the extreme top and bottom of the distribution. For those at the very bottom information is sketchy on the amount of off-farm received by small farmers and on the number of days per year wage earners work. Too little is also known about wage rates paid by larger farms, yields on these farms and their reliance on intermediate inputs. Still, it is virtually inconceivable that the top decile receives a share of less than 45 percent or that the bottom six deciles in the distribution capture more than thirty percent of total agricultural income.

Another attempt at reconstituting fragmentary data to give a global portrait of rural income distribution is by McLure for the year 1964.[2] His

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1 See R. Albert Berry and Miguel Urrutia, op. cit., Ch. 3. Another source which describes the methodology involved is R. Albert Berry, "Land Distribution, Income Distribution and the Productive Efficiency of Colombian Agriculture", Food Research Institute Studies in Agricultural Economics, Trade and Development, Vol. 12, no. 3, 1973.

2 Charles E. McLure Jr., "The Incidence of Taxation in Colombia", in R. Musgrave and M. Gillis, eds., Fiscal Reform for Colombia, Harvard Law School, Cambridge, Mass., 1971.

work was undertaken as part of the Musgrave Commission's study of tax reform in Colombia. He too combines income data on wages paid to workers with estimates of the incomes received by farmers to derive an aggregate profile of income distribution. His rural wage series is extracted from an earlier study of Colombian income distribution by Taylor which looked at the issue from the point of view of the whole country.[1] Income tax data are used to obtain estimates of income received by wealthy farmers. As shown in Table 1, McLure's measurement approach suggests less relative income dispersion than is indicated by Berry.[2] The Gini coefficient of concentration implied by McLure's distribution is .47. His top decile receives about 45 percent of all agricultural income - compared to 50.55 percent for Berry - while his bottom six deciles receive about 27.4 percent of total income - vis-à-vis 21 percent for Berry.

Of the two studies considered, the one by McLure is apt to contain the more serious amount of error. It is likely that his estimate of average small farm income is upwardly biased. McLure adopts 5,000 pesos - the exemption limit under the individual income tax - as his estimate of this average with the effect that only 5 percent of small farmers are assumed to earn incomes which would place them in the lowest income bracket of under

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1 Milton C. Taylor, et. al., Fiscal Survey of Colombia, Johns Hopkins Press for the Joint Tax Program, Baltimore, 1965. Another study using this information is R. Bird, "Income Distribution and Tax Policy in Colombia", Economic Development and Cultural Change, Vol. 18, no. 4, July 1970. It is generally agreed that the Taylor study significantly underestimates the extent of income concentration.

2 Although McLure does not explicitly compile a separate distribution for agricultural income - his intent is to estimate a distribution applicable to the entire economy - , he presents nearly enough information to permit a sectoral decomposition. The only group missing from his description of how agricultural income is divided is farmers operating units larger than 100 hectares (42,900 of them). To complete the distribution of income shown in Table 1, Berry's estimate of the income going to this group, adjusted to 1964 values, has been added to the total income received by those in the over 25,000 peso bracket. The amount involved is 1,508,082 mm. pesos.

3,000 pesos.[1] In addition, it is also likely that incomes of the richest farm families are under-stated on the tax returns. On both of these counts Berry's estimates of the tails of the distribution are probably more accurate.

The first survey data available in Colombia appeared in 1965 in connection with a study of health status sponsored by the Colombian Ministry of Health and ASCOFAME (the Colombian Association of Medical Faculties). In a representative sample of 8,669 families (51,473 persons) of whom 45 percent were rural (3,266 rural families provided usable income data) a question pertaining to family incomes was tacked onto the questionaire almost as an afterthought. A useful study by Urrego represents the most careful mining of this data base.[2] The survey did not ask for a precise estimate of family income but instead inquired where family income fell within a range of rather wide income brackets. Urrego took the mid-point of each bracket as an estimate of average income except for the top and bottom brackets. For these he drew upon estimates from an independent survey of urban incomes conducted in 1968. Since these figures are suspiciously low for the lowest bracket (1,440 pesos) and high for the highest bracket (66,000 pesos), his calculated Gini coefficient of .44 is exaggerated. Alternative estimates for these groups - 2,340 for the lowest bracket and 50,318 for the highest - generate a value of .41 for the Gini variable.[3] The bottom 62.6 percent of all rural families receive

[1] A blue-collar worker who earned the daily average wage of 11.3 pesos and worked a maximum 250 days in the year would have earned 2,825 pesos (McLure's average blue-collar income of 2,664 pesos is lower than this amount). The implied ratio of average small farm to average blue-collar income of 1.77 is much higher than other studies indicate - a ratio of 1.4 to 1.5 is much more plausible.

[2] J. G. Urrego, Distribución del Ingreso Rural Colombiano Comparada con la Distribución Urbana, ICA Boletín de Investigación no. 18, Bogotá, 1971.

[3] Berry's average for the first six deciles, adjusted to 1965 values is 2,340 pesos. A fully employed blue-collar worker would have received about 2,800 pesos in 1965 and a family could not get by on much less than this amount. For the top figure we rely on McLure's 1970 estimate suggesting that the top 1.3 percent receives 13 percent of total income. See Charles E. McLure, Jr., "The Incidence of Colombian Taxes: 1970", Economic Development and Cultural Change, Vol. 24, no. 1, October 1975.

about 31 percent of all rural income. At the top of income pyramid 4.4 percent of rural families obtain 26 percent of total income received by rural residents while the top decile received approximately 42-45 percent of all income.[1] The apparent discrepancy between this estimate and that by Berry is discussed fully in the next section. Urrego's regional distribution results are also discussed in a later section.

In 1970 the national statistical agency DANE carried out the first household survey expressly designed to measure the distribution of both incomes and expenditures among Colombian families. 10,000 families were sampled and asked to reveal their monthly income and expenditures. About 45 percent of these households were residents of rural areas.[2] Despite an effort to be representative, it appears that rural areas close to large cities were overweighted in the sample and that many remote and poor rural areas were under-represented. Although designed as a household survey many of the results reported for rural areas are, curiously enough, in terms of labour force.[3] For the rural labour force the bottom six deciles earn 25.4 percent of rural income compared to .35 percent for the top decile. On a household basis, the bottom six deciles of rural families receive 25 percent of rural

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1 In this and other calculations, the Gini coefficient (G) is estimated according to the formula $G = 1 - \sum_i f_i \ (h_{i-1} + h_i)$ where fi is the relative frequency of population in the i'th income interval and h_i is the relative accumulated income received by that group.

2 In Colombia rural areas are defined as being localities which have fewer than 1,500 inhabitants and a dispersed population. Thus some small towns are included within this definition.

3 These results are found in the DANE Boletín Mensual de Estadística no. 237, 1971 "La Distribución de Ingresos en Colombia", by P. Cordoba with the help of Clara Elsa de Sandoval and M. Rodríguez. McLure, ibid., has converted the rural data to a household basis and it is his conversion which is shown in Table 1.

income while the top decile has close to 40 percent. The Gini coefficient for rural households is somewhat larger than that for the rural labour force, .47 compared to .42. The reasons behind this are explored later on.

In the survey agricultural activities were conducted in both rural and urban areas. Within rural areas agricultural pursuits accounted for about 85 percent of rural employment and perhaps 72 percent of rural income.[1] Rural agriculture generated a distribution of income similar to that for the rural area as a whole - values of the Gini coefficient were .41 for the former and .42 for the latter set of people. Urban based agriculture, accounting for 23 percent of agricultural income, was much more concentrated with a Gini value of .58. Overall, agricultural incomes were associated with a Gini coefficient of .45. As indicated later on, sampling bias explains only a part of the discrepancy between this result and that reached earlier by Berry. Both rural and agricultural distributions for 1970 are shown in Table 1.

In 1973 the population census for the first time classified members of the labour force according to their income status.[2] Assuming average incomes correspond to slightly less than the mid-point of each bracket except for the top and bottom brackets, it is possible to develop income distributions that correspond in concept to the 1970 DANE survey.[3] The distribution of urban related agriculture was highly skewed having a Gini coefficient of

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1 This result should be treated cautiously since agricultural income in the sample was only 20 percent of all income compared to a value of 29 percent as given by the national accounts. Under-reporting of income-in-kind, of capital income and the receipt of sizable agricultural incomes by urbanites with non-agricultural occupations is responsible for most of the difference.

2 These results are found in the DANE Boletín Mensual de Estadística no. 289, August 1975.

3 Average income in the bottom bracket was assumed to be three quarters of the bracket range while, in the top bracket, average incomes were taken to be one and a half times the lower limit.

about .7. Rural related agricultural incomes on the other hand were much less unequally apportioned, having a Gini coefficient of .39 to .44 where the range of values reflects the alternative treatment of those reporting no incomes.[1] Agriculture as a whole has a Gini coefficient of about .47 to .5. The rural distribution is marginally less concentrated than this as its estimated Gini coefficient is in the neighborhood of .44. Both distributions appear in Table 1.

Finally, a survey of rural and urban households was conducted by Selowsky in 1974.[2] When arrayed by household per capita income Selowsky calculated a Gini coefficient for urban family units of .42 against a value of .54 discovered for urban families. His sample was somewhat smaller than that of previous studies. Based on a one-month reference period, the sample consisted of 4,019 households of which 1,250 were rural. Low income groups were over-represented on purpose. These data have been rearranged by Ranis in order to render them more compatible with previous studies.[3] When ordered on the basis of household income, as shown in Table 1, the bottom six deciles of the rural distribution are endowed with 28.9 percent of all rural income. The top decile in turn enjoys an income share of 34 percent. The Gini coefficient is less than before, .4 as opposed to .42, reflecting the fact that poorer households have a larger number of dependents than more well-to-do ones.

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1 The Gini value is .39 if those having no income are ignored and .44 if this group is counted as belonging to the bottom income group.

2 M. Selowsky, The Distribution of Public Services Across Income Groups: A Case Study of Colombia, mimeo, May 1977.

3 G. Ranis, "Income Distribution and Growth in Colombia", a paper presented to a conference on Distribution, Poverty and Development, Universidad de Los Andes, Bogotá, June 2-4, 1977.

While the various studies reported here are not in exact agreement with each other, they all confirm the impression of relatively few rich rural residents co-existing with a mass of extremely poor people. Because of the differences in concept between one study and another it is almost impossible to state whether the distribution of rural incomes has been improving or getting worse. Before this issue can be addressed satisfactorily, a better understanding of these conceptual differences is necessary. This task is the subject of the next section.

2. The Question of Comparability Among Different Studies

Beyond the obvious questions of the adequacy of sample design and the quality of the sampling procedure there are a number of conceptual divisions which distinguish the various studies from each other. In the synthetic approach used by Berry and McLure income-in-kind is directly taken into account.[1] With the survey approach, although the concept of income in theory includes income received in kind, the income reported invariably falls far short of the amount recorded in the national accounts. While a portion of this difference is attributable to under-reporting of incomes, a large fraction is due to the inability of the respondent to either remember or accurately measure significant flows of non-monetary income.[2]

None of the surveys perform well against a national accounts criterion.[3] For the 1965 Ministry of Health - ASCOFAME survey average family

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1 McLure includes in his measurement of agricultural income the income-equivalent of the differential exchange rate applied to coffee exports. If viewed as a benefit tax, this amount is like income-in-kind.

2 This problem is particularly acute in the case of unsold livestock which represents accrued income (or accrued capital gains) to the farmer.

3 To allow for depreciation and indirect taxes 85 percent of the national accounts figure is taken as a measure of personal incomes in agriculture.

income of 4,778 pesos multiplied by about 1.6 million rural families gives an estimate of total rural income of 7,645 million pesos. This is about 52 percent of personal agricultural income.[1] The other surveys caught about the same fraction of income, with the DANE survey being slightly higher in coverage at 55-60 percent and the one by Selowsky slightly lower at 45-50 percent. As will soon be seen, income transfers from rural areas to urban residents are an important reason for this shortfall. An important implication of this finding is that the survey results are valid only to the extent that the ratio of under-reported to reported income is the same for each income class.

Differences in the definition of the income receiving unit also cloud the comparisons across studies. The two most commonly accepted units are income earners (members of the labour force or the economically active population) and families or households.[2] Given the tendency towards greater sharing in rural areas the latter concept may be more relevant from a welfare viewpoint. In any event, it has been seen that the distribution of rural income is somewhat more concentrated among households than among income earners. This variation is explained by the fact that the number of income

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1 A better comparison is between rural agricultural income in the survey and that in the national accounts. According to the 1970 DANE survey the percentage of agricultural income received in rural areas may just about match the percentage contribution of agriculture to rural incomes.

