Fighting Rural Poverty in Latin America: New Evidence and Policy

by

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50-Word Abstract:

We synthesize recent case studies on rural poverty in six Latin American countries, plus two thematic studies. We find that the return to education in farming is surprisingly small; land redistribution increases total farm output, but has mixed effects on income; and urban economic growth significantly reduces rural poverty.

Poverty in most of Latin America is still more rural than urban. In Mexico, Central America, and the Andean countries, more than 60 percent of the poor live in rural areas, and their poverty is deeper than that in urban areas. Paradoxically, however, the most influential analyses on poverty have a strong urban orientation—leaving a major gap in understanding the nature and magnitude of rural poverty. The heterogeneity of the region's rural poor—in education, per capita income, access to land and off-farm employment—increases the need for the gap to be filled, so that a strategy to alleviate rural poverty might be developed.[1]

This article synthesizes six new case studies of rural poverty in Latin America—for Chile, Colombia, El Salvador, Honduras, Paraguay, and Peru—and several thematic studies examining land, labor, and poverty (López and Valdés, 1999b).[2] The case studies are based on recent rural household survey data encompassing demographics, farm production, household income and expenditures, productive assets such as land and physical capital, and factors external to the household such as geographic location, access to services, and infrastructure. Recognizing the heterogeneity within the rural economy, the studies distinguish three main groups, namely small farmers, landless farm workers, and rural non-farm workers. The quantitative analysis includes econometric estimations of farm production functions and household per capita income functions (for both farmers and rural non-farm households), using cross-sectional household data and—in two countries (Honduras and Paraguay)—using panel data.

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Table 1 Comparing Certain Key Characteristics of Households in Surveys from Six Latin American Countries[a]

	CHILE		*EL SALVADOR*		*COLOMBIA*		*HONDURAS*		*PARAGUAY*		*PERU*	
	Group 1	*Whole Sample*	*Group 1*	*Whole Sample*	*Group 1*	*Whole Sample*	*Group 1*	*Whole Sample*	*Group 1*	*Whole Sample*	*Group 1*	*Whole Sample*
Income per capita (US$)	167	1,300	96	562	187	418	72	509	145	1,300	264	557
Percent of off-farm in total income	67	59	36	35	16	12	24	23	18	18	6.8	9.4
Family size	5.2	4.4	6.7	6	6.2	5.1	7	6.2	6	5	6.9	5.3
Number of children in household[b]	2.6	2	3.6	3.1	3.5	2.5	3.3	2.6	3.2	2.1	3.8	2.3
Dependency ratio[c]	--	--	2.5	1.8	1.5	1.1	0.5	0.4	1.2	0.9	2.0	2.0
Average years of schooling of family	5.2	5.7	2.2	3.1	3.6	4	2.5	3.1	3.1	3.7	--	--
Years of schooling of head of household	4	4.6	1.7	2.4	3.1	3.9	1.8	2.4	4.2	4.1	4.4	4.9
Land size farmed (has)	10	14	2	3	4	9	6	16	15	37	3.6	5.9
Percent of farmers with secure title to land	59	61	73	83	56	63	54	56	34	50	--	--
Percent of farmers receiving credit[d]	36	33	20	13	3.4	7.9	18.4	26.8	--	--	7.6	15.0
Percent of farmers receiving technical assistance	36	33	11	17	4.4	5.6	31.7	33	17	26	--	--

a. Figures refer to years: Colombia, 1993; Paraguay, 1994; Honduras, 1993; Chile, 1994; El Salvador, 1995; and Peru, 1994. Groups 1 and 2 refer to lowest two income quintiles for Colombia and Chile. Group 1 refers to lowest income tercile for Honduras, Paraguay and El Salvador. The whole sample included only small farmers in Chile, and small, medium and large farmers in Honduras, Paraguay and El Salvador. In Colombia, the sample includes only farmers living in rural areas, which biases the sample towards smaller farmers.

b. Children under 19 for Chile and Paraguay, under 16 for Honduras, and for Colombia and El Salvador these are all children living in household.

c. Defined as # dependents / # workers. In Honduras and Paraguay, workers were defined as all family members between 11 and 69 years old, and 15 and 69, respectively.

d. Figures for Chile refer to assistance from INDAP, which provides credit and technical assistance.

