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REPORT ON INCOME DISTRIBUTION AND  
POVERTY IN COSTA RICA

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Costa Rica has apparently succeeded in avoiding the severe dualism characteristic of many other developing countries. Due to its impressive social programs, political stability, and absence of armed forces, its image is not typical of Latin America. Yet, distribution of income and wealth is highly uneven and sizable pockets of poverty remain, often mixed with the affluent.

Perhaps the most striking evidence of inequality is found in ownership of agricultural land, which is the ultimate expression of power in a nation whose agricultural share of gross domestic product is 20 percent, where two-thirds of total export earnings originate in agriculture, and where more than one-third of total employment relates to the primary sector.<sup>1</sup> According to the 1973 Agricultural Census, more than one-half (54.6 percent) of the surface area of farms consisting of one hectare and over is owned by less than 5 percent of farm owners. Furthermore, one-half of 1 percent of farm owners control one-fourth of the surface area, while, at the other end of the spectrum, almost one-half (47.8 percent) of farm owners possesses only 3.8 percent of the surface area. As can be observed in Table 1, the situation has not changed appreciably over the last 20 years.

This report attempts to analyze income distribution and poverty patterns in Costa Rica based on data and findings generated by previous studies. It concentrates on the correlates and, presumably, determinants

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<sup>1</sup>Agency for International Development, An Assessment of the Agricultural Sector in Costa Rica (San José: 1977), p. 1.

Table 1. Percentage distribution of farms of at least one hectare and their surface area in Costa Rica by farm size, 1955-1973.

Farm Size (hectares)	Percentage Distribution					
	1955		1963		1973	
	Farms	Surface	Farms	Surface	Farms	Surface
Total	100.0	100.0	100.0	100.0	100.0	100.0
1-9.9	51.0	5.1	49.8	4.7	47.8	3.8
10-19.9	15.1	5.3	15.0	5.1	14.0	3.9
20-99.9	28.0	28.3	28.2	27.8	29.1	25.1
100-199.9	3.1	10.1	3.7	11.6	4.7	12.6
200-999.9	2.4	21.5	2.9	25.0	3.9	29.4
1,000-2,499.9	0.3	8.7	0.3	9.7	0.4	10.3
2,500 and more	0.1	21.0	0.1	16.1	0.1	14.9

Source: Dirección General de Estadística y Censos, Agricultural Censi of 1955, 1963, and 1973.

of these patterns such as demographic characteristics, labor force participation and employment, education, and housing. It also contains some recommendations related to tax, credit, and regional policy. A summary of major poverty-related conclusions of four USAID sector assessment studies is presented in an appendix.

### Income Distribution

The percentage distribution of wage-and-salary earners in 1973 by income bracket, urban-rural location, sex, and economic sector of employment (see Table 2) reveals three interesting patterns: First, urban jobs pay more than rural occupations; second, men earn higher wages and salaries than women, especially in urban areas; and third, while insurance-finance and utilities are the highest paying sectors, agriculture and mining, essentially rural activities, show the greatest concentration of low-paying jobs. These observations are critical to any income distribution analysis in view of the fact that almost three-fifths (59.4 percent) of the population are rural, women constitute one-fifth (19.3 percent) of the labor force, one out of every six households is headed by a woman, and more than one-third (36.4 percent) of the labor force is employed in the agricultural sector.

Using 1963 and 1973 Population Census data, Carvajal and Geithman have recently explored the nature and determinants of sex-income differentials in terms of human capital and labor-market attachment arguments versus occurrence of role prejudice and differentiation and occupational

Table 2. Number of wage-and-salary earners and percentage distribution by income bracket, urban-rural location, sex, and economic sector of employment.

Sex and Employment Sector	Total						Urban						Rural					
	Number of Wage Salary Earners	Percentage Distribution					Number of Wage Salary Earners	Percentage Distribution					Number of Wage Salary Earners	Percentage Distribution				
		Less than ₡400	₡400 to 699	₡700 to 999	1000 to 1299	1300 and more		Less than ₡400	₡400 to 699	₡700 to 999	1000 to 1299	1300 and more		Less than ₡400	₡400 to 699	₡700 to 999	1000 to 1299	1300 and more
<b>BOTH SEXES</b>	410,076	42.0	28.5	12.8	7.0	9.7	200,937	28.2	29.1	16.4	10.2	16.1	209,139	55.3	27.9	9.3	3.9	3.6
Agriculture	122,600	72.6	18.7	5.2	1.9	1.6	9,072	57.1	22.6	7.4	4.7	8.2	113,528	73.9	18.4	5.0	1.7	1.0
Mining	1,188	50.5	41.8	4.3	1.4	2.0	217	39.6	40.6	7.8	4.1	7.9	971	52.9	42.0	3.5	0.8	0.9
Manufactur.	58,454	30.8	43.6	12.9	5.6	7.1	36,839	27.6	41.9	13.9	6.9	9.7	21,615	36.4	46.5	11.0	3.5	2.6
Utilities	5,410	8.3	29.7	25.5	15.4	21.1	3,508	6.1	22.7	25.3	17.5	28.4	1,902	12.4	42.5	25.8	11.6	7.7
Construct.	34,275	16.2	50.2	22.8	6.4	4.4	16,026	14.9	47.1	24.0	7.5	6.5	18,249	17.4	52.8	21.6	5.5	2.7
Commerce	44,046	33.3	40.3	11.9	6.2	8.3	31,771	30.0	39.5	13.0	7.2	10.3	12,275	42.0	42.5	9.2	3.4	2.9
Tran. & Com.	20,462	15.3	37.9	25.7	11.6	9.5	13,795	11.7	33.8	28.1	13.7	12.7	6,667	22.8	46.3	20.6	7.3	3.0
Ins. & Fin.	12,198	8.3	22.0	19.2	15.5	35.0	10,130	7.1	19.3	19.0	16.1	38.5	2,068	13.7	35.4	20.6	12.7	17.6
Services	110,567	35.8	18.5	14.8	11.7	19.2	79,198	33.7	16.8	15.6	12.5	21.4	31,369	41.3	23.0	12.8	9.6	13.3
Other	876	30.4	31.1	15.4	8.9	14.2	381	20.2	35.7	18.4	9.7	16.0	495	38.2	27.5	13.1	8.3	12.9
<b>MEN</b>	309,554	39.2	31.3	13.7	6.3	9.5	129,122	18.2	34.2	19.2	10.1	18.3	180,232	54.2	29.2	9.8	3.6	3.2
Agriculture	118,701	72.7	18.6	5.2	1.9	1.6	8,622	57.2	22.8	7.4	4.4	8.2	110,079	74.0	18.3	5.0	1.7	1.0
Mining	1,122	49.7	43.0	3.8	1.3	2.2	205	41.5	41.5	5.9	3.4	7.7	917	51.6	43.4	3.4	0.9	0.7
Manufactur.	43,009	23.6	45.4	15.6	6.8	8.6	26,503	20.6	42.4	16.7	8.2	12.1	16,406	28.6	50.2	13.7	4.4	3.1
Utilities	5,139	8.4	30.6	25.2	14.9	20.9	3,262	6.3	23.7	24.9	17.0	28.1	1,877	12.1	42.7	25.8	11.3	8.1
Construct.	34,113	16.2	50.2	22.8	6.4	4.4	15,902	14.9	47.2	24.1	7.4	6.4	18,211	17.3	52.9	21.7	5.5	2.6
Commerce	29,658	27.1	40.6	13.7	7.6	11.0	20,542	23.2	38.4	14.9	9.1	14.4	9,116	35.9	45.4	11.0	4.1	3.6
Tran. & Com.	19,375	15.7	38.7	25.4	11.1	9.1	12,902	12.1	34.8	27.9	13.0	12.2	6,473	22.7	46.6	20.4	7.3	3.0
Ins. & Fin.	10,180	7.5	22.1	18.8	14.5	37.1	8,340	6.3	19.0	18.3	15.0	41.4	1,840	12.7	35.8	20.9	12.5	18.1
Services	47,508	12.9	29.7	19.9	11.3	26.2	32,480	10.7	26.2	20.8	11.8	30.5	15,028	17.8	37.2	17.9	10.1	17.0
Other	549	28.2	34.2	16.4	8.6	12.6	264	15.9	37.5	18.6	11.0	17.0	285	39.6	31.2	14.4	6.3	8.5
<b>WOMEN</b>	100,722	50.8	19.7	9.9	9.2	10.4	71,815	46.2	19.9	11.3	10.6	12.0	28,907	62.4	19.1	6.4	5.8	6.3
Agriculture	3,899	69.6	22.4	4.7	2.0	1.3	450	55.3	18.0	7.6	10.0	9.1	3,449	71.4	22.9	4.3	0.9	0.5
Mining	66	63.6	19.7	12.1	3.0	1.6	12	8.3	25.0	41.7	16.7	8.3	54	75.9	18.5	5.6	-	-
Manufactur.	15,445	50.8	38.7	5.2	2.5	2.8	10,236	45.7	40.5	6.5	3.4	3.9	5,209	61.0	35.1	2.5	0.8	0.6
Utilities	271	5.2	11.1	29.9	25.5	28.3	246	2.8	9.8	30.9	25.2	31.3	25	4.0	24.0	24.0	20.0	28.0
Construct.	162	19.8	36.4	17.3	11.7	14.8	124	11.3	41.1	16.9	14.5	16.2	38	47.4	21.1	18.4	2.6	10.5
Commerce	14,388	46.1	39.8	8.3	3.3	2.5	11,229	42.3	41.5	9.5	3.7	3.0	3,159	59.5	34.0	4.1	1.6	0.8
Tran. & Com.	1,087	9.4	22.6	29.7	21.2	17.1	893	6.2	20.0	30.1	24.5	19.2	194	24.2	34.5	27.8	5.7	7.8
Ins. & Fin.	2,018	12.2	21.8	21.6	20.4	24.0	1,790	10.9	20.3	22.0	21.2	25.6	228	22.4	32.9	18.4	14.0	12.3
Services	63,059	53.0	10.1	10.9	12.0	14.0	46,718	49.6	10.2	11.9	13.0	15.3	16,341	62.8	9.9	8.0	9.1	10.2
Other	327	33.9	25.7	13.8	9.5	17.1	117	29.9	31.6	17.9	6.8	13.8	210	36.2	22.4	11.4	11.0	19.0

Source: Dirección General de Estadística y Censos, Censo de Población 1973 (San José: Vol. 2, 1975), pp. 244-245.

segregation.<sup>2</sup> It seems that a plausible explanation for some of the male-female earnings differentials lies in women's wages being substantially lower than men's because, through role learning and acceptance, they fail to enter many occupations, consequently artificially swelling the supply of labor to the relatively few remaining occupations and driving down wage rates. Men benefit from an artificially reduced labor supply to all other occupations, thereby raising male wages.

Table 3 presents average wages and salaries, as well as their standard deviations, for men and women in 11 occupational groupings according to the 1963 and 1973 censi. Average male income exceeds average female income in all 11 occupations in both 1963 and 1973, the differences being highly statistically significant (at the .99 level) for all sex comparisons excepting managers and administrators in 1963. The range of monthly earnings among occupations is great, with a greater range for men than women in both 1963 and 1973. The ratio of the income for the highest-paying occupation (physicians and dentists) to the lowest-earning occupation (agricultural workers) is 13.4 and 14.6 for men in 1963 and 1973, respectively, and 8.2 and 13.0 for women. Clearly, during the intercensal period the income range among occupations has grown wider, especially for women.

The size of the female-to-male earnings ratio appears unrelated to both average income and magnitude of the standard deviation around average income for the various occupations. For example, in 1963 managers and

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<sup>2</sup>Manuel J. Carvajal and David T. Geithman, "Sex Differences in Earnings in a Low-Income Country: The Evidence from Costa Rica," International Review of Modern Sociology (forthcoming) and "Sex and Income Differences in Costa Rica Revisited--1963-1973 Comparisons," paper presented at the Sixth National Meeting of the Latin American Studies Association, Atlanta, March 1976.

Table 3. Mean and standard deviation of wage-and-salary earnings in colones in 1963 and 1973, by occupation and sex.

Occupation	Sex				Female-to-Male Earnings Ratio	
	Men		Women		1963	1973
	1963	1973	1963	1973		
Physicians and dentists	2,032 (1,014)	4,658 (2,038)	1,000 (591)	3,167 (1,800)	.49	.68
Managers and administrators	1,000 (915)	3,081 (2,708)	826 (583)	1,877 (1,684)	.83	.61
Teachers	793 (489)	1,776 (880)	644 (235)	1,345 (582)	.81	.76
Telephone and telegraph operators	625 (419)	1,041 (532)	421 (180)	807 (393)	.67	.77
Bookkeepers and cashiers	601 (482)	1,329 (710)	401 (306)	955 (582)	.67	.72
Sales clerks and street vendors	320 (276)	479 (307)	249 (147)	429 (213)	.78	.89
Tailors and dressmakers	319 (199)	540 (433)	224 (145)	419 (166)	.70	.78
Workers in food and beverage industries	290 (204)	500 (292)	128 (90)	302 (146)	.44	.60
Waiters and waitresses	279 (212)	499 (325)	187 (95)	333 (186)	.67	.67
Porters and janitors	273 (183)	539 (248)	253 (138)	465 (216)	.93	.78
Agricultural workers	151 (84)	320 (206)	122 (77)	244 (157)	.80	.76

Source: Manuel J. Carvajal and David T. Geithman, "Sex and Income Differences in Costa Rica Revisited--1963-1973 Comparisons," paper presented at the Sixth National Meeting of the Latin American Studies Association, Atlanta, March 1976.

administrators, on the one hand, and agricultural workers, on the other hand, possess virtually identical female-to-male earnings ratios; but for managers and administrators average income is relatively high and standard deviation relatively large, while for agricultural workers average income is low and standard deviation small.