2 Furthermore divisions within the labour force category are also possible. Most studies, for example, that by Berry and the 1970 DANE survey, exclude from the labour force unpaid family workers who would presumably be included in the household concept of per capita family income.

earners per family rises with the level of family or household income.[1] In Urrego's compilation of the 1965 family survey the number of income earners per household varied from 1.5 in the bottom group to about 2.5 at the top with an average of 1.63. Similarly, in Selowsky's sample the same ratio had a value of 1.24 in the lowest quintile of households and 1.72 in the highest. The average number of earners per household was 1.36. What lies behind this variation in earning capacity is as yet unexplained. Age, judging from Urrego's figures, does not appear to be a factor since household heads at all income levels had an average age of about 43 years.

A further difference among the studies is whether, within the rural areas, the focus is on agriculture or on the entire set of rural activities. Both the 1970 DANE household survey and the 1973 population survey reveal the overwhelming importance of agriculture in rural areas. Agriculture is responsible for about 85 percent of all rural employment and perhaps 70-75 percent of all income received by rural residents. Moreover, the dominance of agriculture in rural areas and the similarity of the distributions in agricultural and nonagricultural pursuits mean very little difference between the income distributions for rural agricultural and all rural activities can be detected.

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[1] A simple example can be used to demonstrate this point. Suppose there were only two households, one receiving $5,000 and the other $10,000. Then the top one-half of the households would receive 2/3 of all income. If the richer household had only one earner and the other had two, a distribution of income by earners would show that the upper one-third of earners received 2/3 of all income, i.e., the distribution by earners would be more concentrated than that by households.
Generally, a household distribution can be translated into an earner distribution by multiplying the relative household frequency of each class by the ratio of earners per household in that class and the reciprocal of the mean ratio of earners per household.
Note that, without more information, translation in the opposite direction is not possible.

What is of much larger importance is the distinction between incomes received by rural residents and the incomes generated by agricultural activities. The first income concept corresponds to a spatial principle while the second one is based on the source of income, or where income originates. This distinction is the major difference between the synthetic studies of Berry and McLure and the later survey studies. Estimated rural Gini coefficients are noticeably smaller than those for the agricultural sector as a whole (rural plus urban) in both the 1970 DANE survey of households and the 1973 population census. Still, the estimated Gini coefficients for the agricultural sector based on these surveys, .45 and .47 respectively, are less than Berry's estimates of .58.

The difference just noted is explained by the treatment accorded to the upper tail of the distribution in each case. Large scale agriculturalists in Colombia typically have an economic foothold in both the rural and urban sectors of the economy. This would include absentee landlords as well as urban residing commercial farmers who rely upon administrators for the day-to-day operation of their farms.[1] Because their income is drawn from diverse sources, it is undoubtedly the case that many members of this group receive sizeable shares of agricultural income and are classified as urban employers (or perhaps as rentistas, in which case their occupation would be unclassified).

Not all of this urban-transferred income is omitted from the surveys, however, so the interesting question becomes that of how much is missed. Some rough orders of magnitude can be obtained. In the 1970 DANE survey .7 percent of the rural labour force earned more than 60,000 pesos.[2] According

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[1] The income received by urban residing white collar workers and administrators would be captured in the surveys since they would presumably be working on the farm at the time of survey.

[2] DANE Boletín Mensual de Estadística no. 238, 1971, page 91.

to Berry, about 1.84 percent of the labour force earned a roughly comparable amount in 1960 (21,352 pesos) which suggests that the top 1.14 percent of agricultural income recipients may be inadvertently sliced from the rural survey and not picked up as agriculturalists in the urban part of the survey.[1] This group in 1960 received almost 24 percent of total agricultural income. An alternative estimate supports the conclusion that about two-thirds of the top agricultural income recipients are erroneously excluded from the surveys. According to Berry, twenty percent of urban dwellers employed in agriculture are employers; yet the 1970 DANE survey counted only 7.1 percent of the urban labour force as employers and the 1973 population census recorded only about eight percent.

In order to achieve comparability between the survey data of 1970 and the synthesized data of 1960 it is obvious that about 20-25 percent of total agricultural income will have to be sliced from the top bracket of the latter data set or added to the top bracket of the former set. For numerical reasons it is easier to adjust the 1970 distribution of income to fit the 1960 concept of income. This is accomplished by adding .2 to the income share of the top bracket and dividing all of the other shares by 1.2. The results are shown below in Table 2. This modified distribution is remarkably consistent with the profile Berry has presented for 1960. In both years the top decile enjoys about one-half of total income and the bottom six deciles about 20 percent. Having achieved this degree of comparability, it is now possible to examine how different income groups have fared over time.

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[1] As noted earlier, the 1970 DANE Gini coefficient for agriculture carried on in urban areas, .58, is the same as that calculated by Berry for all of agriculture. Given the urban residence of many large farmers, this may be a highly appropriate comparison.

Further, if the distribution of agricultural income were of interest, there is little doubt that concentration has been steadily increasing. Real agricultural wages have not kept pace with average agricultural output and, as a result, labor's income share has diminished inexorably since the late 1940's.

Table 2

Original and Modified 1970 Distribution

Of Agricultural Income

Income Bracket (pesos per month)	Share of Labour Force	Original Income Share	Modified Income Share
0 - 6,000	.6	.24	.203
6 - 12,000	.301	.35	.29
12 - 18,000	.051	.104	.086
18 - 24,000	.021	.052	.043
> 24,000	.03	.18	.38

Source: Table 1 and discussion in the text.

3. Recent Trends in Rural and Agricultural Income Distribution

In view of the serious problems discussed in the last section, it is unusually hazardous to make intertemporal comparisons of income distribution in Colombia. However, it has been seen that a reasonable reconciliation of Berry's 1960 distribution and the DANE distribution for 1970 can be made. The decade of the 1960's represents a period of rapid growth in the Colombian economy although the rate of growth was much more pronounced in the later than in the earlier years. It is the most recent period in which one can fruitfully investigate the linkage between growth and distribution because after 1970 an accelerating inflation caused a decline in real wages in all major sectors of the economy. Thus, for example, a comparison between 1960 and 1973 or 1974 would be distorted by the presence of rampant inflation in the later years, an event which has acted to increase the dispersion of personal incomes and lower real incomes of the poor.[1]

While much interest attaches to the spread of relative incomes, the change in absolute incomes of the poor is also a matter of some curiosity. The methodology employed to analyze movements in absolute incomes parallels that used by Fields in his study of Brazil.[2] The first step is to establish a poverty line which can be used to demarcate the poor from the non-poor. Striking this line requires some value judgements that rest on noneconomic considerations. For our purposes we consider the bottom six deciles of the agricultural income distribution as the appropriate dividing line.3/This defines as the poverty group those who received less than 6,000 pesos

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1 For some evidence on this score, see R. Albert Berry, "The Effects of Inflation on Income Distribution in Colombia: Some Hypotheses and a Framework for Analysis", mimeo. 1977.

2 G. S. Fields, "Who Benefits from Economic Development? A Re-estimation of Brazilian Growth in the 1960's", The American Economic Review, September 1977.

3 According to CIDA, 70 per cent of farm families were either landless or living on sub-family sized farms.

Table 3

The Degree of Poverty in 1960 and 1970

Annual Income Bracket In 1970 Pesos	Relative Frequency of the Labour Force 1960	1970
0 - 6,000	.63	.60
6 - 12,000	.85	.89
12 - 18,000	.92	.94
18 - 24,000	.95	.97
> 24,000	100	100

Source: Table 2 and R. Albert Berry, op. cit.

annually in 1970 and about 2,135 pesos per year in 1960. The average income of earners in this group, which spends about 2/3 - 3/4 of its income on food, was approximately $200 U.S. per year.[1]

The progress of the agricultural labour force past this poverty line is charted in Table 3. Although 63 percent of the labour force fell beneath that reference point in 1960, by 1970 that frequency had shrunk to 60 percent. However, enough has been said about the shaky status of the statistics to warrant a cautious treatment of this finding. It is not impossible that it merely represents a fiction of the weak data base. Assuming that it is correct, on the other hand, we can proceed to partition the growth in total income over 1960-1970 between the poor and non-poor groups.

The following notation is introduced at this point:

f_p^i = fraction of people considered poor in the i'th year (1960 or 1970). Thus the fraction considered non-poor is $1 - f_p^i$.

$\bar{y}_p^i$ = average income of the poor in the i'th year

$\bar{y}_n^i$ = average income of the non-poor in the i'th year

$\bar{y}^i$ = average income of the whole labour force in the i'th year.

θ_p^i = share of total income received by the poor in the i'th year.

With this notation the average incomes of the two groups can be calculated from the identities that follow:

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[1] Fields, ibid., imposes almost the same line in Brazil except in that country only about 35-40 percent of the total labour force earns less than this amount. This corresponds to a family income of about $450-525 U.S. and, in purchasing power terms, means that a poor family in Colombia enjoys a level of utility that would be experienced by a U.S. family receiving $900-1,050 U.S. per year in 1970. That is, if the cost of a fixed consumption bundle is measured in both dollars and pesos, the value ratio, expressed in dollars per peso, is about one-half the free market exchange rate. See I. Kravis, A System of International Comparisons of Gross Product and Purchasing Power, Johns Hopkins Press, Baltimore, 1975.

(1) $$f_p^i \, \bar{y}_p^i + (1 - f_p^i) \, \bar{y}_n^i \equiv \bar{y}^i$$

(2) $$f_p^i \, \bar{y}_p^i \equiv \theta_p^i \, \bar{y}^i$$

Values for f_p^i are taken from Table 2. From the 1970 DANE data and Berry's 1960 estimate of distribution it is found that $\theta_p^{60} = .23$ and $\theta_p^{70} = .20$. Average income from Berry's study is 3,819 ($\bar{y}^{60}$ = 3,819 pesos). For 1970 average income is calculated to be 4,975 ($\bar{y}^{70}$ = 4,975 pesos).[1] Both of these averages are expressed in 1958 pesos.

Substituting these values in the identities (1) and (2) above gives the solutions for the average incomes of each group:

$\bar{y}_p^{60}$ = 1,394 pesos; $\bar{y}_p^{70}$ = 1,658 pesos; $\Delta\bar{y}_p^i / \bar{y}_p^i$ = 19%

$\bar{y}_n^{60}$ = 7,947 pesos; y_n^{70} = 9,950 pesos; $\Delta\bar{y}_n^i / \bar{y}_n^i$ = 25%

These figures indicate that incomes of the non-poor grew at an average annual rate over the decade of 2.4 percent compared to a rate of about 1.8 percent for the poor.

Another way of organizing this data is to decompose the growth of total incomes into greater incomes enjoyed by members of the poor and non-poor groups and into higher incomes resulting from the passage of some of the poor into the non-poor group. The methodology for partitioning of the sources of income growth is set out in appendix A. The results of its application are shown in Table 4 below.

Taking the sum of the first and fourth effects in Table 4 that are favourable to the poor, it appears that the poor, who constituted about 60

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[1] To obtain this value, the national accounts figure of 33,882 mn. was reduced by 13 percent to allow for depreciation and indirect taxes, deflated by a cost-of-living index (2.81) and divided by the estimated 1970 agricultural labour force (excluding family helpers) of 2,103,800.

Table 4

Sources of Income Growth in Colombia

Percentage of Income Growth attributable to:

1.	lifting of some poor over the poverty line	17
2.	enrichment of the non-poor group	64
3.	interaction effect of the change in income and population share of the non-poor	5.2
4.	enrichment of the poor group	13.7

Source: See Appendix A and the discussion in the text.

percent of the rural population received only about one-third of the benefits of economic growth during the decade of the 1960's. Seen in another light, about 5 percent (.03/.6) of the poor managed to escape the poverty line during this ten year period. However, if some improvement occurred it was not because economic conditions within agriculture improved so much as that non-agricultural employment growth accelerated to the point where outmigration from the agricultural sector maintained a stable, perhaps even declining agricultural population. With a steady labour force, the reduction in the fraction of agricultural poor implies an absolute fall in the numbers of impoverished agricultural workers.

This finding is not contradicted by other kinds of empirical evidence. In 1960 the most frequent blue-collar wage was 5.7 pesos. By 1970 this wage had risen to 18.8 pesos. Deflated by the national blue-collar cost of living index (a factor of 2.81), real agricultural wages grew by 17 percent over the decade of the 1960's or at an average annual rate of about 1.6 percent, only one-tenth of a percentage point less than the rate previously estimated for the agricultural poverty group.[1] Most of the gain in real wages occurred in the earlier part of the decade as the series tends to flatten out after 1965. After 1970, however, real wages seem to decline continuously as wage adjustments lagged behind unusually high rates of price increase.[2]

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[1] Unfortunately, there is no rural cost-of-living index. Rural and urban indexes will tend to move in unison to the extent that marketing margins are constant and consumption baskets in the two areas are similar. Using a city food index makes no difference to the measurement of real wage income here.