Background

Latin America is abundant in land with a large proportion of landless rural workers. There is a high concentration of land, in which a small number of large commercial farms coexist with a much larger number of small farms, and where the bulk of agricultural production comes from commercial farms. Latin America differs from most other developing regions in its small share of rural workers in the labor market, and in the small share that agriculture represents in the economy. Although some of the smaller economies (El Salvador, Guatemala, Honduras, Paraguay,

[2] These studies (López 1999a, 1999b; López and della Maggiora; López and Romano; López and Thomas; López and Valdés 1999a; Carter and Zegarra 1999; Valdés 1999) are part of *Rural Poverty in Latin America: Analytics, New Empirical Evidence and Policy* (López and Valdés 1999b).

and Jamaica) still have over 45 percent of their population living in rural areas, most larger countries have shares below 30 percent. Agriculture's share in GDP is consistently below 25 percent throughout the region, and less than 15 percent in the larger economies.

For the larger countries in the region (Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela), representing over 80 percent of the region's population, the low proportion of labor in rural areas matters. Why? Because even if a large number of rural workers migrate to the non-rural sector, they are unlikely to have a major effect on unemployment and wages in urban areas. Thus, rural workers in Latin America are less dependent on the farm economy than those almost everywhere else in the developing world. This suggests that for the larger Latin American economies, fast growth in the non-rural economy can go a long way in reducing rural poverty, even if the rural economy does not grow very fast.

Building the Assets of the Poor and Countering the Effects of Missing or Failing Markets

Human Capital

The average level of education in rural areas is significantly lower than in urban areas. In Brazil, Honduras, and Ecuador, individuals in rural areas have about half the average years of schooling than those in urban areas. Within the rural sector, our survey data indicates that the average years of schooling in poor households is about 15 percent smaller than the average for all rural households, as is the average years of schooling of heads of households (Table 1).

The impact of education on farm output and rural incomes is small. Where agricultural activities require limited skills, additional schooling does not contribute much to higher output in agriculture. The econometric studies show that the effect of education on farm output is significant only in Paraguay and Chile, but its contribution to increasing farm output even in these two

countries is quantitatively small (Table 2). In Honduras and El Salvador the education variable was not statistically significant.

Table 2 The Contributions of Various Factors to Farm Output

	Chile[a]	*El Salvador*	*Paraguay*	*Honduras*
Land size	0.46	0.36	0.39	0.42
Family labor	--	0.04	NS	NS
Hired Labor	--	0.04	--	0.06
Capital	0.07	NS	NS	0.09[d]
Variable Inputs	--	0.33	0.19	0.19
Education	significant	NS	0.29	NS
Returns to Scale	constant[b]	decreasing[c]	decreasing	constant

NS: not significant -- not included in the analysis

a. The estimates for Chile correspond to a short-run output supply function rather than a production function.

b. "Constant" means that the sum of the coefficients for land, labor, capital and variable inputs of the Cobb-Douglas production function is not statistically significantly different from one.

c. "Decreasing" means that the sum of the coefficients of land, labor, capital and variable inputs is statistically significantly less than one.

d. Includes attached and unattached capital.

The evidence from the case studies indicates that higher returns to schooling are obtained in non-farm employment (particularly in non-farm wage incomes) than in farming, with significant variations from country to country. While small, education does play a part in determining off-farm income, an indication that non-agricultural employment requires skills that are correlated with higher levels of education.

The contribution of one additional year of education on total annual per capita income in five of the six countries goes from $3.70 to $62.00. In Honduras the effect is not significant (Table 3). It is important to emphasize that these are returns to education for those that remain in the rural sector—and one would expect that the highest returns are obtained by those that migrate to the urban sector. The low returns to education in rural areas found in this study is consistent with estimate for other regions. See, for example the recent study of Jolliffe (1998) for Ghana and Zhao (1997) for China.