When male and female earnings within each occupational grouping in 1963 and 1973 (a total of 44 equations) are regressed as a nonlinear function of education, age, urban-rural residence, marital status, and migration, the least-squares coefficients possess high levels of statistical significance. For men in 1963 earnings tend to decline for very low educational levels, quickly reaching a bottom, and then rising at an increasing rate for more education. For women in 1963 and for both sexes in 1973, as the number of years of formal education increases, earnings also increase but at a decreasing rate.

In every case for both sexes and both years, as age increases earnings rise at a diminishing rate, reach a peak, and decline thereafter, which is the classic age-income relationship. The estimated coefficients for the place-of-residence variable indicate that living in an urban environment tends to increase wage-and-salary income, perhaps because of higher marginal productivity in urban-type jobs relative to rural activities, or simply as an adjustment to higher prices in cities, thus compensating for cost-of-living differentials at comparable levels of satisfaction of want. The empirical findings also show that unmarried employees receive, on average, lower incomes than their married counterpart; this differential in earnings generally is greater for men than for women, which suggests that married female workers are penalized somewhat relative to married males, maybe because of the tendency to think of married working women as secondary income

earners. Finally, the migration coefficients indicate that a greater propensity to migrate increases income significantly, and that men gain more than women from migrating in response to their perception of alternative economic opportunities.

The least-squares estimates of these coefficients constitute the basis for developing two highly useful measures of income responsiveness, namely the education-earnings and age-earnings elasticities, which refer to the limit of the ratio of a percentage change in income to an infinitesimal change in education or age. These elasticities (see Table 4) show, for example, that 10 percent more education in 1963 increases earnings by 18.9 percent for male physicians and dentists and by 13.1 percent for female physicians and dentists, while 10 years later the same percentage increase in education causes earnings to rise by 4.7 and 9.5 percent for male and female physicians and dentists, respectively.

Several trends are apparent from these education-earnings and age-earnings elasticities. First, earnings tend to be more education elastic in the higher-paying occupations relative to the lower-paying occupations; this pattern is consistent with the broad idea that a society's better paid jobs usually are knowledge intensive. Second, the education elasticities are higher for men than for women, but while this pattern is observed in 10 of 11 occupations in 1963, it only occurs for seven occupations in 1973; thus, although men gain more income through additional education than do women, the gap in income-education responsiveness was reduced in the 1963-1973 period. Third, the education-earnings elasticities for men are higher in 1973 than in 1963 for only two occupations, while those for women are higher in 1973 than in 1963 for four occupations; this pattern again shows some improvement for females relative to males over the 1963-1973

Table 4. Estimated values of education-earnings and age-earnings elasticities by occupation and sex, 1963 and 1973.

Occupation	Education-Earnings Elasticity				Age-Earnings Elasticity			
	Men		Women		Men		Women	
	1963	1973	1963	1973	1963	1973	1963	1973
Physicians and dentists	1.89	0.47	1.31	0.95	0.72	0.63	0.70	0.73
Managers and administrators	1.51	1.15	0.81	0.51	0.31	0.72	0.35	1.79
Teachers	0.64	0.48	0.51	0.11	0.90	0.50	0.45	0.43
Telephone and telegraph operators	0.47	0.50	0.38	0.58	0.98	0.48	1.05	0.51
Bookkeepers and cashiers	0.81	0.60	0.69	0.50	1.02	0.69	0.58	0.78
Sales clerks and street vendors	0.47	0.35	0.41	0.30	0.54	0.57	1.65	0.37
Tailors and dressmakers	0.16	0.17	0.13	0.14	0.33	0.26	0.16	0.17
Workers in food and beverage industries	0.18	0.09	0.08	0.44	0.47	0.25	0.29	0.57
Waiters and waitresses	0.20	0.14	0.05	0.07	0.45	0.45	0.33	0.33
Porters and janitors	0.65	0.28	0.42	0.24	0.66	0.33	0.44	0.48
Agricultural workers	0.11	0.09	0.16	0.16	0.12	0.20	0.24	0.13

Source: Manuel J. Carvajal and David T. Geithman, "Sex and Income Differences in Costa Rica Revisited--1963-1973 Comparisons," paper presented at the Sixth National Meeting of the Latin American Studies Association, Atlanta, March 1976.

decade. Fourth, although no clear trend appears between age-earnings elasticities and occupational grouping, the lowest-paying occupation, agricultural workers, consistently possesses the lowest age-earnings elasticities regardless of sex or year. Fifth, while in 1963 age-earnings elasticities are higher for women than for men in only four occupations, 10 years later these elasticities are higher for women in six occupations; moreover, male earnings become less age elastic but female earnings become more age elastic over the decade.

Finally, with a few exceptions concentrated in the highest-paying occupations, age-earnings elasticities exceed education-earnings elasticities for both sexes in 1963 and 1973. This implies that for those few occupations requiring relatively high levels of specialized technical-professional training (i.e., physicians and dentists, managers and administrators), earnings of both men and women are relatively more responsive to formal education; but for all other occupations requiring relatively less technical-professional training, income is relatively more responsive to informal occupational training and on-the-job experience as approximated by age.

Although an analysis of individual income determination throws some light into the overall income distribution picture, especially if sex, occupation, and other key variables are included, it does not come to grips with the crux of the issue; in other words, a more direct focus on the determinants of income distribution is needed. Three factors can be identified as such determinants. These factors are variation in human capital stock, level of regional development, and interregional adjustments in labor supply and demand.

Using data from the 1963 Population Census, a recent study attempts to integrate these three approaches and estimate least-squares coefficients for four equations and seven variables hypothesized to affect income distribution.<sup>3</sup> The equations are:

$$G = 17.56934 + 2.16070^{**} E - 0.5342 A \quad R^2 = .655$$

(0.08848)      (0.00908)

$$G = 46.39267 - 22.50439^{**} C + 0.14985^{**} W - 11.13200^{**} S \quad R^2 = .533$$

(1.75710)      (0.05017)      (1.89315)

$$G = 28.26472 + 112.30222^{**} M + 7.90131^{**} U \quad R^2 = .372$$

(34.08818)      (2.17142)

$$G = 23.63501 + 1.87711^{**} E + 0.02571^{**} A - 14.25240^{**} C$$

(0.11920)      (0.00894)      (1.50293)

$$- 0.18017^{**} W - 3.54096^{*} S + 2.13559^{'} M - 34.39285^{''} U \quad R^2 = .747$$

(0.05807)      (1.51040)      (1.37163)      (18.79021)

\*\* = significantly different from zero at the .01 level.

\* = significantly different from zero at the .05 level.

" = significantly different from zero at the .10 level.

' = significantly different from zero at the .20 level.

R<sup>2</sup> = coefficient of multiple determination.

where

G = Gini coefficient of monthly wage-and-salary income per district times 100;

E = Variance in years of formal education of wage-and-salary earners per district;

A = Variance in age of wage-and-salary earners per district;

C = Percentage of wage-and-salary earners working in agriculture per district;

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<sup>3</sup>Manuel J. Carvajal and David T. Geithman, "Income Distribution and Economic Development: Some Intra-Country Evidence," Southern Economic Journal (Vol. 44, No. 4, April 1978), pp. 922-928.

W = Average monthly wage-and-salary income in tens of colones per district;

S = Percentage of wage-and-salary earners participating in the social security program per district;

M = Percentage of wage-and-salary earners recorded as in-migrants per district; and

U = Unemployment rate among wage-and-salary earners per district.

The first equation is used to approximate the effect of variation in human capital stock, the second equation contains three proxies for level of regional development, and the third equation intends to measure the impact of interregional adjustments in labor supply and demand. The fourth and last equation combines all three approaches and seven variables. Note that the dependent variable in each equation used to measure income inequality is the Gini ratio, which summarizes the familiar Lorenz curve. The Gini coefficients and all other variables in this study are calculated for each of the 335 districts in 1963 from the original census data tapes. The overall wage-and-salary Gini coefficient for Costa Rica in 1963 is approximately 0.33.

The empirical findings of this study can be summarized in the following seven points:

1. Greater interregional variation in the proxies for regional human capital stock--years of education and age--leads to greater interregional wage-and-salary inequalities. Although variance in age initially appears negatively associated with income inequality and lacking statistical significance, when the effects of regional migration and unemployment, which are closely related to age, are controlled, age variance becomes positively (and statistically significantly) associated with inequality.

2. A greater regional absorption of labor employed in agriculture leads to a more equitable regional labor income distribution.
3. A higher level of regional development, as measured by a higher level of wage-and-salary earnings, results in more inequality in the size distribution of labor income. The positive sign of the wage variable is consistent with the negative sign of the agricultural variable because agricultural wage-and-salary income generally tends to be lower than wages and salaries earned in the economy's other sectors. These results for C and W also are broadly in accord with the expectations of the dualistic model of development in a newly industrializing economy, where the distribution of income grows increasingly unequal in those regions that feel the impact of modernization first and/or most strongly.
4. When regional human capital variation and unemployment and migration differences are controlled, increases in average regional wages and salaries lead to less inequality in the fourth equation. The differences between equations two and four in the sign of the wage variable may be explained by the presence in the fourth equation of education and age variances that pick up the effect of more skilled labor being favorably affected by the development process. The relatively limited supply of educated and trained people in lower-income regions tends to raise the income of occupations requiring more education and training relative to other occupations, thereby increasing inequality; since the effect of such variation is explicitly identified in the fourth equation through the human capital variables, the net effect of lower average income on equality becomes independent of education, job experience, and on-the-job training. The result is that the "pure" effect of the level of regional income on inequality becomes inverse.

5. Broader participation within the region in the social security system, which is one key measure of the public sector's redistributive activity, decreases regional income inequality.
6. The more extensive is migration into a region, the greater tends to be that region's inequality in wage-and-salary distribution. And
7. Other things being equal, rising unemployment results in a greater degree of income inequality.

Based on the values of the coefficients in the four equations, elasticities of regional income inequality can be calculated (see Table 5). These elasticities, evaluated at the means of the variables, express the ratio of a percentage change in a region's Gini coefficient to a small percentage change in the independent variable. The Gini coefficients seem to be rather inelastic, which implies that the distribution of labor income cannot be greatly affected by a single change in variance of formal education or age, relative importance of the agricultural sector, income, participation in the social security program, migration, or unemployment.

No matter how important wages and salaries are in relation to other sources of income, studies based on data which systematically ignore these other sources may possess enough bias so as to detract from the validity of their conclusions. Furthermore, in the agricultural sector and other rural activities, where income tends to be lowest, wages and salaries fail to capture the input and output of the subsistence farmer and/or rural dweller. In an effort to bring into perspective sources of income other than wages and salaries, some of it imputed, the U.S. Agency for International Development sponsored a project designed to merge data, at the individual farm and household level, pertaining to the 1973 Agriculture, Population,

Table 5. Regional income inequality elasticities for four equations using selected variables.

<u>Variable</u>	<u>Equation 1</u>	<u>Equation 2</u>	<u>Equation 3</u>	<u>Equation 4</u>
Variance in education	+0.49			+0.42
Variance in age	a			+0.14
Agricultural sector		-0.41		-0.26
Wage-and-salary income		+0.11		-0.13
Social Security program		-0.10		-0.03
Migration			+1.40	+0.03
Unemployment			0.00	-0.01

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Source: Manuel J. Carvajal and David T. Geithman, "Income Distribution and Economic Development: Some Intra-Country Evidence," Southern Economic Journal (Vol. 44, No. 4, April 1978), pp. 922-928. See p. 927.

and Housing Censi.<sup>4</sup> This project was successful in merging data for 90 percent of the farms recorded in the Agricultural Census with population and housing data for their respective owners or administrators, thus providing the basis for developing a more comprehensive treatment of income.

Based on these data, Carvajal, Geithman, and Armstrong have reported several income distribution and poverty related indicators in an effort to shed some light into the Costa Rican income distribution picture.<sup>5</sup> Two of these indicators are per capita income and the Gini coefficient, which are reported by province in Table 6 for three different populations: urban nonfarm, rural nonfarm, and farm. It is interesting to observe that although urban nonfarm per capita income is more than twice the size of rural nonfarm per capita income, the Gini coefficients for both sectors are virtually identical and show little variation among provinces. Per capita income levels are highest in the farm sector, probably due to inclusion of income from agricultural production by large operational holdings. The disparity between large and small holdings seems to be reflected in higher values for the Gini coefficients in the farm sector, as well as more among-province fluctuations.

