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Aspects of Employment Location, Regional Redistribution, and Poverty and Inequality in the Philippines

by

*Arsenio M. Balisacan**

*Associate Professor, School of Economics, University of the Philippines

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Abstract

Recent discussions of public policy in developing countries have frequently called attention to the need for reducing high income disparities among regions and between urban and rural areas. This paper examines the relative influence of regional differences in household access to land, infrastructure, and education on aggregate poverty and inequality in the Philippines. It finds that improvement in access to infrastructure and education in less favored regions offers a big push to the poverty-reduction objective. Land redistribution increases rural household incomes, but these increases are not likely to substantially alter the picture of aggregate poverty and inequality.

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1. *Introduction*

Discussions of development policy in less developed countries have frequently called attention to high income disparities among their various regions and between urban and rural areas (e.g., Jazairy et al., 1992; UNDP, 1992; Pernia, 1994). These have led to suggestions that policy reforms aimed at reducing overall income inequality and social deprivation have to focus on reducing regional income disparities. It is frequently proposed, for example, that budgetary resources need to be allocated more than proportionately to regions with relatively low mean incomes. This presumes, however, that income inequality within each of the regions is not itself the major problem. It is possible, for example, that systematic differences in levels of human capital between low- and high-income groups within a geographic area translate into considerable differences in household earnings between these groups. In this case, the policy prescription to reduce overall income inequality and poverty would have to involve expanding the access of low-income groups to human capital development.

In the Philippines, critics of development policy point to the relatively large mean income difference between Metro Manila, the nation's capital, and neighboring Southern and Central Luzon regions, on the one hand, and the other regions of the country, on the other, as a prime cause of the high income inequality and poverty in the Philippines (ILO, 1974; Lamberte et al., 1993). Moreover, the poor performance of the Philippine economy over the last three decades has been attributed partly to the relatively large variation in access to infrastructure and social services between the major urban centers and rural areas (e.g., Ranis and Stewart, 1993). Regional variation in certain summary measures of human development—particularly those incorporating literacy rate, mortality rate, and poverty incidence—is also evident (UNDP, 1994).

Inequality-poverty-decomposition analyses have frequently been used to demonstrate the overwhelmingly important contribution of intrasectoral or within-group effects on the pattern of aggregate poverty and income inequality.[1] In the Philippines, the application of this approach to household survey data shows that intraregional inequality accounts for about three-fourths of total inequality (Balisacan and Bacawag, 1994). The approach, however, falls short of indicating the relative impact of certain "policy handles" on household incomes and, hence, is inadequate in informing policymakers about policy choices for reducing aggregate poverty and inequality. Moreover, the approach is silent about the relative impact of policy handles on spatial employment decisions. Rural-urban migration has, for example, increasingly become an important policy concern in less developed countries (Pernia, 1994). Yet, there is currently limited information on how, for example, land and infrastructure investment policies affect the decision of households to locate in urban (or rural) areas and how these affect aggregate poverty and inequality.

This paper employs a simple econometric model of household income determination to examine the relative influence of regional differences in household access to land, infrastructure, and education on aggregate poverty and inequality in the Philippines. The next two sections describe the model and data sources. The paper then discusses the estimation results and uses the estimated model to assess the impact of certain redistributive policy instruments on aggregate poverty and inequality. Finally, it gives concluding remarks.

2. *Spatial Choice of Employment*

We consider the choice between urban employment and rural employment. This choice is assumed to depend at least in part on the basis of anticipated incremental returns. The fact that a person chooses a given alternative suggests that he or she has a more tangible basis for perceiving a more favorable return than those who choose otherwise. This implies that workers tend to be nonrandomly distributed within the population as a whole. Thus, observations on wages or earnings in a particular location may not convey much information about what other workers earn in that occupation. Put differently, estimates of the impact of certain worker attributes on wages or earnings based-on sector- or location-specific samples may be biased.