The fact that the returns to education are low within the rural sector does not imply that rural people that migrate to urban areas will also obtain low returns. In fact, studies applied to urban areas systematically find large wage and income effects associated with education (Psacharopoulus, 1992). Perhaps the main impact of education among rural people is to facilitate their migration to urban areas where they could obtain higher returns to their human capital investments.

Table 3 The Contribution of Various Factors to Total Per Capita Income

	Chile	*El Salvador*	*Colombia*	*Peru*	*Paraguay*	*Honduras*
Land size[a]	0.073	0.39	0.15	0.10	0.47	0.36[e]
Household labor[a]	0.83	0.08	0.45	0.13	0.30	NS
Capital[a]	NS[d]	0.05	--	--	NS	0.05[f]
Value of one additional schooling year[b] (US$)	62.00	3.70	14.00	30.00	43.00	19.00
Land titles[c]	0.15	--	NS	--	-0.16	0.40[g]
Technical assistance/credit	NS	--	NS	--	0.07	--
Geographical location	NS	NS	S	S	NS	--
Family size	-0.49	--	-0.40	-0.56	--	-0.38

S: significant NS: not significant -- not included in the analysis

a. Figures for land, labor and capital correspond to elasticities, indicating the percentage effect of a 1 percent increase in each factor of production on the per capita income.
b. Figures for schooling effect indicate the contribution of one additional year of schooling to per capita income.
c. Includes only the direct effect of land titles on per capita income, ignoring effects through capital investment and credit.
d. For Chile, capital was measured as a dummy variable representing ownership of agricultural machinery, which in the case of Chile is insignificantly different from zero.
e. Land size was only significant for large farmers.
f. Only mobile capital was significant.
g. Before 1983.

Land

It is often assumed that among the rural poor, landless farm households are worse off than households that have access to some land. Due to data limitations, a detailed comparison could be done only for El Salvador and Peru. In El Salvador, per capita income of landless farm households is lower than that of farm households, which would seem to corroborate the common view that owning land improves welfare (Table 1). However, a comparison between the poorest third of both groups shows that small-farm households are not significantly different from landless

households in any of the indicators mentioned above, with the exception of access to public health insurance. The poorest landless households have slightly higher per capita income ($111 versus $96). By contrast, the evidence on Peru is more consistent with the conventional wisdom: the landless farm workers are indeed generally poorer than farmers.

Small-farmers have similar total factor productivity to the medium- and large-farmers. This result holds in the three countries for which the relevant analysis was performed (Paraguay, Honduras, and El Salvador). In Paraguay and Honduras, total factor productivity in fact was slightly lower among small farmers. Moreover, to test whether a U-shape relationship between total factor productivity and farm size exists we divided farmers into three groups (small, medium, and large) and tested whether productivity was higher in medium farms than in the other two groups. We found that this is not the case: small farmers have a slightly lower total factor productivity than medium and large farmers but there are no statistically significant differences between the latter two groups. We experimented with various definitions of the categories and we were never able to find the expected U-shaped relationship.

The returns to scale in farm production are constant or decreasing (Table 2). The fact that small farmers have somewhat lower total factor productivity than large farmers is not due to their reduced scale of production. In fact, the returns to scale are found to be constant or decreasing in the four case studies where they were measured.

Marginal productivity of land is higher for small farmers than for large farmers. We found that the hypothesis that farm production elasticities are equal among small and large farmers could not be rejected in any of the countries where this analysis was performed (Paraguay, Honduras and El Salvador). Coupled with the fact that yields are larger for small farmers than for large farmers, we conclude that marginal productivity of land is higher for small farmers.