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<sup>4</sup>Victor H. Céspedes et al., La Pobreza en Costa Rica--Problemas Metodológicos para Determinar Algunas de sus Características (San José: La Academia de Centro América, 1977); Alberto Di Mare et al., Algunas Condiciones de Vida de la Población Rural de Costa Rica (San José: La Academia de Centro América, 1976); and Richard Kreitman, "Rural Poor Profile," in Samuel Daines, Costa Rica--Agriculture Sector Assessment Working Papers (Washington, D.C.: Agency for International Development, 1976).

<sup>5</sup>Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, Pobreza in Costa Rica (San José: Dirección General de Estadística y Censos, 1977).

Table 6. Per capita income in colones and Gini Coefficients in 1973 by type of household and province.

Province	Type of Household					
	Nonfarm				Farm	
	Urban		Rural			
	Per Capita Income	Gini Coefficient	Per Capita Income	Gini Coefficient	Per Capita Income	Gini Coefficient
Costa Rica	3,725	0.44	1,812	0.43	5,821	0.66
San José	4,225	0.44	1,844	0.44	5,299	0.60
Alajuela	3,063	0.44	1,524	0.42	6,056	0.64
Cartago	2,935	0.43	1,638	0.41	4,726	0.67
Heredia	3,743	0.43	2,068	0.41	5,445	0.67
Guanacaste	2,736	0.44	1,556	0.43	5,935	0.77
Puntarenas	2,931	0.43	2,173	0.39	6,588	0.64
Limón	3,009	0.46	2,525	0.47	6,511	0.68

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, Pobreza en Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 110-115.

A more detailed breakdown of the data permits to identify the following counties as the ones with lowest estimated levels of per capita income and greatest income inequality:

Counties with lowest levels of per capita income--

Urban nonfarm (less than 2,000 colones): León Cortés (San José); Poás (Alajuela); and Bagaces and La Cruz (Guanacaste).

Rural nonfarm (less than 1,200 colones): Desamparados, Mora, Turruabares, and Dota (San José) and Naranjo (Alajuela).

Farm (less than 4,000 colones): Orotina (Alajuela); El Guarco (Cartago); Barba and San Rafael (Heredia); and Liberia and Cañas (Guanacaste).

Counties with greatest income inequality--

Urban nonfarm (Gini coefficient equal to or greater than 0.50): Dota (San José); Orotina (Alajuela); Carrillo and Nandayure (Guanacaste); and Montes de Oro (Puntarenas).

Rural nonfarm (Gini coefficient equal to or greater than 0.50): Escazú (San José); Orotina (Alajuela); Liberia and Nicoya (Guanacaste); and Siquirres (Limón).

Farm (Gini coefficient higher than 0.80): San Mateo and Orotina (Alajuela); Liberia, Carrillo, Cañas, Abangares, and La Cruz (Guanacaste); and Aguirre (Puntarenas).

One of the issues Carvajal, Geithman, and Armstrong address is the degree of compatibility between policies designed to foster economic growth and policies which seek a more equitable distribution of income. In other words, does economic development, as measured by per capita income, tend to promote income inequality, as measured by the Gini coefficient? In order to answer this question and estimate the relationship between

both variables, the Gini coefficient is regressed on per capita income, in each of the three sectors, using a quadratic model and observations for the 79 counties existing in 1973. The least-squares estimates of the coefficients are as follows:

$$\text{Urban nonfarm } G_i = 0.034 + 0.239^{**}Y_i - 0.033^{**}Y_i^2 \quad R^2 = .805$$

(0.015)            (0.003)

$$\text{Rural nonfarm } G_i = 0.073 + 0.337^{**}Y_i - 0.076^{**}Y_i^2 \quad R^2 = .561$$

(0.038)            (0.011)

$$\text{Farm } G_i = 1.433 - 0.216^*Y_i + 0.014''Y_i^2 \quad R^2 = .155$$

(0.092)            (0.008)

\*\* = significantly different from zero at the .01 level.

\* = significantly different from zero at the .05 level.

" = significantly different from zero at the .10 level.

R<sup>2</sup> = coefficient of multiple determination.

where

$G_i$  = Gini coefficient of the  $i$ th county;

$Y_i$  = Per capita income in thousands of colones of the  $i$ th county; and

$i = 1, \dots, 79$ .

All of the estimated least-squares coefficients possess statistical significance with a confidence level of at least 90 percent. The urban nonfarm sector shows the highest explanatory power for the Gini coefficient in terms of per capita income, while the weakest R<sup>2</sup> refers to households in the farm sector.

The income distribution-per capita income relationship derived from these equations is illustrated in Figure 1. Note that for nonfarm households, urban as well as rural, an increase in per capita income initially produces a greater degree of concentration, perhaps because of the impact of occupational differentiation, which tends to accompany income growth at low levels of income. Beyond a certain per capita income level (3,596

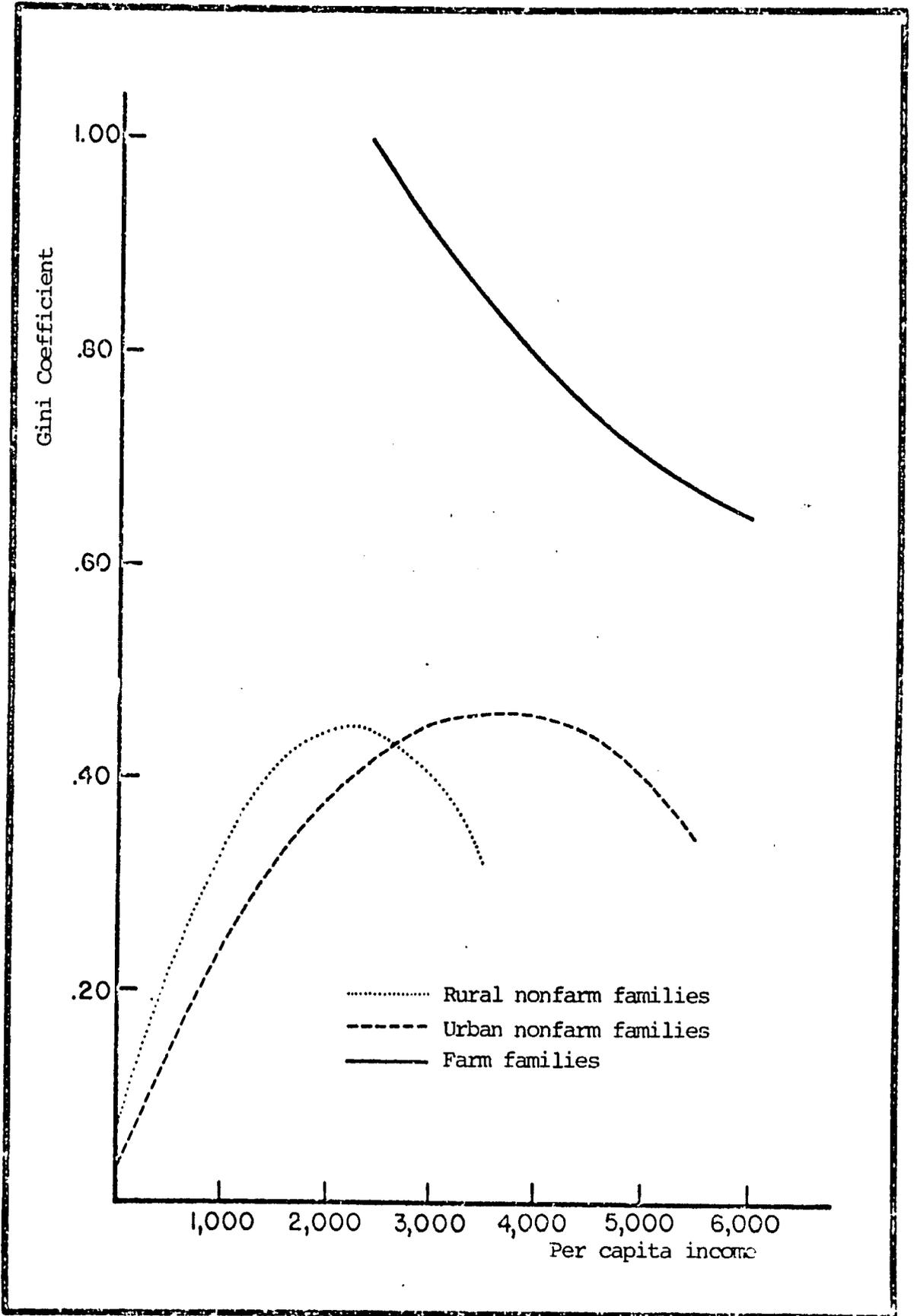


Figure 1. Relationship between the Gini coefficient and per capita income in Costa Rica, 1973.

colones for urban households and 2,212 colones for rural households), however, this tendency is reversed, and a greater compatibility appears between economic development and equality. The relationship between the Gini coefficient and per capita income for farm households is monotonically negative, which probably reflects the effect of excessive concentration of agricultural land, the decreasing share of the agricultural sector out of aggregate economic activity, and migration flows due to displacement of small farmers.

Based on these least-squares coefficients, Figure 2 illustrates the estimated Gini coefficient elasticities for per capita income levels in the three sectors. The Gini coefficient is far more per-capita-income elastic for nonfarm (especially rural) households than for farm households. Therefore, as per capita income increases as a result of more economic development, it is reasonable to expect a greater impact on nonfarm income distribution than on farm income distribution.

### Poverty

Using a definition of poverty line formulated by the Government of Costa Rica in terms of 5,000 colones per year, the First National Urban Development Plan estimates that in 1963 56.7 percent of the urban population and 70.5 percent of the rural population were poor.<sup>6</sup> For purposes of this report we shall use USAID's definition of poverty line in terms of annual per capita income of US\$ 150 or 1,000 colones of 1969, which is equivalent to approximately 1,100 colones of 1973. Thus, for example, the poverty line for a

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<sup>6</sup>Instituto Nacional de Vivienda y Urbanismo and Oficina de Planificación y Política Económica, Primer Plan Nacional de Desarrollo Urbano (San José: Vol. 2, 1974), pp. 5-9.

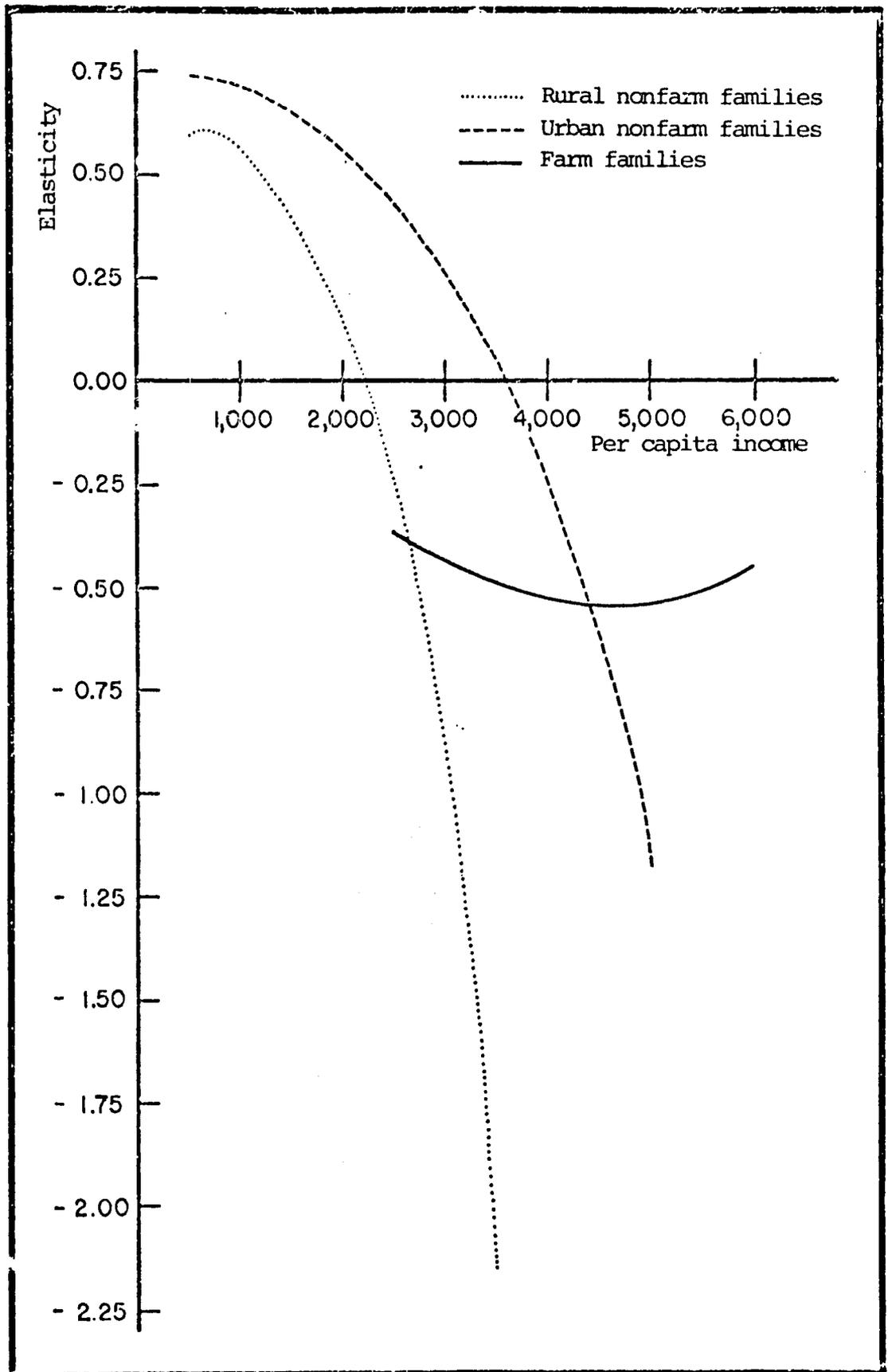


Figure 2. Relationship between income elasticity of the Gini coefficient and per capita income in Costa Rica, 1973.

family of five would be 5,500 colones, for a family of six it would be 6,600 colones, and so on.