[2] DANE ceased publishing rural wage information in 1971. Social security data are the source of information after 1970 and have been linked to the DANE data in a paper by R. Albert Berry, "Recent Trends in the Distribution of Income in Colombia: Possible Factors", mimeo, 1978. In 1976 DANE reinstituted the agricultural wage series but on a different conceptual basis, publishing average instead of modal wage data. Although some controversy surrounds this issue, adjusting for the difference in concept indicates a slight decline in real wages between 1970 and 1976.

How many people are affected by the trend in real agricultural wages? According to census data and, as well, the 1970 DANE household survey, about one-half the agricultural labour force is landless or nearly so and earn the bulk of their income as paid workers. Many of these either operate or belong to a small farm since, in 1960, Berry estimated that a fully employed blue-collar worker would earn as much as a small farmer with 2-3 hectares of land. Indeed, Berry feels that "it is unlikely that the bottom 50 percent of the agricultural labour force earns less than three-quarters of their income as paid blue-collar workers."[1] By comparing the number of farm houses and the number of farms, a rough estimate can be made that only about 10-15 percent of blue-collar workers are completely landless.[2] Many seasonal workers are also landless but a substantial number of these are urban residents who also receive significant amounts of non-agricultural income.

One of the weaknesses with the real wage data is that it is necessary to assume no changes in the number of days worked per year or hours per day in order to make the direct link between real wages and real blue-collar incomes. If, for example, annual employment was rising during the 1960's real incomes would be higher than the real wage series implies. Conversely, as has been alleged to be true of the Green Revolution, it is possible that new technology has increased the seasonality of labour demand with the effect that real wages have risen while real labour incomes have declined due to a smaller number of days worked in the year.

The other group at the bottom of the income ladder is the small

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1 R. Albert Berry and Miguel Urrutia, op. cit., page 63.

2 See R. Albert Berry, The Development of the Agricultural Sector in Colombia, forthcoming.

farmer operating less than 10 hectares of land. Many of them also devote a sizeable fraction of their time to paid work on the farms of others in order to supplement their incomes. It has been estimated elsewhere that during the inter-censal period 1951-64 small farm incomes, excluding those of coffee growers, may have grown at the rate of .8 to 1.1 percent per year.[1] A similar calculation to cover the subsequent inter-censal period of 1964-1973 cannot be easily accomplished because of the low quality of the 1973 population census and some ambiguities contained in the crop statistics. The 1973 population census hints at an unbelievably sharp contraction in the size of the agricultural labour force and the number of small farmers (trabajadores indepedientes) in particular. Small farmers who numbered 706,649 in 1964 are reported to have only 256,813 members in 1973. Even if under-enumeration of 20 percent is allowed, if those for whom no information was obtained are assumed to be small farmers and if the marked decline in small farm rental is considered, the decline in numbers is still unconvincingly large. The best guess until additional data becomes available is that there was no change in the number of small farmers over the period 1964-73 or, at most, a slight decline in numbers.[2]

On the output side Atkinson had previously assembled a useful series on crop production and prices that stretched from 1946 to 1967.[3] Kalmanovitz

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1 See W. Thirsk, The Economics of Farm Mechanization In Colombia, Unpublished Ph. D. dissertation, Yale University, 1972, Appendix Table 24. There was virtually no change in average physical output per producer over this period but the relative prices of small farm crops increased by about 15-20 percent.

2 In the next section it is argued that there is a perceptible trend towards proletarization of the agricultural labour force. With an error of 15 percent, the 890,802 blue-collar workers reported become 1,024,422 in total compared to a reported 967,862 in the 1964 census. It is probably becoming increasingly difficult to tell whether a person is a small farmer or a paid blue-collar worker.

3 Jay Atkinson, Changes in Agricultural Production and Technology in Colombia, U. S. Department of Agriculture, Economic Research Service, Foreign Agricultural Economic Report no. 52, June 1969.

has extended much of this data to 1972 and introduced some new and interesting series on prices and employment.[1] Unfortunately, the old and the new series do not mesh together well as Kalmanovitz's output data is consistently less than the corresponding figures contained in Atkinson's study. For example, total crop output is 17 percent smaller in the Kalmanovitz data for the year 1967. Thus the choices are either to adjust the Kalmanovitz data to make it commensurate with Atkinson or to use the Kalmanovitz data for all years. Choosing the latter, it is estimated that small farm crop output,[2] measured in 1958 prices, grew at about one percent a year between 1963 and 1972.[3] As in the previous inter-censal period, relative prices continued to move in favour of the traditional small farm crops, perhaps by as much as 6 percent between 1963 and 1972. This price trend would add perhaps a further .5 percent to the growth of small farm incomes over the period giving, if small farm numbers were fixed, an overall growth rate of 1.5 percent for small farm incomes, not far off of the separate rates estimated earlier for blue-collar workers (1.6 percent) and the poor (1.8 percent) during the overlapping

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1 S. Kalmanovitz, La Agricultura en Colombia: 1950-1972, DANE Boletín Mensual de Estadística, nos. 276, 277 and 278, July, August and September 1974.

2 Small farm output is defined as total crop output less production of coffee, plantation crops (bananas and cocoa) and mechanized output. The latter is defined as the output of commercial crops (cotton, sorghum, sesame, soybeans, barley, rice and sugarcane) plus ten percent of corn and potatoes and 50 percent of wheat. The year 1964 was unusually bountiful so the more typical year of 1963 was used instead.

3 One of the perplexing features of the Kalmanovitz data is that it does not add up in some cases. For example, the series for real production value (crop value deflated by the implicit GDP deflator) should be equal to the sum of the separate series for physical volume growth and relative price change when expressed as growth rates. This is not the case in every instance.

period 1960-70.[1] This trend is in crude agreement with the available information on acreage and yields, which suggests land under small farm crops grew by 3-4 percent over the period 1963-72 while average yields rose by as much as 16 percent.

To briefly summarize the findings of this section, there is no broadly defined group, the poor beneath some poverty line, blue-collar workers, or small farmers, which has not enjoyed significant benefits from economic growth, at least until the most recent period of high inflation rates. There remains a strong need to probe within these groups and discover how particular sub-groups, such as blue-collar workers in some parts of the country and specialized crop growers have been faring. This is done to some extent in a later section which examines some of the characteristics of the poor. Since small farmers are heavily influenced by their ability to rent land or to benefit from the land reform process, it is worthwhile to examine land tenure conditions in some detail.

4. Trends in The Distribution of Rural Wealth

The most important asset in rural wealth-holding is agricultural land. Its highly unequal division among the population of landowners goes a long way towards explaining the skewed pattern of agricultural incomes. As shown in Table 5, the Gini coefficient of land concentration among farms

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1 Several caveats are called for here. Small farm output, as defined above, is a half and half mixture of traditional and semi-mechanized (or mixed, to use Kalmanovitz's terminology) crops. Relative prices for the former group rose by 11 percent and declined slightly for the latter group. Secondly, an alternative output measurement, based on acreage and yield data, yields a higher growth rate of physical output, something closer to two percent per year. Finally, real income growth would consider how much of small farm output is consumed on the farm and how much is spent on various food items. For example, if one-third of small farm output is consumed at home and other food purchases rose in price as fast as the GDP deflator, small farmers' real income growth would be reduced from 1.5 to 1.3 percent per year.

was .852 in the 1960 agricultural census data and almost the same value (.853) ten years later when the next census was conducted. However, it should be kept in mind that the distribution of land by value - a more relevant index than raw land - would exhibit less concentration if it were calculated instead. Yet the fact that the top ten percent of all farms controlled about 80 percent of all agricultural land in both years is impressive.

Despite this stability in the pattern of wealth-holding there were some important shifts in tenancy conditions occuring over this period. While total land area in agriculture grew by 13 percent over the period 1960-1970 the number of land units farmed under 10 hectares declined by almost 12 percent from 925,750 to 821,854 units and the amount of land controlled by units of this size fell by 169,400 hectares. The proximate cause of this trend towards larger operating units can be seen in the bottom part of Table 5. Although there has been a pronounced reduction in renting in almost all size classes, the decline is particularly noticeable in the smallest farm units.

This decline in the number of small rented and share-cropped farms is consistent with a process of land consolidation on the part of larger operators that is sparked by the profitability of applying new technologies and mechanized farm practices to previously rented or sharecropped land.[1] Rented farms less than ten hectares in size fell from about 238,000 to only 138,000 ten years later. Many of the former renters or sharecroppers become blue-collar workers when they are no longer able to obtain access to land. Such a phenomenon is in line with the changing occupational structure noted

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[1] Although the land reform agency INCORA may have helped to increase the number of farms operated by owners - that number increased by 7.1 percent over 1960-70 - though its titling activities, most of the resources of that agency have been spent on land reclamation and supervised credit. Very little has been spent on expropriation.

Table 5

A. The Distribution of Agricultural Land in Colombia

Size of Farm (Hectares)	Percentage Distribution Of Farms		Percentage Distribution Of Land	
	1960	1970	1960	1970
< 1	24.8	23.7	.4	.4
1 - 2	14.1	14.2	.8	.6
2 - 3	8.4	8.8	.8	.7
3 - 4	7.2	6.8	.9	.8
4 - 5	4.5	4.6	.7	.7
5 - 10	4.4	13.5	3.8	3.2
10 - 50	18.5	19.1	15.9	14.4
50 - 100	3.8	4.4	9.8	10.3
100 - 500	3.6	4.1	27.0	27.9
500 - 1000	.4	.5	11.3	11.3
cver 1000	.3	.3	29.5	29.7

Estimated Gini coefficient: 1960 : .852; 1970 : 853.

Source: DANE, Agricultural Census of 1960 and 1970/71.

B. Changes in the Structure of Land Tenancy

Form of Tenancy		Size of Farm (hectares)			
		less than 10	10 - 20	20 - 50	more than 50
Owner	1960	1,598,243	1,154,490	1,996,170	15,776,522
	1970	1,107,523	1,204,294	2,357,924	19,025,553
Cash Renter	1960	281,936	103,087	145,926	805,444
	1970	154,683	78,930	129,175	690,665
Share-cropper	1960	400,476	196,494	199,199	308,189
	1970	238,444	139,969	189,002	404,622
No Secure Title (Colonato)	1960	74,204	85,734	242,391	3,360,129
	1970	81,616	79,712	219,379	2,738,745

Source: DANE, Agricultural Census of 1960 and 1970/71.

earlier - the decline in the number of independent workers and the rise in the ranks of paid labour.[1]

5. Characteristics of the Rural Poor In Colombia

Often the true face of poverty is masked by an inability to peer beneath the aggregate statistics and view the diversity of economic experience. In an effort to disaggregate as much as possible several dimensions of poverty will be examined here. More precisely, an attempt is made to examine the regional and occupational characteristics of poverty.

Colombia is a regionally diverse country. Rural areas of the various departments fit neatly into a three-fold classification. First, there are the departments in which small scale subsistence farms predominate. This would include Nariño, Boyacá, Cauca, Santander and parts of Cundinamarca. Then there are the long settled traditional coffee departments such as Caldas and Antioquia and others such as Tolima, Valle and Cundinamarca where commercial crop activities are important. Finally, there are the north coast or Atlantic departments - Bolivar, Magdalena, Córdoba, Sucre and Cesar - which have witnessed the most rapid agricultural growth under the impetus of a large scale shift in activity from cattle and subsistence crops to commercial crops.

In Table 6 changes in real agricultural blue-collar wages are shown by department.[2] While at the national level real wages have risen steadily over the period 1960-70, it is clear that this result is a compound

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1 One puzzling aspect of this process of proletarization is that it should be accompanied by a drop in the number of farms. Yet the 1970 agricultural census indicated only a modest (3 percent) fall in the number of farms. Perhaps a growing number of small farmers are devoting more of their time to off-farm work making it increasingly more difficult to categorize these people.

2 Nominal wages are deflated by the change in the blue-collar cost-of-living index either in the capital city of the department or, in some cases, by the index in the nearest capital city.