The contribution of land to per capita income is mixed (Table 3). The elasticity of income with respect to land in the larger economies (Chile, Colombia, and Peru) that have small rural populations (ranging from 16 to 29 percent of the total population) is below 0.15. That is, a 10 percent increase in land would raise income per capita by less than 1.5 percent. Of these three countries, only in Chile were we able to compute the farm output elasticity of land, which was 0.46—revealing the importance in distinguishing between the impact of land on income and farm output.[3] However, for the three smaller economies (El Salvador, Honduras, and Paraguay) with large rural populations (47 to 56 percent of the total population), income elasticities of land ranged from 0.36 to 0.47—substantially higher than their large economy counterparts. Perhaps the difference in income elasticities of land reflects binding constraints of land which were not present in the countries with small rural populations.

Remedying the Failures of Government

Land Redistribution: The Economic Benefits

Many economists believe that the chronic nature of poverty in Latin American agriculture is a direct consequence of land tenure arrangements. This view holds that the prevailing land market structures have not provided opportunities for the rural poor to gain access to land, and thereby break the cycle of rural poverty. Presumably this is the result of relatively high costs of subdivision of large farms into many small units, and distortions in land values (for example, market prices higher than the present value of returns in farming). These two factors would significantly restrict the access to land for a large proportion of the rural population, resulting in *minifundia*

[3] None of the case studies controls for differences in land quality which, depending on the correlation between farm size and land quality, could bias the estimates. In particular, if the correlation is negative, then the coefficient

and landlessness despite the presumption that small-scale farmers would be more efficient. Agriculture, and the small-farm sector in particular, according to this view, often has a large reservoir of underutilized labor that could be more fully employed if farm size were increased or if landless agricultural workers were given access to land. The economics of farm size—the inverse relationship between farm size and factor productivity hypothesis—has become an increasingly influential view in the region (Carter and Zegarra, 1999; Binswanger, et al., 1995).

As just discussed, elasticities suggest that land redistribution from large to small farmers may contribute to increase total farm output, but may have only a limited impact on household income, at least in the larger countries, which encompass 80 percent of the population in Latin America. The increase in total farm output is due to the marginal value product of land for small farmers being greater than for large farmers.[4] Nevertheless, farm output gains are only partially translated into income gains, which is an indication that the effectiveness of land redistribution to raise income rather than just farm output of the poor is limited. More research focusing on the important issue of distinguishing the output from the income effect of land is needed.

Our estimates of the contribution of land to per capita income (as opposed to merely output) suggest that to have a sizable impact on rural poverty in some countries, a land redistribution program should have to transfer a massive amount of land in order to allow a significant proportion of the landless to achieve a minimum farm size (much larger than the current farm size of the poor). And this still does not deal with the small farm problem associated with their insufficient

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would underestimate the true effect of land on income.

[4] Assuming there is no output price effect. If cropping patterns differ and commercial farmers produce tradables and small farmers tend to produce relatively more "home goods," the resulting effect of land redistribution on product prices could offset part of the output gains.

land holdings. In Colombia, raising the per capita income of the poorest 40% of farm households up to the poverty line would require almost quadrupling their current land area.

Land tenure security

In most of Latin America, relatively few small- and medium-sized farmers have legal title to their land; less than 63% of the farmers in Honduras, Paraguay, Chile, and Colombia (Table 1). Insecure property rights are an important source of production inefficiency, due to the negative effect of that insecurity on the incentives to invest in capital that is attached to the land, and to credit constraints faced by farmers who lack titles for both formal and informal security of loans.

While several studies have estimated the impact of land titling on agriculture in Asia and Africa (Feder, 1987; Migot-Adholla, et al, 1991), the subject has received much less attention in Latin America. Most studies have examined only simple correlations which provide ambiguous results. Recent studies of the effect of land titling on farm productivity (López, 1995, on Honduras; Carter and Olinto, 1996, on Paraguay; see also Byerlee and Valdés, 1996) have made a major contribution to this topic. In both Honduras and Paraguay, land titling has positive and significant effects on farm income, and the collateral effect dominates the attached-investment demand effect. The results of both studies suggest that the rate of return to investment in titling programs is competitive with other investment alternatives, and that land titling is a good investment in Latin America. There is an important caveat, though—most of the benefits of titling are not captured by the poorest farmers. In Honduras, the benefits of titling (an increase in per capita income of the order of 5%) were captured by one fifth of the farmers, and these were not the poorest. Similarly in Paraguay, most of the benefits have been captured by medium to large farmers.