According to this poverty criterion and data from the 1973 census, Carvajal, Geithman, and Armstrong estimate that almost one-fourth (24.3 percent) of all Costa Rican households are poor. There are substantial variations in the poverty incidence by type of household and geographic location (see Table 7): while only one out of seven (13.8 percent) urban nonfarm families is poor, this ratio increases to 27.6 and 34.2 percent for rural farm and rural nonfarm households, respectively. Guanacaste is by far the province with the highest poverty incidence; the lowest are reported for San José and Heredia.

Although some counties like Dota, Orotina, and Carrillo consistently score high in poverty incidence for all three types of household, more often than not counties with a high poverty incidence in one category do not show a high incidence in the other two. The highest levels of poverty are found in the following counties:

All categories combined (poverty incidence of 40 percent or more): Aserrí, Mora, Turruabares, and Dota (San José); San Mateo and Orotina (Alajuela); Jiménez and Alvarado (Cartago); and Nicoya, Santa Cruz, Bagaces, Carrillo, Nandayure, and La Cruz (Guanacaste).

Urban nonfarm (poverty incidence of 30 percent or more): Dota and León Cortés (San José); San Mateo, Poás, and Orotina (Alajuela); Bagaces, Carrillo, and La Cruz (Guanacaste); Montes de Oro (Puntarenas); and Guácimo (Limón).

Rural nonfarm (poverty incidence of 50 percent or more): Puriscal, Tarrazú, Mora, Acosta, Turruabares, Dota, and Pérez Zeledón (San José);

Table 7. Poverty incidence (percentage) in 1973 by type of household and province.

Province	All Households	Type of Household		
		Nonfarm		Farm
		Urban	Rural	
Costa Rica	0.24	0.14	0.34	0.28
San José	0.18	0.11	0.34	0.27
Alajuela	0.31	0.18	0.40	0.28
Cartago	0.28	0.17	0.35	0.35
Heredia	0.20	0.11	0.25	0.24
Guanacaste	0.38	0.24	0.54	0.32
Puntarenas	0.24	0.19	0.25	0.22
Limón	0.23	0.20	0.24	0.24

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, Pobreza en Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 320-322.

Naranjo, Palmares, and Orotina (Alajuela); and Nicoya, Santa Cruz, Bagaces, Carrillo, Nandayure, La Cruz, and Hojancha (Guanacaste).  
 Farm (poverty incidence of 40 percent or more): Aserrí, Turrubares, and Dota (San José); San Mateo and Orotina (Alajuela); Jiménez and El Guarco (Cartago); and Carrillo and Cañas (Guanacaste).

### Demographic Characteristics

The dependency index, or the ratio of number of people younger than 15 and older than 64 years of age to number of people 15-64 years old, shows some interesting poverty-related variations (see Table 8). It is substantially greater for rural than for urban areas and for poor than for nonpoor families. Within the poor classification, the dependency index is higher for the nonfarm than for the farm sector. Since the bulk of the nonproductive or dependent population (less than 15 and older than 64 years of age) refers to children,<sup>7</sup> it seems that poverty-related conditions are at least partially determined by excessively large family size due to high fertility rates. The average family size differentials, also shown in Table 8, accord with this proposition.

The fertility level, measured in six age groups as average number of live births per woman (see Table 8), is consistently lower in cities than in the countryside, probably due to the fact that bearing and rearing children is more expensive in urban than rural areas, while the potential productivity of the offspring in terms of contributing to family income decreases substantially in an urban milieu vis-a-vis rural surroundings. It is interesting to note that the greatest poor-nonpoor fertility

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<sup>7</sup>According to the 1973 Population Census, 44 percent of the population was younger than 15 years of age, while only 3.5 percent was 65 and older.

Table 8. Socioeconomic indicators by poverty classification and urban-rural location, 1973.

Indicator	Poor							
	Total		Nonfarm		Farm		Nonpoor	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Dependency index	0.74	1.05	1.36	1.73	1.14	1.32	0.65	0.83
Average family size	5.28	5.97	6.05	6.82	6.48	6.58	5.16	5.59
Average live births per woman								
15-19	0.10	0.21	0.13	0.20	0.09	0.17	0.10	0.22
20-29	1.22	2.15	2.13	3.18	1.49	2.51	1.11	1.81
30-39	3.64	5.78	5.52	6.84	5.18	6.42	3.29	5.10
40-49	5.01	7.94	6.61	8.50	7.02	8.41	4.76	7.67
50-59	5.08	7.92	5.61	7.62	6.64	8.01	5.00	7.97
60 and more	4.97	7.45	4.83	7.16	5.58	7.73	4.99	7.51
Migration (percentage)	0.14	0.18	0.15	0.17	0.06	0.13	0.14	0.19
Dwelling condition (percentage)								
Good	0.64	0.46	0.37	0.37	0.51	0.41	0.68	0.50
Fair	0.26	0.38	0.38	0.48	0.34	0.46	0.24	0.34
Bad	0.10	0.16	0.25	0.15	0.15	0.13	0.08	0.16
Average number of occupants per bedroom								
Good	1.85	2.44	2.29	2.96	1.97	2.55	1.82	2.32
Fair	2.58	3.22	3.13	3.78	2.58	3.33	2.46	2.96
Bad	3.42	4.00	4.08	5.00	2.67	4.49	3.12	3.51
Dwelling tenure (percentage)								
Owned	0.53	0.67	0.30	0.58	0.77	0.78	0.57	0.68
Rented	0.40	0.09	0.64	0.14	0.13	0.01	0.36	0.09
Other	0.07	0.24	0.06	0.28	0.10	0.21	0.07	0.23

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, *Pobreza en Costa Rica* (San José: Dirección General de Estadística y Censos, 1977), pp. 122-133, 136-141, 199-202, 215-220, 251-253, 260-262, and 264-267.

differentials occur for the younger age groups. In fact, the combined fertility level of nonpoor women age 50 and above is slightly higher than that of their poor counterpart. Furthermore, among the poor, nonfarm households experience higher fertility rates for the younger age brackets and lower fertility rates for the older age brackets than do farm households.

The essence of the income-fertility relationship in Costa Rica is obscured by the interaction of numerous forces which often tend to cancel the effect of one another. In an attempt to determine whether the income (as a constraint) effect or the substitution effect of income on fertility is more powerful, a recent study sponsored by the Smithsonian Institution used 1963 and 1973 census data to classify households into socioeconomic reference groups (SORGs).<sup>8</sup> These SORGs were constructed according to husband's occupational grouping and level of formal education under the hypothesis that child consumption patterns are influenced by peer pressures. The empirical results show that while lower-status households (SORGs with less remunerative occupations and lower levels of education) exhibit higher fertility levels than higher-status households (SORGs with more remunerative occupations and higher levels of education), within each SORG increases in family income tend to raise fertility. The income elasticities of fertility (see Table 9) are greater for 1973 than for 1963, which shows growing responsiveness of family size decision making to the income constraint, and greater for higher-status than for lower-status SORGs.

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<sup>8</sup>Manuel J. Carvajal and David T. Geithman, "Socioeconomic Fertility Determinants in Costa Rica 1963-1973," in New Perspectives on the Demographic Transition (Washington, D.C.: Interdisciplinary Communications Program of the Smithsonian Institution, 1976), pp. 95-162.

Table 9. Estimated values of income elasticities of fertility, 1963 and 1973.

Age Group	Socioeconomic Reference Group*						
	1	2	3	4	5	6	7
1963							
20-24	0.11	0.13	0.17	0.21	0.26	0.25	0.31
25-29	0.12	0.11	0.16	0.18	0.32	0.37	0.47
30-34	0.05	0.06	0.10	0.14	0.22	0.26	0.29
35-39	0.05	0.05	0.09	0.11	0.21	0.21	0.16
40-44	0.05	0.06	0.10	0.13	0.26	0.25	0.23
45-49	0.06	0.07	0.12	0.17	0.27	0.30	0.31
1973							
20-24	0.21	0.27	0.34	0.32	0.50	0.60	0.89
25-29	0.17	0.21	0.25	0.29	0.62	0.67	1.02
30-34	0.17	0.20	0.26	0.28	0.59	0.71	1.12
35-39	0.12	0.15	0.17	0.19	0.43	0.37	0.56
40-44	0.14	0.14	0.17	0.19	0.33	0.41	0.62
45-49	0.14	0.16	0.22	0.20	0.33	0.47	0.67

\*The number of the SOPG increases with status.

Source: Manuel J. Carvajal and David T. Geithman, "Socioeconomic Fertility Determinants in Costa Rica 1963-1973," in New Perspectives on the Demographic Transition (Washington, D.C.: Interdisciplinary Communications Program of the Smithsonian Institution, 1976), pp. 95-162. See p. 130.

Undoubtedly, the Costa Rican Family Planning Program has played a significant role in the fertility reduction experienced by the country in the 1960s and early 1970s. A recent study reports that almost three-fifths (58.6 percent) of the program's participants had used no form of contraception prior to joining the program, while an additional 9.4 percent had been using methods of relatively low reliability.<sup>9</sup> This implies that more than two-thirds of the women motivated to control their family size have found the facilities to do so by participating in the Family Planning Program. These women, of course, almost invariably belong to the lower socioeconomic strata of the population, often falling in the category of poor.

Migration is a common phenomenon in Costa Rica. According to the 1973 Census, 18.5 percent of the population 5 years of age and older had migrated from another county within the last five years. It is interesting to observe that migration into rural areas is slightly higher than migration into urban areas (see Table 8). This trend, however, may be inflated insofar as the migration rate may include people living in newly created counties who, in fact, have never changed place of residence. But the fact remains that rural in-migration is substantial. Zumbardo and Neuhauser argue that internal migration determinants in Costa Rica lie in the agricultural sector, the bulk of such flows being rural-rural in nature, responding to increasing concentration of land, especially in

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<sup>9</sup>Manuel J. Carvajal, David T. Geithman, and Lydia B. Neuhauser, "The Costa Rican Family Planning Program," in The Organization of Family Planning Programs: India, China, Costa Rica, Venezuela, Lebanon (Washington, D.C.: Interdisciplinary Communications Program of the Smithsonian Institution, 1976), pp. 225-234.

Guanacaste.<sup>10</sup> Along these lines Alfaro shows that in Nicoya Peninsula, Guanacaste the surface area of farms with 50 or more manzanas (86.3 acres) increased by 60 percent over a 16-year period, while the surface area of farms with less than 10 manzanas (17.3 acres) declined by 22 percent over the same period.<sup>11</sup>

Migration in Costa Rica seems to be a purposeful way in which the population responds to its perception of changing economic opportunities. Although the in-migration rates presented in Table 8 are approximately the same for the poor and nonpoor populations, a recent study reveals that recent migrants earn significantly higher incomes than do settled migrants, and settled migrants earn significantly higher incomes than do nonmigrants.<sup>12</sup> According to this study, the distribution of wages and salaries among recent migrants is more unequal than among settled migrants, and the distribution of income among settled migrants is more unequal than among nonmigrants (see Table 10). The 10 percent with the highest income in the nonmigrant sample of workers receives approximately 35 percent of all wages and salaries earned by nonmigrants, while the highest 10 percent of settled migrants receives 38 percent of all settled-migrant income and the highest 10 percent of new migrants receives 41 percent of all new-migrant income. At the other

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<sup>10</sup>Fernando Zumbado and Lydia B. Neuhauser, "Procesos de Producción," in Manuel J. Carvajal (ed.), Políticas de Crecimiento Urbano--La Experiencia de Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 68-111.

<sup>11</sup>Gregorio Alfaro, Problemas que Afectan el Desarrollo Agropecuario en Cuatro Cantones de la Península de Nicoya (San José: Ministerio de Agricultura y Ganadería, 1966).