Table 6

Changes in Real Agricultural Wages by Department: 1960-70

Department	Change In Nominal Wage	Change In Cost-Of-Living	Change In Real Wage	Money Wage in 1970
		(Percent)		(Pesos per day)
Antioquia	166.7	180	-13.3	14
Atlántico	306.3	175	131	19.50
Bolivar	262.1	190	72	21.00
Boyacá	262.4	190	72	17.9
Caldas	191.7	190	2.67	17.5
Cauca	168.2	180	-12	12.2
Cesar	--	--	--	24.7
Córdoba	143.75	191	-45	11.7
Cundinamarca	213.7	189	24.7	19.5
Huila	174.7	189	-14	21.2
Magdalena	234.2	190	44	19.6
Meta	200.2	189	10.2	24.6
Nariño	206.3	183	23.4	9.8
Norte de Santander	184.2	190	-6	18.9
Santander	196	199	-3	17.6
Tolima	198.7	189	9.7	23.3
Valle	162.1	160	2.1	17.3

Source: DANE Boletín Mensual de Estadística, various issues.

of rapidly rising wages in some areas and declining wages in others. Only in the expanding north coast area do real wages show vigorous upward growth. In all of the other areas, with the exception of Nariño and Cundinamarca, real wages are either stagnating or declining. Heavy and continuous out-migration from Nariño and the urban presence of a growing Bogotá in Cundinamarca may explain the two exceptions noted. A tentative hypothesis to explain the observed pattern of real wages is that the application of new technology in the coastal area and the consequent substitution of cropland for grazing area has been associated with a rapid growth in labour demand. In the other areas new technology has been applied to a static crop land base and has resulted in a progressive diminution in labour requirements.

Another hypothesis is that, given the disparate average incomes in different areas, the distribution of income within each region, rich or poor, may be more equal than that for the entire rural area of the country. Although it is plausible, this hypothesis is refuted by the available data which, admittedly, is not as rich as one would like. In Table 7, which shows rural incomes per household and per earner in each department along with the estimated Gini coefficient, it is apparent that the departmental coefficients are both above and below the national values of .44 and .42 respectively. Thus the national disparity in rural incomes is much more than an aggregation phenomenon arising from the amalgamation of regions with widely varying levels of average income. Several other features of this table merit some mention. The poorest department, Nariño, is one with a predominantly Indian population and has an average income which is only about one-third of the national average - its average wage, on the other hand, is about one-half the national average wage. There is also some tendency for the poorest departments to have the least amount of income inequality. Thus, for example, Nariño has

Table 7

Average Rural Incomes and Coefficients of Concentration by Department

Department	1965 Average Household Income (pesos per year)	1965 Gini Value	1970 Average Income Per Earner (pesos per year)	1970 Gini Value
Atlántico	6,640	.5	5,207	.42
Magdalena	7,654	.61		
Córdoba	5,744	.54		
Santander	2,546		4,298	.43
Norte de Santander	4,042			
Boyacá	5,525			
Bolivar	4,205			
Caldas	4,212	.52	4,189	.5
Antioquia	5,343	.53		
Huila	5,027	.50		
Tolima	4,776	.61		
Valle	5,811	.50	3,418	.39
Nariño	1,731	.16		
Chocó	3,106	.42		

Sources: For 1965, the data are extracted from J. Urrego, Distribución del Ingreso Rural Colombiano Comparada con la Disribución Urbana, ICA Boletín de Investigación no. 18, 1971. For 1970 the data are adapted from DANE Boletín Mensual de Estadística, no. 237, 1971.

a Gini coefficient of only .16 compared to a national figure of .42 - almost everyone is poor in that region. Finally, although it cannot be deduced from Table 7, it should be noted that there is a close ranking of departments in terms of their average rural incomes and their average total incomes.[1]

To the extent that different jobs earn different incomes, the occupational structure of rural areas is another dimension that is important in explaining rural poverty. It should bebornein mind, however, that the composition of rural jobs is intimately bound up with the land tenure situation: one cannot choose to become a small farmer unless he is able to obtain access to land by one means or another. Alterations in the conditions of theland market may have more consequence for the rural labour market than any other single factor. In Table 8, it is clear that poverty - defined as earning less than 500 pesos monthly or, alternatively, being a member of the bottom six deciles - cuts across all occupational lines. Poverty is more frequently associated with being a blue-collar employee or independent worker than a white-collar worker or employer.[2] Still, a significant fraction of employers (44 percent) and white-collar employees (30 percent) can be considered as poor. The two poorest groups, blue-collar workers and independent workers, together comprise about three-quarters of the rural labour force and there is undoubtedly a wide dispersion of incomes within each of these groups.[3]

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1 Average total income by department has been estimated by F. Marabelli, Tentativa de Distribución de Producto Bruto Interno de Colombia por Secciones Administrativas del País, United Nations, 1966.

2 Many low-paid white-collar workers are unskilled domestic servants, usually female.

3 Blue-collar income, and perhaps other income sources as well, are upwardly biased in Table 7 given the sampling bias of the 1970 household survey toward rural areas adjacent to large urban zones. Assuming 22 days worked per month, daily blue-collar wages according to DANE are 21.2 pesos. This is about 13 percent larger than the national mode reported in the DANE wage survey for 1970.

Table 8

A. Rural Occupational Incomes - 1970

	Occupation			
	White-Collar	Blue-Collar	Employer	Independent Worker
Percent of rural population	10.6	46	13.1	30.3
Average income per month (pesos)	926	466	934	495
Percent of males with incomes not exceeding $500 monthly	29.6	62.6	44	61.1
Percent of males with less than $1,000 monthly	79	96	74.8	89.4
Percent of males with more than $3,000 monthly	6.5	--	3.7	1.3
Ratio of average rural to average urban incomes	.58	.57	.32	.53

B. Average Rural Incomes by Sex - 1970

	Agriculture	Rural Activities
Average Male Income (pesos per month)	556	607
Average Female Income	396	412
Female Participation (percent of total sectoral labour force)	4.3	13.3
Percentage Division of Women between Agriculture and Rural Activities	24	76

Source: DANE, Boletín Mensual de Estadística, nos. 237 and 238, 1971

Although they constitute a minor fraction of the labour force in both agriculture and all rural activities, women seem to earn a significantly smaller income than men, a differential which likely represents some combination of age, experience and discrimination. In both agriculture and rural activities women earn an average only about 70 percent of the average income received by men.[1] The vast majority of women employed in rural areas are occupied in the services and manufacturing (rural artisanry) sectors.

If one examines recent changes in the rural occupational structure, it can be seen that a process of proletarization, remarked upon earlier, may be underway in Colombia in recent years. As shown in Table 9 below, a much larger fraction of the labour force in 1973 was classified as blue-collar than in either 1970 or 1964. This trend, to the extent it does not merely reflect errors in the 1973 census, may be viewed in two quite different ways. The option of renting land may be foreclosing on small farmers so that more of them are forced to seek work as lower-paid blue-collar workers. Such a possibility was discussed in section 4. Alternatively, the growth of commercial agriculture (large farm crops) and nonagricultural activities may be sufficiently rapid to make it worthwhile for more small farmers to seek off-farm work and thus enjoy higher incomes. To determine whether small farmers are being pulled from the land will require further disaggregated analysis preferably looking at different parts of the country.

One of the shortcomings of existing data is that it does not enable one to pierce the numerical veil that is cast over the bottom six deciles and see who the "poor within the poor" are. An exception to this rule is the recent study by Selowsky which contains a table outlining the characteristics

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[1] This differential agrees with agricultural wage data published by DANE until 1970. The average wage for women has been typically 70-75 percent of that for men in most years.

Table 9

Changes in Occupational Structure

1964, 1970 and 1973

Percent of the Labour Force

(excluding family workers)

Occupation	1964	1970	1973
White-collar	2.4	10.6	2
Blue-collar	47	46	61
Employer	15.1	13.2	10
Independent worker	34.5	30.2	18-25

Sources: Population Censuses of 1964, 1973; 1970 DANE Household Survey.

of the bottom twenty percent of rural families.[1] A version of this table is shown below (Table 10). It is obvious that, as was the case with the data in Table 8, the poor, or here, the poorest of the poor, do not fall into a single convenient category. Almost one-half of the poorest poor are landowners of some kind or other. If agricultural workers living off of the farms on which they work are landless blue-collar workers, a little over one-half of the poorest poor are non-landowners. Thus no single strategy to alleviate poverty will likely prove to be effective. Some need more land; others require more employment and higher-paying jobs.

Among the poor, there is little doubt that landless workers are in the most desperate straits. Even in developed countries seasonal migrant workers occupy the bottom rung of the rural income ladder. The periodic nature of their work deprives their children of any opportunity to attend school - where schools are available - and predestines their offspring to a lifetime of poverty.[2] The number of rural families who fit this description of being landless is, according to the 1964 CIDA study, perhaps no more than 10 percent (about 150-180,000 workers in a labour force of about 2 million). The distribution of this group across regions is highly uneven. In 1964 about 31 percent of rural atlantic coast families were landless compared to only about 3 percent elsewhere in the country.[3] Only a portion of this total,

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1 M. Selowsky, op. cit., Table 57.

2 For further description of this life-style see R. Albert Berry, "Dimensions and Trends of Rural Poverty in Colombia During the Twentieth Century", mimeo, 1978.

3 See R. Soles, Rural Land Invasions in Colombia, unpublished Ph. D. dissertation, University of Wisconsion, 1972. Soles notes that a coastal cotton boom has prompted a replacement of tenants and a consolidation of land among large landowners.

Table 10

Characteristics of the Poorest

20 Percent of Rural Families

Economic Status	Percent of Families
landowners	44
sharecroppers	11.3
tenants and colonos	6.7
agricultural workers living on farms	13.9
agricultural workers not living on farms	24.1

Source: Adapted from M. Selowsky, op. cit.

however, represents the number of seasonally employed migrant workers.[1] A small survey by DANE in 1968 suggested that there were 285,000 permanent male workers in agriculture (often having a small plot of their own to work, 112,000 landless seasonal migrant labourers and 911,000 occasional workers (mainly small farmers).[2]

Being both economically weak and politically powerless, the landless poor, unlike the small farmer group, have not enjoyed any public policy program designed to improve their lot in life. Indeed, it can be argued that many of the present policies in place - land reform and supervised credit schemes - not only ignore the landless worker but may also harm him. With a reservoir of under-employed labour on small farms, attempts to move credit or land to small farmers and away from large ones could, and probably do, work to reduce the demand for the labour services of the landless. With few alternative income opportunities to fall back on, this could have a serious impact on the incomes of this poorest group.

6. Non-Economic Indicators of Rural Poverty and Welfare

The consumption of health, housing and education services has traditionally been lower in rural than in urban areas. Over time, however, there has been gradual but regular improvement in their supply to rural households. As shown in Table 11, the availability of piped water and electric lighting was about twice as great in 1973 than in 1964. Nonetheless, in urban areas over 90 percent of dwelling units enjoyed access to electric power and piped water.

Disease and ill health have long been a way of life in the country-

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1 Many seasonally employed agricultural workers are also drawn from the ranks of the urban poor.

2 See DANE, Encuesta Agropecuaria Nacional 1968, 1970, page 32.

side. Much sickness is, and has been, directly related to inadequate nutrition and the unsafe quality of drinking water. Access to medical services has been another problem since most doctors and health clinics are located in urban areas.[1] Despite there obstacles to better health, the broader indices of health care, infant mortality and life expectancy show better performance, probably as a result of more widespread education and communications.

Until very recently rural education has been systematically neglected by governments more concerned about urban development. Physical facilities have been primitive or non-existent, teachers poorly paid, and supporting materials sadly deficient. As a result, rural illitercy, while it has been diminishing slowly overtime, is now three times as extensive in rural than in urban areas compared to a factor of a little over two in 1938. Over one-third of the rural population older than fifteen is still illiterate. As Berry has noted, in 1970 more was being spent on the nation's 23,000 public university students than on the 1.35 million primary and secondary school age children in rural areas. Moreover, while 40 percent of public primary enrollment was in rural areas, less than ten percent of the primary school budget was allocated to these areas.[2]

Within the last decade or so, however, access to rural education has been broadened with the construction of new schools, many of them built by the community self-help group, Accion Comunal. As a result, primary enrollment rates, shown in Table 8, have risen by almost fifty percent between the period of about 18 years from 1950 to 1968.

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1 Access to health facilities is discussed at length in The Economic Growth of Colombia: Problems and Prospects, Johns Hopkins University Press, Baltimore, 1972. Disparities in the consumptions of health services are also discussed in Towards Full Employment: a Program for Colombia, International Labor Organization, Geneva, 1970.

2 R. Albert Berry, "Dimensions and Trends of Rural Poverty in Colombia During the Twentieth Century", mimeo, 1977.

Table 11

Trends in Housing, Health and Education in Rural Colombia

A. Housing Conditions

		1964	1973
Percent of rural households with:	i) Piped water	13.3	28.5
	ii) Electric Lighting	5.6	13.2
	iii) Toilet or Sewer System	4.8	6.5

Source: Population Census Data of 1964 and 1963.