Earnings in urban employment (Y_u) and in rural employment (Y_r) are determined as follows:

$$\begin{aligned} \ln Y_u &= X_u\beta_u + \mu_u \\ \ln Y_r &= X_r\beta_r + \mu_r \end{aligned} \qquad (1)$$

where X is a vector of determining variables (household-specific variables, region-specific variables representing access to land, infrastructure, and education), and μ is a vector of unobserved individual characteristics.[2]

A worker's relative pecuniary gain or loss (G) from working in an urban area is defined as the monetary earning differential:

$$G = \ln Y_u - \ln Y_r = X_u\beta_u - X_r\beta_r \qquad (2)$$

A worker chooses an urban employment (I=1) if this differential is greater than the relative psychic cost or disutility of working in an urban area; otherwise he chooses a rural employment (I=0). That is,

$$\begin{aligned} I = 1 \quad & if \quad G > D \\ I = 0 \quad & if \quad G \leq D \end{aligned} \qquad (3)$$

where D is the unobserved psychic cost (benefit) or disutility (utility).[3] It is assumed that D varies directly with the worker's observed characteristics (Z) and with unobserved characteristics (ϵ):

$$D = Z\gamma + \epsilon. \tag{4}$$

Using (2) and (4), the reduced-form spatial choice equation can be written as

$$\begin{aligned} I = 1 \quad & if \quad X_u\beta_u - X_r\beta_r - Z\gamma - \epsilon > 0 \\ I = 0 \quad & if \quad X_u\beta_u - X_r\beta_r - Z\gamma - \epsilon \leq 0 \end{aligned} \tag{5}$$

Parameter estimates based on separate ordinary least squares (OLS) regression of the two modes of employment are generally biased (Maddala, 1983). Lee (1979) suggested a two-stage estimation procedure to estimate a switching regression model such as the above. The procedure involves modifying the earnings equations by incorporating appropriate "selectivity variables" and adding error terms with zero means. The corrected earnings equations can be written as:

$$\begin{aligned} \ln Y_{ui} &= X_{ui}\beta_u - \sigma_u S_{ui} + v_{ui} \\ \ln Y_{ri} &= X_{ri}\beta_r - \sigma_r S_{ri} + v_{ri} \end{aligned} \tag{6}$$

where

$$\begin{aligned} S_{ui} &= \phi(Z_i\gamma)/\psi(Z_i\gamma)), \\ S_{ri} &= \phi(Z_i\gamma)/(1 - \psi(Z_i\gamma)). \end{aligned} \tag{7}$$

and Z absorbs all exogenous variables in X_u, X_r, and Z.

Since sample separation is observed (i.e., the observations are observed, *ex ante*, to be either urban worker or rural worker), maximum-likelihood probit estimation can be employed to estimate the parameters of the reduced-form decision equation (5). These parameter estimates are used to compute for the values of S_u and S_r which are then substituted into (6).

Given consistent estimates of the earnings equations (1), $\hat{G} = \beta_1 X_1 - \beta_2 X_2$ is a consistent estimate of the logarithmic earnings differential G. By substituting this estimate of G into (3), one can then estimate the structural probit equation for employment choice.

3. *Variable Definitions and Data*

The arguments of the earnings functions include education, experience, and other exogenous (predetermined) variables. Education is measured by the number of schooling years of the household head. Experience is proxied by the household head's age, and this variable is entered in the regression in quadratic form. Regional indices for access to electricity and markets are included to capture the location effects of physical infrastructure on productivity and earnings. Access to markets is proxied by road density, expressed as the ratio of paved roads (in kilometers) to total farm area (in square kilometers). The variation in earnings among rural workers is expected to be influenced by the prevailing agrarian structure, as posited in models of agrarian institutions (see, e.g., Hayami and Otsuka, 1993). The variables included to capture these effects are regional indices of tenancy incidence, farmholding distribution, and farm size. Tenancy incidence, expressed as the ratio of farms under share tenancy to total area of farms, is expected to have a negative influence on rural workers' earnings, all other things remaining the same. Farm distribution, expressed as the ratio of physical area above 10 hectares to total farm area, is also expected to negatively affect rural workers' earnings. Access to irrigation, defined as the ratio of irrigated to total farm area, is included as a proxy for land quality.

Apart from expected earnings difference, the structural equation for urban-rural employment choice is hypothesized to be positively influenced by their endowment of household assets. The empirical literature on migration in the Philippines (see, e.g., Pernia, 1978; Herrin, 1985) suggests that rural-to-urban migrants tend to be those who have household assets. Presumably, these assets enable potential migrants to bear the fixed costs of migration. Rental incomes are assumed to adequately represent the (predetermined) ownership of these assets. Age and other attributes of the household head are also included to control for any direct influence of these variables on urban-rural employment choice. These variables also affect this choice indirectly via the earnings equations.