<sup>12</sup>Manuel J. Carvajal and David T. Geithman, "An Economic Analysis of Migration in Costa Rica," Economic Development and Cultural Change (Vol. 23, No. 1, October 1974), pp. 105-122. These findings, however, contradict those of USAID's Urban Assessment of San José, Costa Rica: Focus on Poverty (San José: 1977), p. 38.

Table 10. Estimated income distribution of heads of households classified as wage-and-salary earners in 1963, by migration status.

Migration Status and Income Class ( <u>colones</u> )	Persons		Wages and Salaries	
	%	Cumulative %	%	Cumulative %
<b>Nonmigrants</b>				
0-100	13.7	13.7	1.8	1.8
101-200	29.9	43.6	14.6	16.4
201-300	22.4	66.0	17.0	33.4
301-400	12.1	78.1	13.6	47.0
401-500	7.8	85.9	11.1	58.1
501-600	4.5	90.4	7.8	65.9
601-700	1.9	92.3	3.9	69.8
701-5,110	7.7	100.0	30.2	100.0
<b>Settled migrants</b>				
0-100	12.2	12.2	1.0	1.0
101-200	21.2	33.4	7.8	8.8
201-300	20.0	53.4	12.1	20.9
301-400	14.5	67.9	12.7	33.6
401-500	7.4	75.3	7.8	41.4
501-600	9.4	84.7	12.0	53.4
601-700	2.6	87.3	4.0	57.4
701-8,000	12.7	100.0	42.6	100.0
<b>Recent migrants</b>				
0-100	11.7	11.7	0.5	0.5
101-200	17.6	29.3	6.1	6.6
201-300	21.3	50.6	11.8	18.4
301-400	16.0	66.6	12.9	31.3
401-500	11.9	78.5	13.5	44.8
501-600	5.4	83.9	4.9	49.7
601-700	2.5	86.4	3.5	53.2
701-7,000	13.6	100.0	46.8	100.0

Source: Manuel J. Carvajal and David T. Geithman, "An Economic Analysis of Migration in Costa Rica," Economic Development and Cultural Change (Vol. 23, No. 1, October 1974), pp. 105-122. See p. 109.

end of the income distribution scale, 0.7 percent of all wages and salaries among nonmigrants goes to the poorest 10 percent, while among settled and recent migrants the poorest 10 percent of workers receives only 0.5 percent and 0.2 percent, respectively, of all wages and salaries.

#### Labor Force Participation and Employment

Willingness and ability to work are perhaps the most important single determinants of poverty differentials in Costa Rica. Table 11 shows labor force participation rates by type of household, urban-rural location, sex, and age group. An analysis of these rates reveals several interesting trends. First, the participation rate is substantially greater among men than among women, which, of course, is not surprising. It is somehow puzzling, however, to observe that in rural areas the male labor force participation rate is higher, and the female rate is lower, than in urban areas. This phenomenon may possess two plausible explanations: Either urban composition of the male population is more complex than in the countryside, since it includes students, retired people, and other classifications that are not included in the labor force, and/or there exist more and better remunerated employment opportunities for women in urban relative to rural areas.

Another generalization that can be made with respect to labor force participation is that the nonpoor population exhibits substantially higher rates than does the poor population. Note, however, the high rate of participation among poor farm males, while the participation rate for their female counterpart is the lowest of all categories.

Regardless of poverty status or place of residence, the participation rate is higher for older (40-64 years) than for younger (15-39 years) men, but women show the opposite trend, namely more participation among the

Table 11. Labor force participation and unemployment rates in 1973 by type of household, urban-rural location, sex, and age group.

Type of Household, Urban-Rural Location, and Sex	Labor Force Participation Rate			Unemployment Rate
	Both Age Groups	15-39 Years	40-64 Years	
Poor nonfarm urban				
Men	0.66	0.62	0.76	0.33
Women	0.15	0.17	0.17	0.09
Poor nonfarm rural				
Men	0.89	0.87	0.94	0.16
Women	0.08	0.09	0.05	0.12
Poor Farm				
Men	0.93	0.91	0.96	0.05
Women	0.06	0.07	0.02	0.06
Nonpoor urban				
Men	0.84	0.80	0.95	0.05
Women	0.35	0.39	0.25	0.02
Nonpoor rural				
Men	0.95	0.94	0.98	0.04
Women	0.14	0.17	0.08	0.04

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, Pobreza en Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 150-151 and 154-159.

younger. This pattern accords with findings discussed earlier with respect to men gaining more income through additional education, as well as showing more attachment to the labor market, than do women. Consequently, men enter the labor force at a later age, after presumably attaining some required level of formal education or apprenticeship training, and stay in it until retirement, death, or disability. Women, on the other hand, tend to enter the labor force when young and unmarried, withdraw from it to marry and raise a family, perhaps to reenter later in life after the children are gone to school or have left the home to form their own households.

Table 11 also shows unemployment rates by type of household, urban-rural location, and sex. The highest unemployment rates are recorded for the nonfarm poor, especially those in urban areas where, on average, one out of three male members of the labor force is unemployed. These results seem to suggest that the bulk of Costa Rican unemployment is structural, since the unemployment rate for the nonpoor appears to be at its minimum or frictional level. Insofar as urban occupations are more heterogeneous and require a greater amount of human capital than do rural jobs, it is not surprising to observe higher rates of unemployment in urban than rural areas. This argument is consistent with empirical findings that show more unemployment among recent migrants, presumably during their assimilation period following change of residence, than among settled migrants or nonmigrants.<sup>13</sup> According to the 1973 Population Census, the overall unemployment rates were 8.1 percent (8.4 percent urban and 7.9 percent rural) for men and 4.3 percent (2.9 percent urban and 7.5 percent rural) for women.

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<sup>13</sup>Ibid., p. 110.

## Education

Costa Rica is atypical of Latin America in terms of its level of education. During the 1963-1973 period the illiteracy rate declined from 14.1 percent (4.0 percent urban and 19.2 percent rural) for men and 14.5 percent (6.2 percent urban and 20.1 percent rural) for women to 10.2 percent (3.7 percent urban and 14.6 percent rural) for men and 10.3 percent (5.1 percent urban and 14.8 percent rural) for women. An analysis of illiteracy rate differentials (see Table 12) reveals that while both nonfarm and farm poor possess approximately the same rate, these rates are much higher than those for the nonpoor population.

Although there exists a relationship between the level of formal education and the unemployment rate, it is rather complex, as may be observed in Table 13. For the nonpoor population, whose incidence of unemployment is far lower than that of the poor, education and unemployment generally vary inversely with each other. But for the poor population the relationship is positive; in other words, there is a higher proportion of educated poor that remain unemployed than the proportion of uneducated poor, which seems to cast doubt on the impact of human capital investment in the form of more formal education as a strategy for combatting poverty in Costa Rica.

A more detailed analysis of education-poverty differentials has been conducted using a schooling index which measures, up through secondary education, the ratio of actual to potential years of formal schooling for different groups.<sup>14</sup> The values for this index fluctuate between zero and one, with higher values being indicative of higher educational attainment.

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<sup>14</sup>Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, op. cit., pp. 180-193.

Table 12. Illiteracy rate in 1973 for the population 10 years of age and older, by type of household, urban-rural location, and sex.

Type of Household	Illiteracy Rate			
	Urban		Rural	
	Men	Women	Men	Women
All households	0.04	0.05	0.15	0.15
Nonfarm poor	0.08	0.10	0.17	0.17
Farm poor	0.08	0.08	0.18	0.17
Nonpoor	0.03	0.04	0.13	0.13

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, Pobreza en Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 168-179.

Table 13. Unemployment rate in 1973 by level of formal education, type of household, urban-rural location, and sex.

Type of Household, Urban-Rural Location, and Level of Education	Unemployment Rate	
	Men	Women
Urban nonfarm poor	0.33	0.09
No education	0.32	0.06
Grades 1 through 6	0.31	0.08
More than primary level	0.43	0.16
Rural nonfarm poor	0.16	0.12
No education	0.13	0.12
Grades 1 through 6	0.17	0.11
More than primary level	0.32	0.19
Farm poor	0.05	0.06
No education	0.04	0.07
Grades 1 through 6	0.05	0.06
More than primary level	0.10	0.05
Urban nonpoor	0.05	0.02
No education	0.11	0.04
Grades 1 through 6	0.06	0.02
More than primary level	0.03	0.02
Rural nonpoor	0.04	0.04
No education	0.04	0.05
Grades 1 through 6	0.04	0.05
More than primary level	0.04	0.02

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, *Pobreza en Costa Rica* (San José: Dirección General de Estadística y Censos, 1977), pp. 164-167.

The estimated schooling indices (see Table 14) generally accord with the illiteracy rates shown earlier: They are higher for men than for women, for urban than for rural areas, and for the nonpoor than for the poor.

A recent study questions the democratic character of the Costa Rican educational system in view of the fact that even though it admits students regardless of socioeconomic background, an excessively large portion of those who enter elementary and secondary education do not complete it.<sup>15</sup> According to this study, 48 percent of those who entered first grade in 1966 did not complete grade school, only 18 percent graduated from high school, and only 3 percent will graduate from college. Thus, although more than one-third of the national budget is spent on education, the outcome from such expenditure is far from satisfactory.

### Housing

Although between 1963 and 1973 the dwelling growth rate exceeded the population growth rate, a serious housing shortage is projected for the 1980s due to the very young composition of the population. This shortage is likely to affect primarily households in lower-income strata, who do not possess the necessary resources for adequate housing, and therefore will suffer from overcrowding and deteriorating conditions of their dwelling structures.

The 1973 Housing Census classifies dwellings as being in either good, fair, or bad structural condition. "Good" means that the unit is fit to live in and has no apparent deficiencies; "fair" means that the unit needs repair but is still inhabitable; and "poor" means that the unit has such

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<sup>15</sup>Humberto Pérez Pancorbo, Democracy in the Formal Educational System of Costa Rica (Notre Dame: University of Notre Dame, Ph.D. Dissertation, 1977).

Table 14. Schooling index in 1973 for the population seven years of age and older, by type of household, urban-rural location, and sex.

Type of Household	Schooling Index			
	Urban		Rural	
	Men	Women	Men	Women
All households	0.64	0.60	0.40	0.41
Nonfarm poor	0.55	0.51	0.39	0.39
Farm poor	0.52	0.53	0.37	0.38
Nonpoor	0.65	0.62	0.41	0.42

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, Pobreza en Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 182-193.

serious deficiencies that it is unfit for living. Based on these criteria, the census identifies 53.8 percent of all units as good, 32.7 percent as fair, and 13.5 percent as bad.

An analysis of structural condition of dwellings throughout the country by urban-rural residence and poverty status (see Table 8) reveals that poor-nonpoor differentials are more conspicuous in cities, where the structure of the dwelling tends to be more solid, than in the countryside. For example, the incidence of "good" housing for the urban nonpoor is almost twice as high as that of the urban poor, while the percentage of "bad" housing is only one-third as high. In rural areas, on the other hand, the incidence of "bad" structures is just about the same for all poverty categories, and the only appreciable differences pertain to the tradeoff between "good" and "fair" structures.

Another poverty-related housing indicator is an overcrowding index which shows the average number of occupants per bedroom (see Table 8). The value of this indicator increases as the dwelling's structural condition goes from "good" to "fair" to "bad," thus reflecting larger size of family and/or fewer bedroom accommodations. The overcrowding index also is substantially higher for poor than for nonpoor households, especially in the nonfarm sector.

In a recent study, Carvajal and Goodwin compare several housing and population indicators for public and private dwellings using 1973 census tracks.<sup>16</sup> The census tracks utilized for public housing pertain to dwellings constructed by the Instituto Nacional de Vivienda y Urbanismo (INVU), which

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<sup>16</sup>Manuel J. Carvajal and William R. Goodwin, "Mercados de Vivienda y Tierras," in Manuel J. Carvajal (ed.), Políticas de Crecimiento Urbano--La Experiencia de Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 112-222.

is the public, autonomous institution for building low-income housing and conducting urban planning in Costa Rica. The mean values and standard deviations, as well as the z values, for these indicators are reported in Table 15.

Table 15 reveals that, on average, private housing rent is about 60 percent higher than that of public housing, while land value is more than twice as expensive. Although there are no differences in the average number of dwellings per hectare or the number of bedrooms per dwelling, both average lot and room size are significantly higher for private housing than for INVU dwellings.

Occupants of private-sector dwellings earn, on average, 20 percent higher wages and salaries than their INVU-housing counterpart. This differential becomes wider when the average number of occupants per dwelling is considered (5.56 for public and 4.98 for private housing), for an annual per capita income of 1,636 and 2,198 colones, respectively. Although annual per capita income for households enjoying a government-shelter subsidy is substantially lower than the income of those who are not subsidized, their income level is approximately 50 percent greater than the poverty line. This seems to suggest that INVU subsidies may be geared toward middle or lower-middle income earners rather than toward the below-poverty line population.