B. Health Conditions

	Mid 1930's	Mid 1960's
Infant mortality Rate (deaths per 1,000 births)	300 - 350	150 - 175
Life expectancy	35 years	50 - 55

Source: R. Albert Berry, "Dimensions and Trends of Rural Poverty in Colombia During the Twentieth Century", mimeo, 1978.

C. Rural Literacy and Education

	Percent of Illiteracy for those over 15 years			
	1938	1951	1964	1973
Urban	25	21	15	11.2
Rural	53	50	41	35

	1935-39	1950-54	1955-59	1960-64	1965-68
Enrollment ratios for rural children 7-11 years old	36.1	39.5	46.5	55	62.4

Source: Population Censuses for 1938, 1951, 1964, and 1973 and Berry, ibid., page 45.

7. Avenues For Future Research

While income is a relevant indicator of welfare, income measured in any particular year is not necessarily so. Agriculture is a risky business and low incomes this year seldom mean, in the case of smaller farmers, continued low incomes in the future. If expenditure is geared to permanent income it would be extremely valuable to have systematic survey data on the distribution of rural expenditures. In the urban surveys that have been carried out the dispersion in family expenditures is much less marked than the variance in family income. Another advantage of a rural expenditure survey is that it would be possible to examine the influence of life - cycle factors such as age. In the only study available age of the household head was not a factor in explaining different average incomes.[1]

Another useful piece of information would be a systematic and regular survey of rural wage and employment conditions such as those that exist for India. There is probably no other means of determining how many days various types of worker work each month or year and what wage rate they receive for their efforts. An extension of the current DANE wage survey may be all that is needed in this regard. A survey of the kind proposed would also shed some light on the non-farm sources of income received by the agricultural labour force.

Finally, there is a pressing need to delve into the determinants of income inequality within the poor (the bottom six deciles of the rural distribution). Sometimes micro-studies can reveal facets of behavior that are buried in the aggregate data. It is to this topic that we turn in part II of this paper.

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[1] See J. Urrego, op. cit.

Part II: The Micro-Evidence

1. Case Studies of Small Farm Behavior

The micro-information contained in case studies is frequently a valuable supplement to the data generated by much more highly aggregated studies or surveys. It is often difficult and sometimes impossible, due to small sample size, to reach down to the municipio (rural county) level using aggregate information. Some case studies also cast a wider net and collect more detailed information than is normally done at the aggregate level. Instead of merely identifying the poor, case studies can often relate the degree of poverty to the kind of economic opportunties and constraints facing the poor. In addition to being able to hold more factors constant, case studies more easily reveal the dynamics of economic change since it is feasible to trace the changing circumstances of a small, but not a large, sample over time. Despite these important advantages, however, case studies are always subject to a single, and potentially severe limitation: the situation which they describe may not be representative of what is occurring in the country as a whole. It is for this reason that case studies can only serve as supplement to, and never a substitute for, more aggregated studies conducted at the national level.

Although there is an abundance of case studies in Colombia very few of them have concentrated on the economic behavior of the small farmer. More likely than not, the focus of these studies has been on the technical aspects of production on farms of various size, perhaps because the authors of these studies have normally had an engineering background and outlook. Differences in farm yields, or the gap between best-practice and average productivity, have typically attracted more attention than differences in farm income levels. Very little effort has gone beyond describing the existence of these

technological differences and attempted to explain the basis for their existence in the first place. An exception to this rule has been the work of some sociologists and anthropologists who have tried to illuminate the motivations, life-style and decision-making processes of small farmers. Two of the more prominent studies cast in this mould are by Ortiz and Fals-Borda.[1]

In her investigation of the Paez Indian communities in Cauca Ortiz stresses the risk-minimizing strategies adopted by these farmers in order to reduce the prospect of any shortfall between subsistence needs and production. One method is an extreme degree of crop diversification. Another is a social insurance mechanism in which production surpluses are expected by the community to be stored for later sale, at nominal prices, to friends and kin in need. Through this consumption spreading device no member of the community is allowed to experience distress because of a bad crop year. While members of this community are poor by any standard, noone in it is likely to starve. At the same time, however, the low, or even negative, return to saving and a community attitude which disapproves of monetary accumulation make it difficult to achieve higher income levels in the future.

Fals-Borda documents the adjustments that inhabitants of the municipio of Saucio in Cundinamarca have made under the impulse of economic change. With the start of the Sisga dam many Saucites went to work on its construction and delegated the management of their farms to their wives and children. A large portion of the new income stream was spent on alcoholic beverages, perhaps in response to the stress of a new economic environment and the presence of more idle time. Fals-Borda suggests that education is

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1 Orlando Fals-Borda, Peasant Society in the Colombian Andes, University of Florida Press, 1962 and Sutti, R. Ortiz, Uncertainties in Peasant Farming: A Colombian Case, Monographs on Social Anthropology, London School of Economics, The Athlone Press, 1973.

required to ease the disruption to traditional life-styles resulting from economic growth and to enhance the efficiency of consumption expenditure. Another benefit from more education would be the kindling of greater initiative on the part of peasants and some relaxation of their fatalistic attitudes towards life. According to Fals-Borda, years of toil and ignorance have conditioned peasants to a passive life and to accept decisions made on their behalf by politicians and priests.

Almost all of the worthwhile micro-data on small farm production and consumption have originated from the efforts of members of the Land Tenure Center at the University of Wisconsin. The field research undertaken by Grunig, Haney and Havens has been especially valuable. Before we discuss these, however, an earlier survey of rural development in a small-farm area of Cundinamarca should be mentioned.[1] In this study of 762 families situated near the Rio Suárez both income and expenditure information was collected from personal interviews. These data are displayed in Table 12 below. The most interesting feature of this table is the marked difference in the distribution of family consumption and income. The distribution of consumption is much less skewed than that for income as many low income families apparently consume beyond their means. In fact, sixty-three per cent of all families appear to be dissaving. The authors of this study interpreted this finding as indicating the extent to which the poor were forced to rely on borrowing to meet their minimum consumption needs.[2] It is likely, however, that families gear their consumption to their average income over good and bad years.

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1 Estudio Agroeconómico de la Hoya del Rio Suárez, M. Reyes, R. Prieto and B. Hanneson, published jointly by CEDE (Universidad de Los Andes) and CAR (Corporación Autónoma Regional de la Sabana de Bogotá y de los Valles de Ubaté y Chiquinquirá), Bogotá, 1965.

2 At least some of the discrepancy between income and consumption could arise from a failure to adequately measure total income.

Temporary declines in income may be met by either running down assets, selling some livestock, for example, or by incurring debt. On this interpretation, many of those with low incomes are only temporarily poor and the distribution of consumption provides a more accurate picture of the extent of income inequality than the distribution of income does. If average income in each range is taken to be the mid-point of that range while 40 and 450 pesos are assumed to be the averages for the bottom and top groups respectively, the Gini coefficient for income is estimated to be .34. If the same assumptions are made about average consumption and consumption is assumed to be proportional for all income classes, the estimated Gini coefficient for consumption is .29, significantly lower than that for income.

This change in perspective also affects measurements of the extent of poverty. According to the results of the previous section anyone working full-time as an agricultural worker would be considered poor. Given an average daily wage of 11.3 pesos in 1964 for Cundinamarca, and sample averages of 5.4 persons per family and 1.55 workers per family, average family income for laborers would be 81 pesos per month per family member if each worker was employed for 25 days. In terms of the income intervals shown in Table 12 a reasonable poverty line would count those in the two lowest ranges as poor. Using a consumption standard about 38 per cent of all families would be considered poor compared to 68 per cent if income were adopted instead as a criterion of poverty. Alternatively viewed, as many as thirty per cent of those considered poor in terms of income may be only temporarily poor.

The Rio Suárez study also generated some interesting measurements on home-consumption and sources of income. About 30 per cent of income, excluding imputed home rentals, in the fourteen municipios represented own-consumption of home produced goods. As a fraction of farm production,

own consumption was much higher at close to 60 per cent. The poorer the municipio or the farm the more diverse the sources of income tended to be. In Ubaté, for example, one-half of the labor force worked in nonagricultural jobs. For the region as a whole, one-third of all income was received in the form of salaries for off-farm work while the remaining two-thirds was earned on the farm. Payments received in kind comprised about 38 per cent of total income produced in the valley. On the expenditure side, 72 per cent of total monthly income was allocated to food by the average family.

A study by James Grunig represents an ambitious and fruitful attempt to provide data on the characteristics and attitudes of large (latifundio) and small (minifundia) farm operators in Colombia.[1] He interviewed 88 large farm operators and 105 small ones over the period late 1968/early 1969 in the departments of Valle, Boyacá, Caldas and Meta. Each interview was extensive, requiring about four hours to complete and furnishing a wealth of detail on the farmer's situation. His approach consisted in constructing typologies of large and small operators according to the information which they provided. The sample was therefore non-random as farms were selected for interview if they appeared likely to fall into one of the preconceived categories.[2]

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1 J. Grunig, Information, Entrepreneurship and Economic Development, unpublished Ph.D. dissertation, University of Wisconsin, 1969; _____, "The Minifundio Problem in Colombia: Development Alternatives," Inter-American Economic Affairs, vol. 12, no. 23, 1969; _____, "Communication and the Economic Decision-making Processes of Colombian Peasants," Economic Development and Cultural Change, vol. 19, no. 4, July 1971.

2 Grunig was interested in assessing the relative importance of the three types of minifundio suggested by Adams and Schulman. These were independent operators producing for own-consumption, commercial operators producing instead for the market, and dependent operators whose main source of income was salaried work on other See D. Adams and S. Schulman, "Minifundia in Agrarian Reform: A Colombian Example," Land Economics, vol. 44, August 1967.

Table 12

Monthly Family Income and Expenditure Per Person:

Rio Suárez, 1963/64

Frequency of Families by:	Range (pesos) 0-50	50-100	100-150	150-200	200-250	7250	Averages
consumption	44	244	226	116	72	60	135
income	226	291	121	71	25	28	91.3

Approximate Gini coefficients: for income .34 ;

for consumption .286

Source: see discussion in the text.

Raw data from these interviews, kindly supplied by Grunig, has been used in assembling the information shown in Table 13 where a comparison is drawn between poor and non-poor small farmers for a number of economic and demographic variables. Before examining this table the construction of the poverty line used to separate these two groups of farmers is discussed. As argued in the preceding part of this paper, a person receiving less than 6000 pesos in 1970 could be considered to be poor. If it is generously assumed that each family is endowed with two earners and no adjustment to 1969 values is made, this establishes a poverty line of 12,000 pesos per family. Ideally, this criterion should vary according to the size and age composition of the family and by region. However, information on the age structure of the family was unavailable and there was no significant variation in average family size across the two income groups. Also, to establish a separate poverty line for each region would require information on regional price differentials, data that do not currently exist.[1] Thus the use of a national poverty line should be considered as only a rough approximation to the correct dividing line between poor and non-poor. Moreover, in almost every case there was no question about whether a farmer should be classified as poor or not.

Turning to Table 13, one can make a number of interesting comparisons between poor and not-so-poor small farmers both within and among the various groups.[2] In Boyacá four-fifths of the farmers are poor compared to only 35-40 per cent in the other departments. Among poor farmers those in Caldas,

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[1] In 1968 the agricultural wages most frequently paid in Boyacá, Valle and Caldas were 15 pesos daily in each case and were extremely close to the national average of 14.7 pesos. In Meta agricultural wages were higher at 22 pesos. If this difference reflects a higher cost of living there, money incomes in Meta should be reduced by about 40 per cent to achieve comparability with incomes elsewhere.

[2] Average farm income is defined, in the case of owners, as gross farm income, including the imputed value of home consumption, less all variable costs, a measure of the returns to the on-farm resources of capital and labor. For renters farm income is defined as gross farm income minus variable expenses and rent of land. In both cases it is higher than net family income by the amount of depreciation on fixed capital, a small charge for most.

in the heart of the coffee growing region, are significantly better off than those elsewhere. As would be expected, poor farmers in every department operate with fewer land resources, as judged by average farm size, and earn smaller amounts of off-farm income than others. However, the correlation between farm income and farm size is far from perfect since the ratio of farm size between poor and non-poor is typically smaller than the ratio of farm incomes for the two groups. Opportunities for off-farm and nonfarm employment varied noticeably across departments. A majority of the non-poor families in both Boyacá and Valle enjoyed high incomes from off-farm employment. In both Caldas and Meta, on the other hand, very few farmers in either group obtained off-farm income. When poor families earned off-farm income it was typically the effort of a younger son involved in seasonal agricultural work. Among the non-poor, off-farm jobs were more frequently associated with full time work in steel or sugar cane mills or managing a small country store.