Extensive analysis of land tenure issues in Asia has shown that much more than land titling is needed to realize the potential benefits of land title reform. The presence of an appropriate legal

framework, cadastral surveys, a registry of liens, and implementation and enforcement mechanisms, including a fair and expeditious judicial system, are all necessary conditions for realizing these benefits (Byerlee and Valdes 1996).

Land taxation

Land taxes can be an effective way of reducing the competitive advantage of large landholders over poor small scale operators in the land market. Agricultural land taxation, however, is rarely implemented despite the fact that it has been advocated by economists for many years. According to Skinner (1993), the main reason why land taxes have not been implemented in developing countries is the high administrative costs involved. This factor is likely to be more relevant for the poorest developing countries where the minimum institutional base is non-existent. In middle-income countries including several in Latin America, land and other relevant institutions are better developed, and could in principle allow for an adequate system of land tax collection with reasonable administrative costs.

Off-farm employment

Rural-urban migration is costly both to the migrants and also for the recipient urban areas in terms of the required additional urban infrastructure and negative externalities due to agglomeration. D. Gale Johnson (1996) remarks, "in many cases the least costly way to assist the adjustment process is to make the countryside attractive for nonfarm activities that provide alternative opportunities for those who no longer find employment in agriculture an acceptable use of their human capital." For many—particularly the small farmers—the adjustment will take the form of part-time farming. For others, it is leaving the farm for the small towns.

The question, then, is what is required and who pays to make rural areas more attractive for the creation of rural non-farm employment? Roads, schools, communications, and electricity are the keys. The studies by Lanjouw (1999) and others have shown that in Latin America education and access to roads and electricity are strongly associated with higher non-agricultural incomes at the household level. Regional patterns are also fairly important in explaining non-farm incomes. For example, in Mexico, non-agricultural incomes are relatively higher in the north than in other regions, controlling for other household characteristics.

Perhaps the policy implications of this analysis are (1) that social project evaluation in rural services and infrastructure should explicitly consider the additional social benefits that accrue from reducing the private and social costs associated with rural urban migration; (2) take measures to reduce the social cost of rural-urban migration, such as improving information systems in rural areas that deal with labor market opportunities in urban areas.

Concluding Comments

Rural poverty is, to some extent, the result of increased industry mobility caused by economic growth, in combination with the relative immobility of the disadvantaged segments of the rural population. Thus, it is part of the natural evolution of the structure of the economy in the process of growth, generating increasing geographic concentration of the most dynamic activities simultaneous with a sluggish process of geographic population adjustment. This structural element reduces the scope for poverty reduction strategies directed exclusively to the rural sector.

Our studies suggest the following:

- The return to education in farming is surprisingly small, in most cases US$20 per capita per year of additional schooling. However, when education leads to employment in the rural nonfarm sector or the urban sector, the returns may be quite substantial. The main

contribution of education in rural areas appears to be to prepare people to emigrate to urban areas and towns.

- Land redistribution seems to have potential to increase total farm output, but may have less potential for increasing household income, at least in the larger economies. Overall, our analysis suggests that to have a sizable impact on rural poverty, a massive land redistribution would be necessary. Such a large redistribution of land could trigger an increase in land prices that would raise the cost of land redistribution even further. We believe that a better approach is to remove policy distortions that favor large landholders, such as tax preferences for farming (vis-a-vis other sectors), and to accelerate land titling programs, which will help small farmers gain access to credit.
- In some cases, per capita income of small farm households is not significantly different from landless households (El Salvador); but in others, it is (Peru). In general, availability of off-farm employment increases household income. Since Latin American countries are less dependent on the farm economy than other developing regions, as a rural poverty reducing strategy, we favor policies which are likely to accelerate growth in the overall economy, and that allow rural people to transition out of farming.

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