Dwelling tenure patterns by place of residence and poverty status are reported at the bottom of Table 8. The percentage of units being rented is much higher in urban than rural areas, probably due to the higher degree of monetization characteristic of cities. By the same token, the "other" category is far more common in the countryside, since it refers to housing occupied in exchange of provision of some service (i.e., payment in kind) or simply squatting. Poverty-differentials in rural dwelling tenure are

Table 15. Mean values, standard deviations, and z values for selected housing indicators in 1973.

Indicator	Housing		z Values
	Public	Private	
Number of observations (census tracks)	112	1,041	
Monthly rent of rented dwellings ( <u>colones</u> )	213.1 (119.4)	344.2 (275.5)	-8.23**
Land value ( <u>colones</u> per square meter)	44.2 (15.3)	99.5 (104.9)	-13.84**
Dwellings per hectare	49.7 (39.7)	49.7 (31.3)	0.00
Size of lot (square meters)	239.7 (83.5)	280.4 (187.7)	-4.15**
Room size (square meters)	53.8 (20.4)	61.1 (38.8)	-3.21**
Bedrooms per dwelling	4.64 (0.80)	4.68 (1.17)	-0.48
Monthly income of wage-and-salary earners ( <u>colones</u> )	758.1 (224.5)	912.2 (392.0)	-6.30**
Occupants per dwelling	5.56 (0.91)	4.98 (0.97)	6.37**
Occupants per room	1.24 (0.30)	1.13 (0.35)	3.62**
Occupants per bedroom	2.26 (0.58)	2.32 (0.71)	-1.02

\*\*Mean values statistically different from each other with a probability level of 99 percent.

Source: Manuel J. Carvajal and William R. Goodwin, "Mercados de Vivienda y Tierras," in Manuel J. Carvajal (ed.), Políticas de Crecimiento Urbano--La Experiencia de Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 153 and 155.

moderate, with similar incidence of the "other" category and slightly higher incidence of ownership for nonpoor than for poor. But in urban areas such differentials are more conspicuous, especially when comparing nonpoor and nonfarm poor populations--while 57 percent of nonpoor dwellings are owned by their occupants, almost two-thirds (64 percent) of nonfarm poor households live on rented dwellings.

Another striking differential between urban and rural areas and between poor and nonpoor households is related to availability in the dwelling of electricity, running water, toilet facilities, and radio (see Table 16). Furthermore, availability of these facilities is concentrated in San José, Alajuela, Cartago, and Heredia, which are the provinces comprising the Central Plateau and showing higher-than-average levels of population density. This, plus the fact that the lowest levels of infrastructure availability (i.e., electricity, running water, and toilet facilities) are reported for the farm poor sector, may be a significant long-term migration pull force.

### Summary of Income Distribution and Poverty Related Indicators

#### Income

1. According to 1973 data, it is estimated that 42.3 percent of all households can be classified as urban nonfarm, 35.6 percent as rural nonfarm, and the remaining 22.1 percent as farm households. Average family income is higher for farm than for nonfarm families.
2. Among nonfarm households, urban residents show a higher level of family income than do rural residents.
3. Within each population decile, average family income varies positively with number of people in the household.

Table 16. Availability of electricity, running water, toilet facilities, and radio in 1973 by type of household and urban-rural location.

Indicator	Percentage of Households				
	Poor			Nonpoor	
	Nonfarm		Farm		
	Urban	Rural		Urban	Rural
With electricity	0.87	0.38	0.29	0.96	0.46
With running water	0.96	0.60	0.52	0.98	0.63
With sewer, septic tank, or tin latrine	0.85	0.51	0.47	0.94	0.56
With radio	0.69	0.68	0.79	0.83	0.75

Source: Manuel J. Carvajal, David T. Geithman, and Patrick R. Armstrong, Pobreza en Costa Rica (San José: Dirección General de Estadística y Censos, 1977), pp. 278-289.

4. Urban nonfarm households residing in the province of San José exhibit the highest average family income in that category, while the lowest levels correspond to Puntarenas and Limón.
5. Rural nonfarm households residing in Heredia, Puntarenas, and Limón show the highest average family income for that classification; the lowest level is recorded for Alajuela.
6. For farm households, Puntarenas has the highest average family income level, while the lowest pertains to Cartago.
7. Income is more unequally distributed among farm than among nonfarm households; for the latter, the distribution of income in both urban and rural areas, as well as throughout the country, is very similar.
8. An increase in annual per capita income for nonfarm households results initially in greater income concentration; beyond certain levels of per capita income, however, further increase in per capita income gives rise to a more equitable distribution.
9. For farm households annual per capita income and equality of distribution vary directly with each other.
10. Income distribution is more per capita income elastic for nonfarm than for farm households.
11. Income distribution is more per capita income elastic for rural nonfarm than for urban nonfarm families.

#### Poverty

1. On average, one out of four families in Costa Rica is poor.
2. Poverty incidence is much higher in rural than in urban areas.
3. The highest poverty incidence is recorded for rural nonfarm households; the lowest is recorded for urban nonfarm households. The poverty incidence for farm households lies in between.

4. The greatest concentration of poverty, urban as well as rural, occurs in Guanacaste; San José and Heredia show relatively low levels of poverty concentration.

#### Dependency Index

1. The dependency index is higher in rural than in urban areas.
2. The dependency index is higher for poor than for nonpoor families.
3. For the poor population nonfarm households exhibit a higher dependency index than do farm households.

#### Labor Force Participation

1. The rate of participation in the labor force is substantially higher for men than for women.
2. In rural areas the labor force participation rate is higher for men, and lower for women, than in urban areas.
3. The poor participate in the labor force less often than the nonpoor.
4. The farm poor population shows both the highest levels of male labor force participation and the lowest levels of female labor force participation of all categories.
5. The labor force participation rate is higher for older than younger men and for younger than older women.

#### Unemployment

1. The highest unemployment rates are observed for the nonfarm poor population.
2. For the nonfarm poor the male unemployment rate is considerably higher in urban than in rural areas.
3. For the nonfarm poor the unemployment rate is higher for men than for women, especially in cities.

4. For the nonpoor population the unemployment rate varies inversely with the level of formal education; but this relationship tends to be positive among the poor, especially nonfarmers.

#### Illiteracy

1. The illiteracy rate is substantially higher in the countryside than in cities.
2. The illiteracy rate among the poor is higher than that of the nonpoor, especially in cities.
3. The percentage of illiterate men in urban areas is slightly lower than the percentage of illiterate women, but in rural areas the incidence of illiteracy is identical for both sexes.
4. The highest rates of illiteracy are found in regions outside the Central Plateau.

#### Schooling Index

1. The schooling index is higher in urban than in rural areas.
2. In urban areas the schooling index for the poor is slightly lower than for the nonpoor, and the schooling index for the nonfarm poor is slightly higher than that of the farm poor.
3. Men's schooling index in cities is mildly higher than women's, but in the countryside it is almost identical for both sexes.
4. The highest levels of schooling throughout the country are found in the Central Plateau.

#### Fertility

1. Rural fertility is substantially higher than urban fertility.
2. Poor families exhibit higher fertility levels than do nonpoor families.
3. For women 40 years of age and older the fertility levels of farm households are higher than those of nonfarm households; for

women younger than 40 years of age the opposite trend is observed.

4. The lowest levels of fertility throughout the country are found in Heredia and the urban areas of San José. The highest fertility levels for the younger age groups are recorded in Limón, although this province possesses moderate and low levels for older age groups. Guanacaste shows the highest fertility levels for older women (i.e., 40 years and older), but rather moderate levels for younger women. Puntarenas also shows relatively high fertility levels.

#### Child Mortality

1. Child mortality, measured as the difference between live births and surviving children, is higher in rural than in urban areas, especially for younger age groups.
2. Child mortality levels are lower for nonpoor than for poor households.
3. Farm poor households experience less child mortality than do nonfarm poor households.
4. The lowest child mortality levels are observed in San José and Heredia.

#### Internal Migration

1. The in-migration rate is greater for rural than for urban areas.
2. The lowest in-migration rates of all categories are recorded for farm poor families.
3. In-migrant household heads tend to be younger than other heads of household.

#### Housing

1. Urban dwellings are in much better structural condition than rural dwellings.

2. Structural condition of the dwelling is better for nonpoor than for poor families, especially in cities, and better for farm poor than for nonfarm poor households.
3. Families with dwellings in better structural condition show less overcrowding (measured as number of occupants per bedroom) than families with dwellings in worse structural condition.
4. There is more overcrowding in rural than in urban dwellings, although the differential diminishes as the structural condition worsens.
5. Overcrowding is more prevalent among poor than nonpoor households, especially those living in rural areas and with dwellings in bad condition.
6. Overcrowding is more prevalent among the nonfarm poor than among the farm poor.
7. Limón shows the highest levels of urban overcrowding, although its rural overcrowding levels are relatively low compared to those of other provinces. Guanacaste and Puntarenas report relatively high levels of both urban and rural overcrowding. The lowest levels are found in urban Alajuela and rural Heredia.
8. In cities nonpoor households exhibit a higher percentage of owned dwellings and a lower percentage of rented dwellings than do poor households.
9. Ownership and structural condition of the dwelling are not related.
10. Farm poor households report a higher incidence of dwelling ownership than do nonfarm poor households.
11. Households whose occupants own the dwelling show less overcrowding than households under the other two forms of tenure.

12. In rural areas rented dwellings are more overcrowded than dwellings classified under the "other" form of tenure; the same trend occurs for urban nonpoor and farm poor households. For the urban nonfarm poor, however, rented dwellings are less overcrowded than "other" dwellings.

#### Infrastructure Services

1. Utilization of infrastructure services (i.e., electricity, running water, and toilet facilities) takes place more often among nonpoor than poor families.
2. For the poor category nonfarm households have more accessibility to infrastructure services than do farm households.
3. Infrastructure services are concentrated in the Central Plateau.

#### Radio

1. Urban families own relatively more radio sets than rural families.
2. The nonpoor own relatively more radio sets than the poor; the highest ownership incidence, however, is recorded for farm poor households.
3. Ownership of radio sets is concentrated in the Central Plateau.

#### Composition and Impact of Taxes

In 1970 Costa Rican tax revenues accounted for 90 percent of public revenues.<sup>17</sup> Direct taxes (i.e., on income and property) constitute less than one-fourth of tax revenues, while the remaining three-fourths accrue from indirect taxation (i.e., on internal consumption, imports, exports, production, legal transactions, and others).

The most important single source of tax revenue is internal consumption (see Table 17), which makes the system regressive to the extent

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<sup>17</sup>Instituto Nacional de Vivienda y Urbanismo and Oficina de Planificación y Política Económica, *op. cit.*, Cuadro E 3.7.

Table 17. Percentage composition of Costa Rican tax revenues in 1970.

Type of Tax	Tax Revenue (percentage)
Total	100.0
Direct taxes	22.5
Income tax	19.5
Property tax	0.6
Other	2.4
Indirect taxes	77.5
Consumption tax	36.9
Import tax	30.8
Export tax	1.1
Production tax	6.6
Tax on legal transactions	1.2
Other	0.9

Source: Instituto Nacional de Vivienda y Urbanismo and Oficina de Planificación y Política Económica, Primer Plan Nacional de Desarrollo Urbano (San José: Vol. 2, 1974), Table E3.7.

that the poor consume a greater share of their income than the nonpoor and, consequently, pay proportionately more in taxes, thus increasing inequality. A more rational system would devote more attention to direct taxes, especially the income tax. According to a recent study, the overall effective income tax rate is relatively low--4.3 percent of personal income and less than 2 percent of gross domestic product, with less than one-half of the national income getting into the reported tax base because of both legal and illegal underreporting.<sup>18</sup> Furthermore, the income tax does not cover some important forms of income (i.e., capital gains and income of foreign firms), possesses an irrational structure of personal deductions, and lacks investment incentives, all of which foster inequality in income distribution. It seems that a restructure of the entire tax system, with emphasis on the income tax, and preferential treatment to firms that generate new sources of employment, would be a significant step toward an effective income redistribution policy.

The incidence of both income and property taxes is disproportionately low for the rural and agricultural sectors. For example, in 1969 agriculture's share of gross domestic product was 24.8 percent, but its relative importance in terms of income tax share was only 7.9 percent.<sup>19</sup> Similarly, a substantial portion of real estate investment is conducted for speculative purpose in rural lands that remain idle. A more rational property tax structure would have two components: It would be progressive

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<sup>18</sup>Federico G. Vargas, The Income Tax in a Developing Nation: The Costa Rican Case (Boulder: University of Colorado, Ph.D. Dissertation, 1973).

<sup>19</sup>Instituto Nacional de Vivienda y Urbanismo and Oficina de Planificación y Política Económica, op. cit., p. 39.

(i.e., the tax rate would increase with size of holding) and it would have a surtax on idleness, thus promoting a minimum of productive activity.