In no department can the influence of life-cycle or demographic variables be detected. No evidence exists to suggest that poor farmers are on average young family members just starting out in the business who might be expected to earn higher incomes as they became more experienced farmers. In every department the average age of the household head and average family size is about the same for both poor and non-poor groups. There is also very little to distinguish the groups when average number of sick days and the average educational attainment of household heads is considered. In every region there was a slightly higher level of schooling achieved by the non-poor who were more likely to have completed primary education than the poor. Many of the poor had no primary schooling at all. Moreover, farmers at any income level were apt to have had more schooling if they resided in Caldas

or Valle than if they lived in either Meta or Boyacá. As for the incidence of sickness, it was much more prevalent among the poor in Boyacá and all farmers in Meta than elsewhere. In Caldas and Valle, and among the nonpoor in Boyaca, about 3-4 per cent of the days in a year were disturbed by sickness.

Also shown in Table 13 is the ratio of home-consumption to gross farm income. This ratio is significantly higher for poor farmers in every department, ranging from 17 per cent in Valle to 42 per cent in Meta. In contrast, nonpoor farmers typically retained only 12-13 per cent of their output for home consumption. The importance of this variable rests in its implications for the vulnerability of small farmers to adverse shifts in the terms of trade between agriculture and nonagriculture. A simple example serves to illustrate this notion. Suppose there are three income groups, poor, middle-income and rich, who have home consumption ratios of one, .5 and zero respectively and who produce a common crop. Suppose further that physical output of this crop rises by three per cent for each group and that its price declines by three per cent relative to other prices. Under the conditions that have been assumed real incomes of the poor would increase by three per cent, that of the middle-income group would rise by 1.5 per cent while that of the rich would show no change.[1] Conversely, if relative crop prices instead rose by three per cent, real income growth would be three per cent, 4.5 per cent and six per cent for the poor, middle-income and rich respectively. Thus self-sufficient farmers cannot be

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[1] Algebraically, this relationship can be derived formally in the following. If the "Λ" symbol denotes percentage change, and if nominal farm income Y is the product of output F and price P_f, the percentage change in nominal income is $\hat{P}_f + \hat{F}$. The change in the farmers cost of living C for a fixed basket can be expressed as $\hat{C} = \theta_f \hat{P}_f + \Sigma \theta_i \hat{P}_i$ where θ_f is the fraction of income spent on crop output (consumed at home) and θ_i is the share spent on other commodities. Changes in farmers' real income become $\hat{Y}-\hat{C} = \hat{F} + (1-\theta_f)\hat{P}_f - \Sigma \theta_i \hat{P}_i$. In the example above $\hat{F} = \hat{P}_f = 3\%$, $\hat{P}_i = 0$ and $(1-\theta_f) = 0$, .5, or 1.

Table 13

Characteristics of Some Poor and Non-Poor Small Farmers: 1969

	Characteristic	Department: Valle Poor	Valle Non-Poor	Boyacá Poor	Boyacá Non-Poor	Caldas Poor	Caldas Non-Poor	Meta Poor	Meta Non-Poor
(1)	per cent of sample	36	64	80	20	36	64	40	60
(2)	average income (pesos)	5,993	26,308	4,630	22,277	10,925	35,820	8,875[b]	35,995[b]
(3)	average farm size (hectares)	1.2	4.13	2.71	4.94	3.74	10.43	22	41
(4)	average family size	5.4	4.7	6.9	6.8	7.1	7.2	8.4	7.5
(5)	average age of household head	43.6	44.2	50.2	45.2	45	50	48	47
(6)	average educational level of head[a]	1.2	1.5	.8	1	1.4	1.6	.4	.5
(7)	average number of sick-days for the household head	10.5	10.5	36	3	10.3	14.4	26	53
(8)	per cent with off-farm income	27.3	58	40	60	10	13.3	10	13.3
(9)	average off-farm income for those reporting	344	4,212	559	6,458	333	1,681	530	560
(10)	ratio of own-consumption to gross income	12	12	41	13	33	12	42	30

Notes: a. Educational level is the sample average of the following discrete categories: 0 = none, 1 = some primary, 2 = completed primary

b. If these values are deflated by 40 per cent, as explained in the text, they become 6,340 and 25,710 pesos respectively.

harmed by adverse relative price movements in crops nor can they benefit from favorable swings in relative prices. From the evidence of Table 13 no income group would be entirely immune from the effects of relative price shifts. Poor farmers, however, have somewhat more insulation from price changes than others.

In another detailed look at rural living conditions, Haney has compiled data on income and consumption patterns of farm families living in the municipio of Fomeque in Cundinamarca in the year 1966.[1] Haney was able to conduct 203 interviews in his rural sample. On average there were 5.4 persons per family with 4.2 hectares of land. According to the 1964 population census about 26 per cent of the rural population in this municipio over 7 years old was illiterate. Sharecropping, with a 50 per cent division of the output and purchased inputs, and service tenancy, an exchange of labor for a small subsistence plot, were common in this area. Sixty per cent of the households operated land under some form of tenancy arrangement although only a quarter of the farmers owned no land at all. Most families enjoyed more than one source of income. Four-fifths of the households received some amount of nonagricultural income, typically from the artisan activity of housewives.[2] One-quarter of the male labor force was employed as salaried workers on local farms and as seasonal workers in nearby Meta while 35 per

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1 Emil Haney, The Economic Reorganization of Minifundia in a Highland Community of Colombia, unpublished Ph.D. thesis, University of Wisconsin, 1969; _____, "Possibilities for the Economic Reorganization of Minifundia in a Highland Region of Colombia," University of Wisconsin Land Tenure Center Research Paper no. 43, 1971.

2 Haney mentions the case of a sharecropper's family which made 4,543 pesos from the farm they operated, 1,356 pesos from a son's work on other farms in the area and 373 pesos as a result of the wife's labor as a seamstress and a young son's employment as a servant.

cent of individuals over twelve years were occupied in off-farm employment for an average of 107 days during the year.

Although migration from the area has been substantial, the picture presented by Haney is one of growing demographic pressure on the land and continuous fragmentation of landholdings. Two or three generations were observed to be stacked on a single family property.[1] Moreover, two-thirds of the households that were interviewed indicated that their parents operated more land than they did. Landholdings contributed to more than 60 per cent of household wealth in Haney's sample and were highly concentrated. While the average value of land held was about 21,600 pesos, the median was only about 8,000 pesos.

Table 14 presents some data on the sources of cash and noncash income for Fomequeno families grouped according to farm size. Sales of animals and animal products were the dominant source of cash income for farms of every size, perhaps because the land reform agency INCORA had been promoting dairy herd expansion under its supervised credit program. Haney suggests that livestock are also a form of walking bank account, absorbing any cash surpluses and financing operating capital needs as well as consumption in bad years. Consistent with other studies, the ratio of home consumption to the value of net farm production declines with increasing farm size. The value of this ratio falls from around 31 per cent on the smallest farms to about 16 per cent on the largest. Larger farms are also much more specialized in their sources of income than smaller ones. Net farm production comprises almost 90 per cent of all income received by large farms compared to only a little over one-half for the smallest farm size. Off-farm wage income

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1 This same phenomenon was observed in other parts of Cundinamarca by D.Adams and S. Schulman, op cit.

is an important source of supplementary income for farms smaller than five hectares. Finally, not even the very smallest farms appear, on average at least, to be in a dissaving position although average cash expenditures for consumption tend to be very close to cash income (202 versus 210 pesos in Table 14) for the smallest units.

The extent of poverty and the distribution of income and consumption in Fomeque can also be inferred from the data shown in Table 14. If 12,000 pesos was considered as an adequate family income in 1970, then, given an annual inflation rate of 10 per cent between 1966 and 1970, a reasonable poverty line in 1966 would be 8,570 per family. Total income, expressed in pesos, for the 1-3 hectare size group was 6,787 pesos on average and 9,784 pesos for the next size category of 3-5 hectares. If one-half of the families in this latter group fell under the poverty line, there would be about 122 poor farm families in Haney's sample for 1966, or 60 per cent of the total. This fraction of course corresponds exactly to the measurement of the aggregate incidence of poverty discussed in the first part of this paper. Fomeque may be a highly representative municipio as far as its pattern of income distribution is concerned.

As discussed shortly, there is an intimate relationship between the mean and median value of a distribution and its associated Gini coefficient. Intuitively, the closer the median value is to the mean the less skewed is the distribution and the smaller is the size of the Gini coefficient. From Table 14, the ratio of the median to the mean is .55 for gross cash income, .6 for total income and .84 for consumption. Thus if one latched onto gross cash income as a proxy for total income in measuring income distribution he would overstate the actual degree of inequality in total income while if he used net cash income instead he would achieve a very close, if not perfect,

approximation. A value of .6 for the ratio of median to mean income corresponds to a Gini coefficient of about .5, not far from the aggregate value of .48 reported in part I for the 1970 household survey. However, as in the case of the Rio Suárez data, the concentration of consumption is not nearly as great as that for income. The ratio of median to mean for consumption is .82 which can be translated into a Gini coefficient of about .36. If observed consumption expenditures respond to families' perception of their long term or permanent income, the distribution of annual incomes may grossly exaggerate the extent to which poverty is a permanent condition for those who are presently poor.[1]

The issue of dynamic or vertical income mobility is a crucial dimension of equity. Equality of opportunity is obviously missing if the children of the poor invariably follow in the footsteps of their parents. A society in which "shirtsleeves to shirtsleeves every three generations" is the rule is ordinarily preferable to a hierarchical society in which lifetime economic options are severely circumscribed by the circumstances of birth. Only one attempt has been made to trace the fluctuating fortunes of a group of small farmers through time. Eugene Havens and a host of co-workers at the University of Wisconsin have been responsible for this effort.

Before discussing this work, however, a digression is in order to explain the derivation of Gini coefficients from mean-median relationships. From a recent World Bank compilation of income distribution data it is possible to approximate the slope of the Lorenz curve at the median income for a large number of countries.[2] The slope at this point is the ratio of median to mean

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1 A caveat may be in order here. The permanent income theory of consumption assumes an ability to borrow at market interest rates that may not exist in rural Colombia. On the other hand, even very small farmers appear to use livestock sales to smooth their intertemporal consumption flows.

2 Size Distribution of Income: A Compilation of Data, Shail Jain, The World Bank, Washington, D.C., 1975.

Table 14

Sources of Family Income by Farm Size: Fomeque, 1966
(U.S. dollars)

	Farm Size (hectares)						All Farms (203)	
	<1	1-3	3-5	5-10	10-25	>25	average	median
no. of farms	30	73	37	38	20	5	-	-
cash income source								
annuals	19	91	115	273	328	326	176	77
non-annuals	12	31	38	75	88	367	51	21
animal sales	72	160	259	244	559	1,222	290	126
animal products	38	70	103	146	218	402	111	77
total cash income	141	360	514	738	1,193	2,327	629	350
less cash costs	96	220	335	361	587	1,688	321	192
value of home consumption	45	85	111	176	227	319	121	89
inputed house rent	4	9	12	16	19	24	11	6
tenancy services received in-kind	6	5	3	4	6	7	5	0
net inventory change	5	12	21	27	98	131	28	13
depreciation	10	22	29	31	79	153	32	14
net farm production[a]	146	297	438	533	833	1,985	454	289
off-farm wages	73	40	50	25	4	-	39	29
rent and interest	-	2	3	4	16	26	4	0
other[b]	41	66	87	127	88	388	90	0
total income-all sources[c]	260	419	604	709	966	2,430	587	354
total consumption	247	328	420	547	657	1,172	427	352

Source: E. Haney, "Possibilities for the Economic Reorganization of Minifundia in a Highland Region of Colombia," University of Wisconsin Land Tenure Center Research Paper no. 43, 1971.

Notes:

(a) net farm production is defined as the sum of net cash income, the value of home consumption, net inventory change minus depreciation and approximates net family income resulting from on farm activity.

(b) other includes gifts or transfers of income and income from self-employment, mainly artisan activity.

(c) total income is the sum of net farm production, imputed house rents, tenancy services in-kind, off-farm wages, rent and interest and others.

income for each distribution. The same publication also provides estimated Gini coefficients for every distribution making it possible to relate the two measures of skewness. These data appear in Table 15 for family incomes in a number of Latin American countries and a plot of this relationship is shown in Figure I. While not exact, it can be seen that the relationship is close enough for the purpose at hand. The straight line that is drawn is used to approximate this relationship in what follows.