The data source is primarily the 1985, 1988, and 1991 *Family Income and Expenditures Survey* (FIES) of the National Statistics Office. These are nationwide surveys covering large sample sizes of 16,961, 18,922, and 24,789 households for 1985, 1988, and 1991, respectively. For our purposes, we have randomly selected a sub-sample representing one-fourth of the sample size of each survey. As shown elsewhere (Balisacan, 1995), substantial reclassification of initially rural areas into urban areas occurred in the 1991 FIES. To eliminate potential biases introduced by this reclassification, we have eliminated 1991 FIES households which cannot be reclassified into their original 1985 and 1988 classification. That is, urban-rural geographic boundaries are made constant for the combined data. The total sample consists of 7,676 urban households and 7,202 rural households. Table 1 gives the definitions and means of the variables.

Table 2 summarizes the parameter estimates of the earnings equations.[4] Rates of return to education are higher for urban households than for rural households, all other things remaining equal. This difference is especially more pronounced for tertiary education. Earnings of rural households with tertiary education are 51 percent higher than those who did not complete elementary, while the comparable figure for urban household is 104 percent.[5] Earnings of rural households who completed only elementary education are not statistically different from those who did not complete or attend elementary education.

After controlling for educational attainment and other household characteristics, the sex of the household head does not have a significant influence on either rural or urban household earnings. This is inconsistent with findings in some earlier studies (see, e.g., Balisacan, 1994) showing households headed by females to have, on the average, lower earnings than those headed by males. These studies did not, however, explicitly consider urban-rural employment choice.

Experience, proxied by age, is not also a significant determinant of rural workers' earnings, but it is for urban workers'. This might be due to the higher skills requirement for urban employment, which comes partly with experience.

The infrastructure variables, namely roads and electricity, are positive and significant in the urban regression; only electricity is significant in the rural regression. A 10 percent increase in access to electricity increases household earnings by 2 percent in rural areas and by 19 percent in urban areas. Irrigation in the rural regression is also not significant. It is possible that this variable, as constructed, does not adequately reflect land quality. Poor maintenance of existing irrigation systems is, for example, a major area of concern by funding agencies (see World Bank, 1991).

As expected, certain aspects of agrarian structure significantly affect earnings of rural workers. On the average, an increase in landholding inequality reduces earnings of rural workers, while an increase in farm size raises their earnings. Tenancy has a negative but insignificant effect on earnings. This is consistent with recent theoretical and empirical studies suggesting that tenancy, by itself, is not as important and compelling correlate of poverty as expected: the variation in incomes within tenure classes (reflecting the effect of farm size, yield, cropping intensity, and land quality) has been found to be much greater than the variation between classes (see, e.g., Hayami and Otsuka, 1993). In an earlier study (Balisacan, 1993), tenancy is shown to be also not significantly related with regional poverty incidence.

Also of interest are the estimated coefficients of the selectivity variables. In the rural employment equation, it is insignificant, while in the urban employment equation, it is significant and positive. This result lends support to the hypothesis of self-selection, at least as it pertains to urban workers among the population. It may be interpreted to support the notion that urban workers in the population choose their location of employment because they fail to perceive more favorable earnings elsewhere.

The final step in the regression analysis is the estimation of the structural equation pertaining to the choice between urban and rural employment. The estimates of this equation are given in Table 3. The significant and positive value of the coefficient of the earning differential lends support to the hypothesis that large expected gains from urban employment vis-à-vis rural employment increase the probability of workers choosing urban employment. The probability of choosing urban employment also increases with the endowment of household assets. This confirms the observation that urban workers originating from rural areas are typically those who are in a position to finance the fixed cost of migration. On the average, older workers have lower probability of choosing urban employment than younger ones. Female workers also tend to have less probability of choosing urban employment. This does not appear to jive well with common observation. Note, however, that the sample of workers employed in this analysis are heads of households who may be less mobile than the young, female workers who are not heads of households.

4. *Impact of Regional Redistribution*

As shown elsewhere (Balisacan and Bacawag, 1994), there exists significant regional variation in access to land resources, infrastructure, and educational opportunities. We can ask: What would the picture of aggregate inequality and poverty in the Philippines be if access to land is distributed such that regions characterized with low access get the mean value for all regions, without changing the level of access for all the other regions? How would this type of "land reform" compare with similar redistribution involving physical infrastructure and human capital investment?

The parameter estimates of the earnings equations are used to simulate the impact of certain policy changes on the picture of overall income inequality and poverty. The analysis makes use of the 1991 FIES; the benchmark values of poverty and inequality indices pertain to 1991. But, first, we briefly discuss measures we used in aggregating poverty and inequality.