### Credit

In Costa Rica credit is subsidized by the public sector, such subsidy being heavily geared toward agriculture, especially coffee. In 1970 agriculture (excluding foreign production of bananas) accounted for 19.7 percent of gross national product, but received 61.5 percent of credit allocated by the National Banking System. As Bieber points out, opportunities for diversification, both within and outside the agricultural sector, do exist, but the prospective earnings from technological advances in the production of coffee and other crops to which the bulk of credit is currently tied exceed the prospective earnings from alternative activities unless additional credit is provided or the existing credit is reallocated.<sup>20</sup>

Credit facilities from the National Banking System for the growing manufacturing sector are limited to five years for investment and one year for working capital. This situation forces potential investors to seek other sources of credit, with substantially higher interest rates, which often render such potential investment unprofitable. A credit policy more consistent with equality of income distribution would increase maturity of loans for the industrial sector and give preferential treatment to investments which make intensive use of labor in the production of tangible goods and services.

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<sup>20</sup>John L. Bieber, Diversification Opportunities and Effects of Alternative Policies on Costa Rican Coffee Farms (Gainesville: University of Florida, Ph.D. Dissertation, 1970).

### Other Recommendations

In spite of serious limitations, the Instituto Nacional de Aprendizaje (INA) has played an important role in training an otherwise unemployable segment of the population so as to decrease poverty incidence. Specially important have been programs designed to eliminate sex discrimination barriers; not only do these programs raise aggregate productivity, but additional female labor force participation tends to decrease fertility, thus reducing dependency. The National Family Planning Program also has played a significant role in reducing dependency in spite of its modest budget. These two institutions, as well as the Instituto Mixto de Ayuda Social and others serving the below-poverty income population, should receive higher priority from the government in terms of resource allocation.

Whenever possible, manufacturing industry and other types of economic activity should be displaced from the San José Metropolitan Area into its periphery or, even better, outside the Central Plateau, in order to alleviate urban conglomeration and halt conversion of fertile lands from agricultural into urban use. The government may influence such relocation through tax and credit incentives.

## APPENDIX

USAID programs in agriculture and other areas in Costa Rica have not been based upon sector assessment studies. Instead, sector loan guidelines have followed recommendations by individual studies focusing, in the case of agriculture, on crop priorities, marketing, provision of agricultural services, credit, agricultural education, cooperatives, and land tenure. In order to meet program analytical requirements and gain more insight into the dynamics of various sectors, USAID Costa Rica has conducted within the last few years sector assessment studies for urbanization, agriculture, shelter, and nutrition. The purpose of this appendix is to summarize the major poverty-related empirical findings, conclusions, and policy recommendations of these sector analyses. Although the urban sector assessment focuses mainly on the San José Metropolitan Area, it touches on many aspects which relate to other regions; moreover, it concentrates on poverty and, as such, its relevance to this report is obvious. The other three studies have a nationwide perspective.

### Urban Assessment (1977)

1. During the last two decades, the migration trend toward rural areas has reversed toward the city of San José, which has experienced an unprecedented expansion in industry, commerce, and services.
2. Policies to decentralize economic activities to other regions will not reverse the current urbanization and urban growth processes in

San José. Some population concentration, however, is shifting from the center to the outskirts of the Metropolitan Area.

3. There is little reason to assume that urban poverty in San José can be significantly alleviated by establishing industrial growth poles in the country's periphery.
4. Dealing with poverty in San José through intricate manipulation of the national system of urban functions is fruitless; efforts should rather concentrate on the poor communities themselves.
5. Urban poverty programs should rely on parallel efforts to improve living conditions in rural areas; otherwise, migration to San José may not only become a burden to the Metropolitan Area but also result in stripping away skills and initiative in the areas left behind.
6. Self-improvement projects in poor urban areas and hiring the poor directly for construction and services should receive priority.
7. Migration to the city of San José has been increasing in absolute terms. Migration to the outer boundaries of the San José Urban Agglomeration has been twice as high as to the Metropolitan Area.
8. There is no evidence of significant differences in poverty incidence or socioeconomic conditions in general between migrant and nonmigrant groups. Therefore, special policies oriented toward easing specific problems of the migrant population should not receive first priority.
9. The poorest 20 percent of the population has gained relatively little since the mid-1960s. Special care will need to be made in designing and monitoring programs for this group to ensure that benefits accrue primarily to it and not to the 20-40 and 40-60 percentiles. Program benefits should be measured not only in terms of individuals served but also spillover effects and net redistributive impact.

10. Approximately one-fifth (20 percent) of the population of the Metropolitan Area falls below the subsistence level (1,300 colones annual per capita income), while 36 percent falls below the poverty level (2,000 colones). Poverty concentration levels are highest in tugurios or slums, where 32 percent of the population falls below the subsistence level.
11. Less than one-fourth of the poor population of San José is concentrated in slums; the other three-fourths are scattered throughout the Metropolitan Area. Therefore, if programs and projects are to meet the needs of the majority of poor people, they must transcend slum areas and be geared toward individual households.
12. Demographic, employment, and income characteristics are not significantly different for slum and nonslum poor segments.
13. Resources should be allocated to discovering successful but relatively unpublicized programs currently operating on a small scale under the auspices of private, voluntary, and quasi-public organizations. Feasibility studies are needed to determine the adaptability of these programs to larger-scale operations with additional support.
14. Costa Rican slums can be classified as follows: (a) concentrated slums, which emerged immediately after World War II and occupy large, continuous, and clearly defined zones; (b) dispersed slums, which formed during the 1960s, and in which poverty housing is mixed with higher-standard dwellings; and (c) unstable pockets in which small and isolated groups live, sometimes as a result of invasions. Although socioeconomic characteristics are similar for all three groups, the last two record a relatively high proportion of migrants.

15. Slums are relatively well organized and capable of self-mobilization for collective action. According to a survey, about two-thirds of slum residents responded they would turn to local government or political channels for action on grievances.
16. Community development programs should be geared toward the expressed needs of each community, involving local participation in planning and implementation.
17. The highest labor force participation rates are recorded in the San José Metropolitan Area, where the bulk of workers are employed in manufacturing, commerce, and services.
18. The unemployment situation in the slums of the Metropolitan Area is worsening. The poor in San José experience a male unemployment rate of 25 percent and a female rate of 11 percent. Unemployment rates are almost identical for slum and nonslum poor residents.
19. Special consideration should be devoted to developing employment opportunities for slum male residents 45-65 years of age, who experience an unemployment rate 10 times higher than that of men of the same age group in the rest of San José.
20. The majority of slum residents find jobs through informal information networks rather than through advertisements or employment services.
21. Many slum residents feel a need to undergo additional job training.
22. Labor markets in Costa Rica appear to work reasonably well; no major gaps in labor supply composition are envisaged.
23. The government can stimulate labor demand through appropriate factor prices, intermediate technology, public service employment for the hard-core unskilled, and support for worker-owned labor intensive firms.

24. The government can stimulate labor supply by strengthening the Employment Service, improving apprenticeship and short courses, and subsidizing on-the-job training.
25. New mechanisms for planning interagency coordination and localization of authority (i.e., devolution of effective power to mobilize and integrate political and technical resources) need be developed for urban poverty programs. Lessons may be learned from the more extensive experiences in rural areas.
26. The traditional municipal structure is not adequate for developing a service structure for the urban poor.
27. Institutional housing investment is sufficient to meet aggregate demand for new housing if a proper distribution of funds can be made. There is also sufficient construction capacity to accommodate a substantial increase in housing programs.
28. A rational National Housing Policy should be formulated in order to attain more efficient use of available financial and institutional resources. Special efforts need be directed toward the institutional factors which have prevented adequate investment funds from reaching low-income families.
29. Purchasing power, currently channeled into rental payments, is available for modest housing solutions. For those families in slums whose low incomes do not permit pay-as-you-go solutions to their dwelling problems, several social assistance institutions already exist to help. Thus, no new institutions are needed for this purpose.
30. Poor housing is only one facet of slum poverty. Trying to solve the housing problem in a vacuum risks the same failures that similar tunnel-vision approaches have produced in more affluent countries.

31. Housing solutions should involve as few changes in the lives of the residents as possible. In particular, improvement of existing structures is to be preferred over demolition, forced transfer to new areas, or construction of vast new housing projects which lack the rich social and economic relationships present in traditional or self-created neighborhoods.
32. Except for the relatively few units constructed by the Instituto Mixto de Ayuda Social, lower-income (lowest 30th percentile) families have no choice but rent substandard housing at high rates.
33. A national housing institution should be created as a mechanism for rehabilitating and upgrading current slum housing and constructing low-income dwellings.
34. Urban problems should be analyzed from the standpoint of the poor, especially since there is a tendency for many traditional policies to serve middle- and upper-income groups unless they are explicitly directed toward low-income brackets.

#### Assessment of the Agricultural Sector (1977)

1. Costa Rica's relatively high per capita income masks the existence of poverty. As of 1971, the lowest 40 percent of population held 14.7 percent of total income. Between 1961 and 1971 the income share of the lowest 20 percent of the population decreased from 6.0 to 5.4 percent, probably as a result of increasing unemployment and land concentration.
2. Income distribution in rural areas is much more equitable than in urban areas. The lowest 40 percent of the rural population holds 18.1 percent of total income compared to the national average of 14.7 percent.

3. The government has initiated several programs to redistribute income, including high support prices for basic grains production, minimum wage adjustments favoring low-income workers, and inclusion of previously uncovered noncontributors in the Social Security System (primarily agricultural workers and small farmers). It also has expanded services in health, nutrition, family planning, education, availability of potable water, and low-cost housing.
4. The main mechanism for the government's redistribution objective is the Social Development and Family Assistance Law enacted in December 1974. This law establishes a special payroll tax and an increase in the general sales tax. Revenue from these taxes is allocated to finance a multipurpose health-nutrition-environmental sanitation program.
5. In the agricultural sector the Ministry of Agriculture and other agencies have directed many of their activities toward small farmers. Examples of long-term measures are the production-oriented Projects by Campaign Program, the cooperative movement which organizes and supports groups of farmers, the National Banking System's Production Credit Program for small farmers, the Land Tenure and Colonization Program for small farmers, and the National Production Council's program to purchase basic grains at guaranteed minimum prices. Medium-term strategies include changes in land tenure patterns, expanded use of new technologies, expansion and diversification of agricultural exports, zoning of principal agricultural activities, and promotion of employment-generating production. In the short run emphasis is placed on production needed for domestic consumption of foodgrains and

industrial raw materials through strengthening extension, credit, and marketing services for small and medium farmers.

6. Poor farms have a much lower proportion of their land in perennial crops than nonpoor farms, in part reflecting the importance of coffee to small farmers.
7. Poor farmers experience substantially lower employment rates, both on and off farm for all farm sizes, than nonpoor farmers. Coffee is the most important contributor to employment on small farms, while basic grains do not provide good sources of employment.
8. Both poor and nonpoor small farms show, on average, higher profitability per hectare of arable land than do larger farms.
9. Small farmers with incomes above poverty level have significantly more land in perennial crops, mainly coffee, and utilize a much greater proportion of their available family labor on the farm relative to small farmers with incomes below poverty level.
10. For the poor farmer to utilize his land more efficiently he must change his crop mix to one that uses more fully his family labor or intensify his present crops with improved technology. The latter choice will increase capital requirements per land unit.
11. Agroindustry, marketing activities, and services are the best alternatives for generating permanent nonfarm employment in rural areas.
12. Farm size is not directly related to annual per capita income.
13. Off-farm income constitutes the most important income source difference between poor and nonpoor farmers.
14. On average, poor farms consume a greater proportion of their output value than do nonpoor farms. Even in the poorest districts, virtually

all--poor and nonpoor--farms of all sizes are basically market oriented in terms of product sales.

15. Nonpoor farms are more diversified with respect to annual crops than poor farms. They also have a smaller proportion of their land in all annual crops and a significantly smaller proportion in cereals, while producing more high-value (but higher-risk) annual crops such as potatoes, tomatoes, and tobacco.
16. The importance of livestock and livestock products to small farm income is surprisingly great.
17. Small farms use significantly less fertilizer per hectare than the national average. Only farms of more than 50 hectares use fertilizers at levels above the national average.
18. Land availability and the productive potential are not constraints in Costa Rica, although there is a need for a clear-cut set of policies directed at production, distribution, land use, new crops, and more equitable sharing by small and medium farmers in the benefits derived from increased production.
19. Over 90 percent of farms are owner operated. Land concentration has increased somewhat in farms 200-1,000 hectares, while land area in 1-20 hectare farms has decreased.
20. Large concentrations of land in extensive livestock operations plus several credit, tax, and pricing policies severely limit access to new land resources.
21. The Instituto de Tierras y Colonización should perform, either directly or through contracts, the following minimum services: (a) clearly identify, by county, lands available for distribution or settlement;

- (b) contract for the construction of basic access roads or trails;
  - (c) parcel the land into economic sized units taking into account topography, soil capability, potential land use, etc.; (d) establish and publish a simple, equitable system for selecting settlers;
  - (e) give clear, negotiable titles as rapidly as possible; (f) provide minimum assistance in clearing a small plot on each farm for growing basic family food requirements; (g) grant a small "grubstake" for basic tools, cement for a house, floor, and roofing; and (h) arrange with concerned agencies for follow-on assistance in health, technology, and credit.
22. About 70 percent of agricultural credit in 1973-1974 was allocated to coffee and beef. Only four other commodities received more than 1 percent of total credit (rice 3-5%, sugar 2-4%, dairy 2-4%, and bananas 2-3%). Products receiving the greatest credit allocation are the most important in terms of output, but credit is more concentrated than output. Banks prefer short-term loans to reduce risk. Aside from coffee, long-term crop loans are not generally available, which presents a serious limitation to the introduction of slow-maturing crops.
23. Small farmers get 75 percent of agricultural loans and 18 percent of the credit. They receive special consideration insofar as there is no ceiling for small-farmer credit.
24. Agricultural loans are granted on an individual crop-by-crop basis. If diversification of small and medium-size farms is a sector development goal, new credit mechanisms such as lines of credit covering more than one farm activity may be necessary.