Havens and his collaborators have been able to follow the economic progress of a sample of farm families in three widely separated municipios. These are Contadero in the department of Nariño, Cereté in Córdoba and Tamesis in Antioquia.[1] Contadero is a poor Indian community with a high annual rate of out-migration (3 per cent) in which 80 per cent of household heads have secondary occupations in addition to farming. In 1964 the illiteracy rate was 38 per cent and only 4 of 654 households outside the county seat had electricity and only 24 were equipped with running water. Cereté is an area where large cattle ranches have normally predominated and where there has been a gradual shift away from ranching to cotton growing. It is also the target for an INCORA land reclamation and parcelization project. Tamesis is characterized by a heavy dependence on coffee as a commercial crop. About 100 families were included in the original sample from each area. Subsequent migration and death by some families reduced the size of the later sample but 75-85 per cent of the original household heads were

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1 Descriptions of this data base can be found in several places. E. A. Havens, Income, Employment and Occupational Structure in the Small Farm Sector of Colombia, mimeo, 1971; R. L.Whittenbarger and E. A. Havens, "A Longitudinal Analysis of Three Small Farm Communities in Colombia: A Compendium of Descriptive Statistics," Land Tenure Center Report no. 87, 1973; and E. A. Havens, W. Flinn and S. L. Cornhill, "Agrarian Reform and the Colombian National Front: A Class Analysis," in R. A. Berry, R. Hellman and M. Solaun, The Politics of Coalition, Cyrco Press, New York, 1977.

Table 15

The Relationship Between Frequency Functions and Lorenz Curves for Household Incomes

Country	Area	Median ÷ average income	Gini coefficient
Argentina	NL	.665	.44
	NAG	.69	.42
	URB	.75	.38
	AG	.56	.51
Australia	NL	.88	.32
Brasil	NL	.53	.57
	NL	.49	.61
Chile	RL	.7	.43
Costa Rica	NL	.54	.52
	NL	.69	.44
	NAG	.67	.47
	AG	.57	.53
	RL	.77	.37
	URB	.75	.38
Ecuador	URB	.59	.53
Guatemala	RL	.84	.3
Honduras	NL	.47	.63
	RL	.61	.49
Mexico	NL	.56	.54
	NL	.5	.58
	NL	.48	.61
Panama	URB	.82	.36
Uruguay	NL	.76	.43
Venezuela	RL	.68	.46
	RL	.69	.45

Source: Size Distribution of Income: A Compilation of Data, Shail Jain, World Bank, Washington, D.C., 1975.

Note: the area codes are the following: NL = national; NAG = nonagricultural; URB = urban; AG = agriculture; RL = rural.

Figure 1

The Relationship of Gini Values and Median-mean Ratios of Income

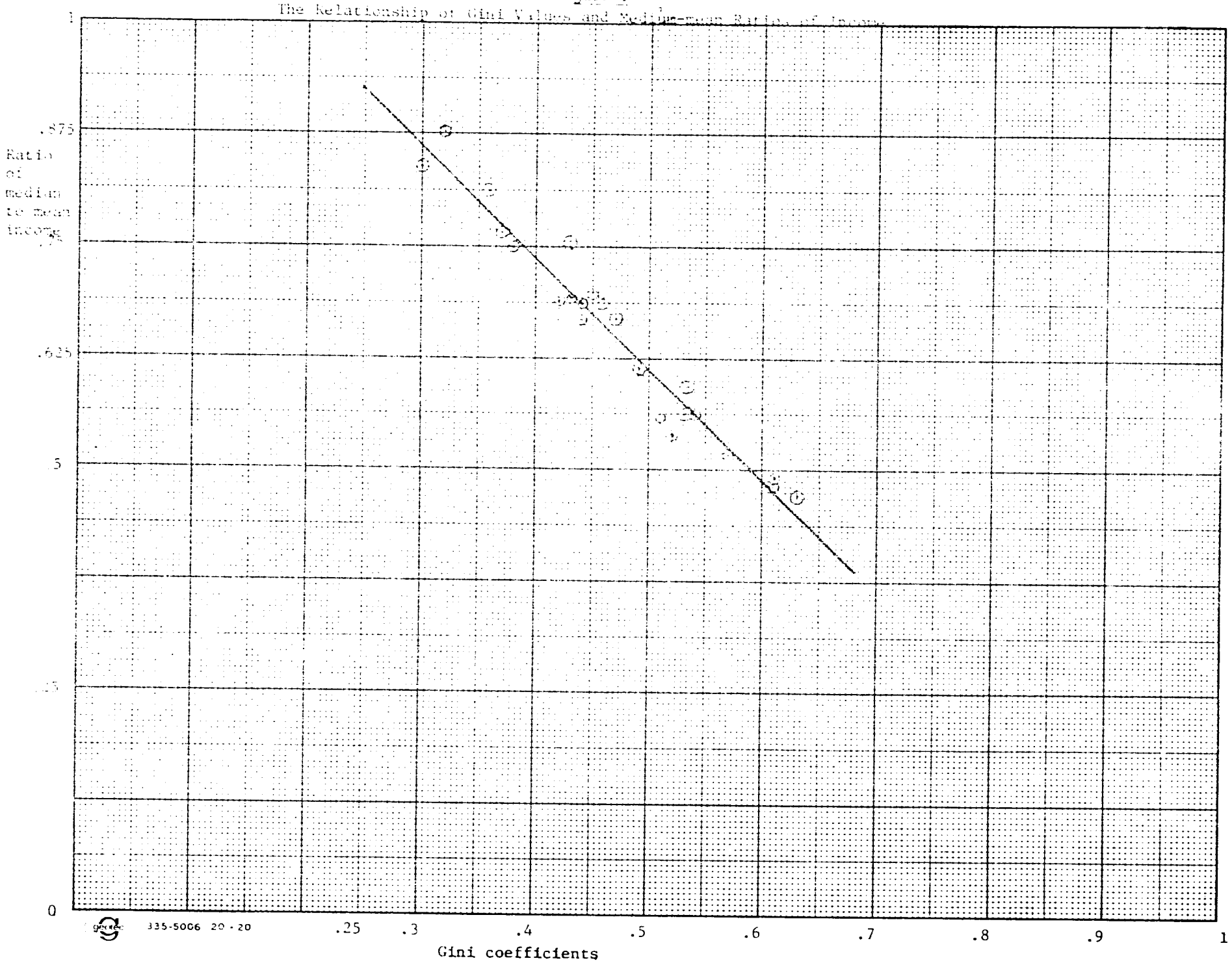

Table 16

Changes in the Economic Conditions of Three Small Farm Communities in Colombia: 1963-70

	Contadero		Cereté		Tamesis	
	1963	1970	1963	1970	1963	1970
Average family size	5.9	6.3	6.7	7.1	6.9	7.6
Average farm size	3.98	1.83	5.7	2.8	5.1	5.8
Total Income (pesos)						
average	2,780	3,955	3,817	5,504	4,510	6,684
median	1,912	2,080	2,485	3,245	4,080	4,420
median to average	.687	.52	.65	.59	.9[illegible]	.66
estimated Gini value	.45	.56	.48	.52	.28	.44
Off-farm income (pesos)						
average	1,006	1,595	2,192	3,011	1,241	2,607

Notes: (1) Money incomes in 1970 have been deflated to 1963 values using the national consumer price index for blue-collar workers.

(2) Total income is net farm cash income plus salary income.

reinterviewed in each area. Large landowners were deliberately excluded from the sample.

Some of the fruits of this research are shown in Table 16. Over the period 1963-1970 average farm size declined in Contadero and Cereté and rose marginally in Tamesis. However, average real income per farm, where income includes money earned from off-farm sources but excludes home consumption, increased substantially in every region at an average annual rate in excess of 5 per cent.[1] All components of farm income shared in this increase as average off-farm income also exhibited strong growth over this period. At the same time median farm incomes did not grow nearly as fast which suggests that the bulk of the benefits of real income growth were registered on farms of above-average size. Indeed, the ratio of median to mean income declined in every community but did so with particular vigor in Tamesis where the estimated Gini coefficient rose from .28 to .44.

What can explain this trend toward growing income concentration? Although the experience of Contadero and Cereté remain an untold mystery, the events in Tamesis appear to reflect the force of technological change.[2] According to Havens and Flinn, 17 of 56 families in Tamesis who continued in the sample adopted a new coffee technology, essentially a new variety, caturra, which is much higher yielding than traditional varieties and does not require shade, and saw their real family income rise from 6,731 to 11,620 pesos.[2] Non-adopters, on the other hand, realized a smaller growth in real family income from 4,509 to 6,274 pesos thanks in large part to the

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1 If income received in kind, e.g., home consumption, has been constant, the growth of money income overstates the growth of total income.

2 A. E. Havens and W. Flinn, "Green Revolution Technology and Community Development: the Limits of Action Programs," Land Tenure Research Paper no. 93, September 1973.

higher level of coffee prices in 1970. Adopters also expanded their average farm size from 18.9 to 33.1 hectares while average farm size for non-adopters shrank from 7.97 to 6.42 hectares. As a result, the Gini coefficient for land ownership climbed to .81 from .71. Havens and Flinn attribute this uneven response to unequal access to institutional credit. A contending hypothesis, one not considered by Havens and Flinn, is that this response represents the typical impact effect of a new innovation; eventually it will be adopted by most farmers in the region and the differences in real income performance will disappear. If later observations confirm this prediction the initial wave of adoption by larger farmers will not imply any long run distributional inequity. It is still true nonetheless, that there is, at least in the short run, some evidence to support the notion of increasing inequality of small farm incomes.

Almost the entire discussion until now has dealt with the experience of small farmers in Colombia and nothing has been about landless, seasonal migrant workers. This is a choice which has been dictated by the availability of data since, with one exception, noone has bothered to investigate the standard of living of seasonal migrants or, for that matter, the economic conditions that affect them. The exception noted is the study by Ruiz which provides some anecdotal material describing the miserable circumstances surrounding the daily life of this group [1] Many of them sleep on the ground next to the cotton crop which they have picked earlier in the day. Working conditions are excessively unsanitary, unsafe water is often all that there is to drink and sickness, unattended by a doctor, is frequently the result. Violence among the workers is also common. Members of this group are constantly on the road in search of work and typically spend a part of

[1] La Fuerza de Trabajo en la Producción de Arroz y Algodón, Tomo 1-Algodón and Tomo 2-Arroz, Soledad Ruiz, DANE, Bogotá, 1973.

the year working at an unskilled urban job.

2. Income Distribution Policies

No attempt at a thorough examination of Colombia's rural economic policies will be made here.[1] Instead, the emphasis will be upon the range of policy options that are available and the relative weight that has been and perhaps should be, placed on each alternative. Efforts to improve the economic welfare of small farmers in Colombia can be conveniently classified into the following categories:

(a) measures to encourage the commercialization and growth of crop output on large farms. It can be argued that these measures have received first priority in policy-making since the end of W.W.II. Price supports, cheap institutional credit, a network of research stations and extension personnel and tariff and import-licencing preferences for farm machinery have all been directed towards stimulating the expansion of large farm crops.[2] The basic premise on which this strategy is founded is that a substantial trickle-down exists in the form of increased labor demand for small farmers. At least two points should be borne in mind in evaluating this strategy.[3] One is that, while off-farm income earned by small farmers may increase, on-farm incomes realized by this group will inevitably decline to the extent that small and large farm crops compete either directly or indirectly in consumption. The other is the importance of distinguishing between the short and longer run effects of the adoption of modern technologies by large farms. If large

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1 A lengthier discussion of some of these policy issues is found in W. R. Thirsk, "Agricultural Policy and Income Distribution in Colombia," Rice University Studies, vol. 61, no. 4, Fall 1975.

2 During the period 1950-1972 physical output produced on large farms grew at an average annual rate of 8 per cent, almost five times faster than the traditional crops produced on smaller farms.

3 An alternative form of trickle-down is the creation of rural industry. Scant research has been done on this possibility. Between 1951 and 1964 small scale rural manufacturing employment fell, possibily as a result of more vigorous competition from urban industry.

farms shift from cattle to mechanized crop growing there will be a once-over increase in labor demand.[1] After this change in land use occurs, however, there is apt to be a steady diminution in labor requirements due to the progressive adoption of more advanced, and more profitable, mechanical technologies.

(b) land reform measures. The land reform agency in Colombia, INCORA, behaves more like a rural development office because of its heavy involvement in irrigation and drainage projects, supervised credit programs and infrastructural investment in remote colonization areas in addition to its attempts to redistribute public and private land to small farmers. Critics of the agency have alleged that INCORA has invested far too much of its resources in land reclamation instead of land redistribution and has therefore been far less effective in extending the land base of small farms than it might have been. Besides being inefficient, it is further alleged that the agency has paid too much attention to the creation of medium-sized farms instead of trying to reach a larger group of small farmers with less land per farmer.[2]

(c) measures to raise yields on small farms. A wide variety of policy measures are at stake here including the adequacy of rural education, access to transportation facilities, ability to obtain credit at reasonable interest rates, agricultural research and extension to develop and diffuse new or improved seed varieties and mechanical technologies suited to small farms, and the provision of stable and orderly marketing structures. At least for

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1 This refers to only an increase in agricultural labor demand. It has been estimated elsewhere that, because of the high capital intensity of large crop farms, mechanization will reduce labor demand in the whole economy. See W. R. Thirsk, The Economics of Farm Mechanization in Colombia, unpublished Ph.D. dissertation, Yale University 1972.

2 See, for example, the debate which swirls in the Spring Review of Land Reform, Agency for International Development, Washington, D.C., June 1970.

some crops, there is some limited evidence that the productivity of intermediate inputs purchased with credit, such as seed and fertilizer, may be highest on smaller farms in Colombia. Besides long recognized imperfections in the capital market, another factor explaining this result is the relative abundance of complementary labor on these farms.

Only a single empirical study of rural education exists to date and its findings offer scant comfort for those who view education as an important instrument for alleviating rural poverty.[2] From a sample of small farmers in four different departments Haller was unable to detect significant "worker effects" in any region and found important "allocative effects" in only one of them. That is, the effect of education in raising workers' productivity directly (holding other inputs constant) was imperceptible although education was important in explaining farmers' ability to make productive employment decisions in one instance. Several factors could account for this finding. It could reflect the low quality of rural education in Colombia or it could be caused by the difficulty of detecting the spillover benefits of education in a cross-section sample. Uneducated farmers, for example, may benefit from the education provided to others if they are able to duplicate the profitable decisions made by the latter-learning by copying.

One of the more sobering implications of the Haller study is that more widespread rural education may be of greatest benefit to farmers who already reside in high income regions. Haller's allocative impact was

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1 W. R. Thirsk, "Rural Credit and Income Distribution in Colombia," Journal of Development Studies, vol. 2, no. 1, May 1975 .

2 T. Haller, Education and Rural Development in Colombia, unpublished Ph.D. dissertation, Purdue University, 1972.

discovered in only the richest of the regions which he sampled and could be due to the fact that education is complementary to land ownership and the option of making a wide range of production choices.[1] Farmers in poorer regions may be so severely limited by poor soil conditions that education is unable to expand the range of economic options available to them.

In the area of research and extension it seems to be fairly well documented that the agency responsible for creating and disseminating new knowledge, ICA, has catered mainly to the interests of larger farmers and has been more concerned with achieving technical instead of economic efficiency.[2] If it can be argued that larger farmers would acquire the relevant knowledge in any event, the effectiveness of ICA could be enhanced if it directed all of its efforts towards the small farm sector.

There is some evidence that small farm crop prices fluctuate more than others. With more stable marketing arrangements that reduced the risk attached to these activities small farmers might be encouraged to specialize in production more than they do and shift to higher return cash crops.

(d) measures to improve rural labor mobility. Census data clearly indicate that inter-departmental labor migration typically involves a flow of rural workers from low paying departments such as Nariño to expanding and higher paying departments such as César. Berry's analysis of these flows suggests that they have been important in diffusing the benefits of regional economic growth to all regions. Still, there seems to be altogether too many instances

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1 On the other hand, it's also possible that this group of farmers lives closer to towns which supply productive inputs and therefore have better access to them.

2 See, for example, R. Albert Berry, The Development of the Agricultural Sector in Colombia, forthcoming.

of seasonal labor shortages cited in newspapers and official reports as the motive behind mechanization for a country that show obvious signs of surplus labor. No policy, except that of neglect, presently exists in this area.

(e) measures to enhance the efficiency of rural-urban migration. As the most recent population census hints, Colombia may have reached a turning point in which the absolute size of the rural population has begun to decline. Although Colombia has made impressive strides in widening the provision of rural education, continued and expanded efforts in the direction may be required in order to endow rural residents with the skills needed to obtain and hold urban jobs. If the benefits of urban economic growth are to reach the rural poor via the route of migration, higher levels of rural education may be indispensable. A number of studies have little doubt that rates of out-migration to urban zones are lowest in areas with the least educational attainment.[1] Udall, for instance, in his detailed examination of migration to Bogotá, found that a scarcity of unskilled jobs would discourage poorly educated rural workers from moving to the city.[2] The bulk of the stream of rural-urban migrants appeared to be highly educated and to originate in small towns and hamlets nearby. In order to improve the incomes of the poorest rural residents, more unskilled urban jobs or higher levels of rural education are called for. Surely the latter investment is more attractive than the former.

The most recent evidence from the 1973 population census confirms and strengthens these results. Fields and Schultz, using a four per cent sample,

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1 See Dale Adams, "Rural Migration and Agricultural Development in Colombia," Economic Development and Cultural Change, vol. 17, no. 4, October 1969; and Simmons, Alan and G. Cardona, "Rural-Urban Migration: Who Comes, Who Stays, Who Returns? The Case of Bogotá, Colombia, 1929-1968," International Migration Review, vol. 6, no. 2, Summer 1972.

3 Alan Udall, Migration and Employment in Bogotá, Colombia, unpublished Ph.D. dissertation, Yale University 1972.

measure a handsome income reward accompanying the sequence of education cum migration.[1] Their analysis of the data also indicates that migration is selective of the most highly educated rural persons and that, after allowing for rural-urban residence, each year of primary education completed is associated with a gain of about 9 per cent in money income. However, if a person with a primary education were to migrate say from Boyacá to Bogotá, the increment in money income realized would be of the order of 90 per cent. Generally speaking, the poorer the region of emigration, e.g., Cauca or Nariño, the larger the gain in money income seems to be.

Notice that the range of policy options so far discussed has excluded any mention of landless workers. To treat this group as if it did not exist or, if present, were unimportant, is consistent with Colombian tradition and the tenor of the debate over poverty and how to deal with it. Clearly, the problems of this group deserve greater recognition in the future. Recognizing this group, however, makes more evident the diffuse origins of the poor. Somewhat different strategies will have to be designed to cope with the different situations facing small farmers, landless workers and sharecroppers. An important focus of future research will be the extent to which strategies meant to aid a particular group of poor spill-over and either help or harm members of other poor groups.[2] For example, measures to augment the productivity of small farms will assist landless workers only if they induce some withdrawal from the

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1 G. S. Fields and T. Paul Schultz, "Sources of Income Variation in Colombia: Personal and Regional Effects," Economic Growth Center Discussion Paper no. 262, Yale University, June 1977.

2 One problem with a target group approach is that it could result in low target efficiency if the poor are broadly defined. For an example in which land reform may aid the rural poor at the expense of the urban poor see W. R. Thirsk, "The Distribution of Land Reform Benefits in Colombia," Land Economics, vol. 52, no. 1, February 1976.

labor market by small farmers and do not indirectly result in cutbacks of hiring by larger farms. Unless these spill-overs are correctly anticipated many policies will have more effect in determining who is poor than in altering the number of poor.

It is clear that if a major dent is to be made on rural poverty Colombia must stop doing some things and start doing others. While large farmers probably should not be penalized, it is difficult to justify the subsidies which many of them presently enjoy and more difficult yet to see how many of them serve the cause of the poor. Colombia has never initiated a broad-based rural development effort involving mass participation. Instead, the policy emphasis has always been selective and discriminatory with government privileges passed out to a few rather than soliciting more effort from the many.

Of all the policies mentioned, the provision of more and better rural education may be the one with the best chance for success. Aside from the high rate of illiteracy which still exists, there are three factors, at least, which argue in its favor. First, some studies now point to the direct income-raising effects of educational investment. Secondly, this return is enhanced if the recipient migrates to an urban area and migration may offer the best economic alternative to many of the rural poor.[1] Certainly in the long

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[1] In an interesting study of the distributive consequences of financing public education, Jallade concludes that income is transferred to the lower from the higher income groups in urban Colombia. This result occurs because the rich support public education with their taxes while sending their own children to private schools. However, in rural areas he finds that the poorest income group, the bottom six deciles, receives a subsidy that is just matched by their tax contribution, a reflection of the low enrollment ratios among low income groups. See Jean Pierre Jallade, Public Expenditures on Education and Income Distribution in Colombia, World Bank Occasional Paper no. 18, Johns Hopkins Press, Baltimore, 1974. More generally, the consumption of public services should be included in the measurement of welfare level. In this regard, see the recent study by Selowsky, op. cit.

run it is inconceivable to consider a solution for the landless worker that does not involve migration. Finally, for those who stay in rural areas, their income prospects will be largely influenced by their ability to adopt new technologies that are offered in the future. The uneven response to new economic forces outlined in the case of small farms in Tamesis is probably due in part to the variance in the educational background of the farmers. A minimum educational level is likely to prove to be indispensable to farmers seeking to participate in the opportunities provided by future technological change.

3. Conclusions

A lot of ground has been covered in the course of this paper. Among the more important points to emerge from it are the following:

(1) The distribution of rural income has been, and still is highly concentrated. A reasonable poverty line establishes that the bottom six deciles of the income distribution are poor.

(2) While the rich rural income recipient may be getting richer, and the relative distribution of income seems to be worsening, economic growth has not entirely by-passed the poor. As they are defined above, the poor experienced a growth in real incomes of about 1.5 percent per year on average between 1960 and 1970.

(3) Noneconomic indicators of welfare, such indices of the quality of life as infant mortality, illiteracy, expected lifespans, and housing conditions, also confirm gradual but persistent improvement in the living conditions of the poor.

(4) Poverty cuts across rural occupational lines and includes substantial

numbers of small farmers, agricultural laborers, landless workers and sharecroppers. Moreover, the poorer the individual is, the more diverse his income sources are likely to be. Thus no single approach to ameliorating the living standards of the poor has a high probability of succeeding. A multi-faceted strategy is called for instead.

(5) Almost every group has a set of economic policies designed to assist it except landless workers who are among the poorest of the poor. Much more could be done on their behalf.

(6) In some areas increasing inequality of small farm incomes is observed and is attributable to disparate responses to technological change. Less selective access to credit and education might contribute to more uniform responses in the future.

(7) Policies tailored to assist a particular group should take greater cognizance of their impact on other rural groups. Expanded rural education is perhaps the only policy that appears to offer benefits to all groups.

(8) Future research efforts should endeavor to measure the distribution of rural consumption and monitor more closely developments in rural labor markets. Consumption data may be better proxies of welfare than information on incomes and, in addition, may be used to construct price indices needed to more clearly identify who and where the poor are. The regular collection of more extensive labor market information will provide clues to the nature of seasonal changes in employment and wages and, as well, seasonal migration patterns.

Appendix

Methodology for Estimating the Shares of Economic Growth Received by Different Income Groups

Preserving the notation used in section 3 of this paper, we start with an income identity of the following form:

(1) $$\bar{y} \equiv f_p \bar{y}_p + f_n \bar{y}_n$$

This merely states that mean income is a weighted average of the mean incomes received by the poor and nonpoor, the weights in this case consisting of the fraction of the labour force falling in each group. If the Δ symbol is used to denote changes in each of the variables shown in equation (1), the change in mean income is

(2) $$\Delta\bar{y} = \bar{y}_p \Delta f_p + f_p \Delta\bar{y}_p + \Delta\bar{y}_p \Delta f_p + \bar{y}_n \Delta f_n + f_n \Delta\bar{y}_n + \Delta\bar{y}_n \Delta f_n$$

Consider the first and the fourth terms on the right hand side of equation (2). Since $f_p = 1 - f_n$ in both the new and previous periods these two terms can be combined to yield $(\bar{y}_n - \bar{y}_p)\ (f'_n - f^\circ_n)$ where f'_n and f°_n represent the fraction of population that are non-poor in the current and previous policy respectively. Consider next the sum of the second and third terms in equation (2) above. The result of that addition is the product $\Delta\bar{y}_p f'_p$.

The four terms that remain on the right hand side of equation (2) can be given the following interpretation:

$(\bar{y}_n - \bar{y}_p)\ (f'_n - f^\circ_n)$ = the change in income when some poor transfer to a non-poor status

$f'_p \Delta\bar{y}_p$ = the growth in average incomes of the poor who remain poor

$f_n \Delta\bar{y}_n$ = the growth in average income of those who were originally non-poor

$\Delta\bar{y}_n \Delta f_n$ = the change in income resulting from a change in both the number and average incomes of the rich

These four terms are the ones that appear in section 3 and which are given quantitative content using data describing the Colombian economy between 1960 and 1970.

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