25. Underemployment seems to be a serious problem, especially in agriculture. According to the Ministry of Labor, one-fifth of those employed in 1976 worked less than 40 hours per week.
26. If serious unemployment problems are to be avoided, generation of employment sources, especially in agriculture and rural areas, should receive the highest priority.
27. Despite availability of trained technicians, technology is still a serious constraint to increasing production and improving marketing practices due to the following reasons: (a) improved technology has not been introduced or adapted to the various potential ecological areas; (b) the delivery system for transferring information to potential users is inadequate; (c) inputs essential to utilization of improved technology often are not available; (d) reluctance to take risk, which hinders acceptance of new technology by low-income farmers living close to subsistence levels and by others who are skeptical of investing in unfamiliar commodities and practices.
28. The efficiency of the Costa Rican marketing system varies widely from one commodity to another. Bananas, coffee, cocoa, cut flowers, beef, shrimp, and sugar are marketed competitively in international markets, while meat, milk, potatoes, and some fruits are supplied to the domestic market quite efficiently. Other products, however, experience inefficient marketing, many with high product losses, or are reaching only limited markets. The most serious marketing deficiencies stem from inadequate transportation, improper production practices, poor handling and storage, insufficient technical knowledge, and inefficient distribution systems.

29. A vertically integrated approach seems to be the most promising way of solving the wide range of marketing problems that exist for the most important agricultural commodities.
30. The most critical problem facing the agricultural sector is the rapid destruction of forests. Slash-and-burn agriculture and indiscriminate timber harvesting are destroying watersheds and soils in steeply sloped areas and contributing to drought conditions in flatlands downstream. In 10 years land availability will become a serious constraint on sector development if destructive land use continues.
31. Small poor farmers are the worst offenders in indiscriminate deforestation. They are squatters who move into uncut forests and clear trees to start a farm, representing the highly motivated, hard-working rural poor who should be included in land reform and colonization programs.
32. Areas for possible USAID assistance include: (a) gathering natural resource data for forest and land use planning, especially in remote sensing and training; (b) marketing, especially in the development of local and regional market systems to provide income opportunities, reduce food losses, improve food quality, and reduce consumer cost; (c) agroindustry and exports in the form of technical assistance and training in product and market identification, vertically integrated production systems, and farmer organization; (d) land titling, distribution, and sale; (e) agricultural sector planning, training, project design, and development; and (f) research, development, and promotion of new crops.

Shelter Sector Study (1975)

1. The national housing agency, INVU, estimates that in 1970 there was a deficit of 128,000 housing units. This figure, however, is open to criticism since obviously only few people live unsheltered, no matter how overcrowded or inadequate the dwelling may be.
2. Approximately 34 percent of all units are overcrowded and an additional 3.5 percent are slum dwellings which need be replaced.
3. If given a chance, most families would prefer to own their home rather than rent.
4. The lowest 20 percent of the population receives 5.4 percent of national income, while the upper 10 percent receives 34.4 percent of national income.
5. In rural families year-round work is uncommon, but during certain times of the year most family members are engaged in agricultural work.
6. In the San José Metropolitan Area the median monthly family income is US\$ 146. Approximately 30 percent of households earns less than US\$ 105, while 15.5 percent earns more than US\$ 240.
7. The City of San José is the wealthiest single political jurisdiction, with median monthly family income of US\$ 154 and 19 percent earning more than US\$ 240.
8. In semiurban and rural areas the median monthly family income is US\$ 101. More than half the families (52 percent) earn less than US\$ 105, and only 5.6 percent earns more than US\$ 240.
9. The lack of policies and the limited number of plans imply a gap in relation to a strategy for housing policy implementation. Although planning and policy formulation have been viewed in the past with

skepticism, policymaking and programming seem to be receiving lately more support from the political sector.

10. Urban planning activities are inadequate. Budgetary limitations and lack of specialized personnel have impeded most municipal governments from conducting urban planning functions. Only a few urban centers have an approved master plan, and very few municipalities have a properly trained staff to conduct such activities.
11. Due to the absence of formal municipal machinery, in most cases zoning has been enforced on a self-policing basis by the construction sector.
12. Institutions providing financing for housing include the four commercial banks, the four savings and loan institutions, the Social Security Agency (CCSS), the National Housing Institute (INVU), the Social Assistance Institute (IMAS), the National Insurance Agency (INS), and the Banco Popular. Both IMAS and INVU function as housing developers; the other institutions only provide financing.
13. Interest rates on loans made by banks vary with type of loan and class of borrower. Examples of interest rate ranges for various sectors are as follows: (a) agriculture 8-10%; (b) industry 8-12%; (c) utility improvement 9-12%; (d) commerce 12-18%; (e) housing 12%; and (f) personal loans 12-18%.
14. The Savings and Loan System has generally served the middle and lower-middle income groups.
15. The principal constraint to the construction agency seems to be the short supply of skilled labor.
16. There is no general building code in Costa Rica, although there are several official standards published by various Ministries for design and drafting practices.

17. Low-cost housing is generally built by "maestros de obra" for the owner, although both IMAS and INVU also build low-cost units. A low-cost dwelling (less than 25,000 colones) is usually built of compacted volcanic tuff floor with cement surface, wood, single sheathing, wood trusses and nailers, and a galvanized corrugated iron roof. Windows are glass or screen in wood frames depending on the climate. Interior walls are usually left bare of finish, as is the ceiling. Electrical wiring is not concealed, nor is the plumbing; most of these units, however, have indoor bath, kitchen, and electricity. Plumbing is cold water only. Wood is not treated, and in some cases is not even air dried adequately. Many of these houses need repair constantly and are affected by termites, especially in the lowland tropical climates. Sewage disposal is by septic tank, either individually or for a group of units.
18. Inflation in material costs is the most outstanding problem in the construction industry.
19. The poor condition of streets and roads is the most serious municipal problem in Costa Rica. Except for the San José Metropolitan Area and other large cities, most streets and roads are not paved. Even in cities paved streets are in very poor condition, almost to the point of being unrepairable.
20. The transportation system is generally good, but limited by the condition of the rural road and street system and by traffic congestion in San José.
21. Over 90 percent of all communities have a public elementary school. Vocational and technical education have been neglected due to emphasis on traditional scholastic learning.

22. The main direct taxes applicable to rural areas are a land tax, a tax on uncultivated land, a direct tax based on extension and location of real estate, and a road tax.
23. Costa Rica does not have an urgent need for land reform in urban or rural areas. Historical land tenure patterns have tended to develop small or medium-size properties. There are facilities and agencies for providing good available land to citizens interested in settling and working it.
24. The country needs to initiate some sort of controls on exports and imports in order to improve the balance-of-trade situation.

#### Nutrition Assessment (1975)

1. Between 30 and 47 percent of the people have an annual income of less than 1,600 colones, amount considered minimal to adequately support the nutrition of a person in Costa Rica.
2. Use of mass media for promotion of nutrition and health promises to be highly effective.
3. Costa Rican society has developed a high propensity for increased access to social and material benefits as well as improvement of health and welfare.
4. While significant sectors of the rural population still depend on rice and beans, with very little animal protein and other foods, the tendency is to diversify the diet, which increases the probability of improvement of caloric and protein content.
5. Poor nutrition is the main health deficiency of primary school children. Teachers believe that inadequate nourishment is an important cause of educational failure.

6. Malnutrition ranges from 43.2 to 62.5 percent in the five health regions of the country. Between 39 and 60 percent of deaths among children 0-5 years of age are considered to be either directly or indirectly related to malnutrition.
7. Contrary to other ailments, which can be easily prevented or cured with specific measures, the child with malnutrition requires complex management techniques, since the causative factors are intimately related to socioeconomic factors. Malnutrition tends to be chronic, to recur, and to have an attached high mortality, all of which are a burden for health plans and national development.
8. The majority of children under five years of age and lactating or pregnant mothers who need nutritional assistance have never been served by a feeding program.
9. The school feeding program has had wide coverage, but its efficacy varies enormously from one school to another. The children which need most a nutritional supplement have not received adequate assistance.
10. The results of current nutrition programs indicate that the incidence of third-degree malnutrition continues to be the same and second-degree malnutrition has dropped by only one or two percentage points. Therefore, it appears that the traditional programs must be radically revised to broaden coverage and nutritional value and, more important, orient them more toward the environmental causes of malnutrition.
11. The government has chosen nutrition among many alternatives as a principal tool to bring about improvement of well being among the poorest strata of the population and social transformation of the lowest income groups.

12. Approximately 43 percent of the total population can be classified as marginal. Of this group the majority are living under conditions of extreme poverty as evidenced by (a) subsistence farming combined with low wages; (b) migration of labor from rural into urban areas, which cannot be integrated into productive life except in seasonal occupation and jobs which underutilize its capabilities; (c) monthly family income, land ownership, employment, education, and family size; and (d) housing and health conditions, the general environment, and ownership of supplementary basic goods.
13. Social problems in Costa Rica are derived from the following conditions:
  - (a) continuation of a cultural, economic, educational, and social order which has allowed existence and growth of a marginal population that does not participate in the country's general development process;
  - (b) application of advanced technology to the country's economic development, which has exacerbated the disequilibrium between urban and rural environments, thus widening the social gap; (c) absence of social development programs specifically designed to deal in an integral manner with the true causes of marginality in Costa Rica; and (d) weak organizational structure of rural communities, which has not permitted these groups to establish their identity and strengthen their political and organizational structure sufficiently to enable them to confront underdevelopment and marginality.
14. The target group for feeding programs includes preschool age children and pregnant and lactating mothers covered by feeding programs (consisting of two meals per day) implemented in communities of all sizes, both urban and rural, including children who live in communities of less than 500 inhabitants which have not been served by a feeding program before.

In the school feeding category, the program, also consisting of two meals a day, is implemented in communities selected on the basis of low income, poor sanitation, and otherwise deficient public services in health and general wellbeing.

15. The target group for environmental sanitation action includes marginal populations living in rural communities of less than 500 inhabitants. Environmental measures programmed for this group consist of water systems, latrines, and sanitary improvements of housing.
16. The target group for delivering preventive health care in nutrition centers, sanitary units, dispensaries, and health posts includes rural communities up to 2,000 in population.
17. A study financed by USAID and conducted by the Costa Rican Office of Community Development (DINADECO) has provided the following indicators of the status of villages with less than 500 inhabitants: (a) only 7 percent have electricity; (b) 43 percent have schools; (c) only 5 percent are visited by a mobile health unit; (d) 2 percent have an agricultural extension agent; (e) none has a CNP (Consejo Nacional de Producción) store or estanco; (f) 20 percent have medium or high migration rates; (g) 64 percent have up to 10 percent unemployment rate; (h) 19 percent have 11-20 percent unemployment rate; (i) 58 percent have no industry at all; (j) 68 percent are farmed by small and medium-size farmers; (k) 33 percent have seasonal labor migration; (l) 75 percent of the workers earn less than US\$ 40 per month; (m) 9 percent have health, nutrition, and social welfare committees, and (n) none has a physician.
18. In 1972 Costa Rica produced over three times its protein requirements and nearly twice its calorie requirements. Thus, it already produces

more than enough nutrients to feed its people. The constraints on these nutrients getting to the people lie in their distribution system and proceeds from their sale.

19. It seems that although Asignaciones Familiares will increase the demand for food in Costa Rica, it will not result in the importation of food. Indeed, the increased effective demand which this program represents may be the stimulus agriculture requires in this country.
20. Suggested areas for operational methodology research include: (a) epidemiological surveillance of growth and nutrition in rural populations; (b) evaluation of health interventions such as food fortification and antiparasitic drugs; (c) development of a statistical evaluation system to measure the general behavior of the target group under various socioeconomic and technical conditions; and (d) design, development, and implementation of an information system for programming and operational control of general nutrition programs at the inter-institutional level.
21. Suggested applied research activities include: (a) prospective study of child nutrition and growth; (b) lactation and weaning; (c) causality and prevention of diarrhea in children; (d) anthropological and social behavior of the target group; (e) institutional development; (f) interaction between the National Basic Grains Program and the National Nutrition Program; and (g) feeding of children under three years of age (i.e., local foods and means of improving nutrition).