Poverty and Inequality Measures

Poverty assessment requires the proper identification of the poor as well as the aggregation of the data on the poor into a single measure of poverty. The first requirement entails the determination of a poverty standard (or line). Ideally, this standard should allow for differences in household composition, relative prices faced by spatially dispersed households, household tastes, health status of household members, and living conditions and amenities which are customary in the society they belong to (or what is often referred to as participation standard). For practical purposes, we have adopted the poverty lines for 1988 estimated by the National Statistical Coordination Board's Technical Working Group on Poverty Determination. Roughly comparable to those for Indonesia and Thailand, these estimates cover the country's 13 regions subdivided into rural and urban areas and take into account regional price differences and consumption patterns.

The second requirement—a procedure of aggregating the data on the poor—has been well discussed in the literature.[6] In this paper, we employ the additively decomposable class of poverty measures suggested by Foster *et al.*(1984). This class nests as special cases some commonly used aggregate poverty measures: (i) the head-count index, defined as the fraction of the population that is deemed poor; and (ii) the poverty gap index, defined as the average income shortfall—expressed as a proportion of the poverty line—of the population. In addition, by an appropriate choice of value of the parameter that indicates the importance given to the poorest of the poor, one can capture Sen's (1976, 1981) contention that an aggregate poverty measure must convincingly take account of differences in the severity of poverty. For our purposes, we refer to a member of this class that captures this concern as distribution-sensitive measure.

Similarly, our choice of index summarizing the nature and extent of inequality in the distribution of welfare levels is guided by both theoretical and practical considerations. We require our index to satisfy at least four basic properties. The first is *mean independence*, i.e., the index is invariant with respect to an equi-proportionate change in everyone's income. The second is *population independence*, i.e., the index remains invariant if the number of people at each income level is changed by the same proportion. This implies that the index depends only on relative population frequencies at each income level, not on absolute population frequencies. The third property is *transfer principle* (often referred to as Pigou-Dalton condition), i.e., any transfer from a richer to a poorer person that does not reverse their relative rank reduces the value of the inequality index. Finally, it is required that the index is *additively decomposable*, i.e., the index can be expressed as a weighted sum of the inequality values calculated for the sub-population groups (within-group component) plus the contribution arising from differences between group means (between-group component). Conceptually, the between-group component can be defined as the value of the aggregate index if, by hypothetical redistribution, all persons within a group receive the average income for that group. The inequality measured thus refers only to inequality between group means. Similarly, the within-group component is the value of the aggregate index if the between-group inequality is suppressed by equalizing group means through an equi-proportionate change in the income of every unit within each group.

For our purposes, we employ the two Theil indices (T and L) and the variance of logarithms (V) as measures of inequality. All these indices satisfy mean independence and population independence. T and L satisfy the transfer principle, but V violates it for a given range of incomes. Nonetheless, for most empirical purposes, the transfer principle is seldom violated (Creedy, 1977).

Simulation Results

Table 4 summarizes the results for policy experiments involving agrarian structure (specifically farm area distribution, tenancy, and farm size), physical infrastructure (mainly road and electricity), and human capital (mainly formal education). Simply redistributing landholding in regions with landholding inequality above the national mean would have little effect on the picture of aggregate poverty and inequality. Note, however, that this simulation covers only about 17 percent of the total farm area and only 6 of the 12 agricultural regions.[7]

The simulation results for changes in tenancy and farm size are similar to those for landholding distribution. The result on tenancy is significant considering the conventional view that associates rural and national poverty with tenancy. It is possible that the simulation glosses over the substantially high incidence of tenancy in practically all regions. However, earlier studies have also failed to show any causal link between share tenancy and poverty incidence (Balisacan, 1993). In the case of farm size, the results should be interpreted with caution. In this experiment, average farm sizes for unfavored regions are increased to the level of the national mean, while averages for regions having farm sizes above the national mean are kept constant. The experiment is plausible only if there is either a substantial out-migration of farm workers from unfavored regions or an expansion of agricultural land frontier through further forest clearing. Since the latter is no longer a plausible scenario, out-migration is a more likely option, but this may have profound effects on both rural and urban household welfare (through, for example, the labor market). These effects have not been captured by the simulation analysis.

Suppose landholding inequality is reduced proportionately across all rural regions. Figure 1 summarizes the effects on the aggregate poverty-gap and Theil L indices for alternative levels of landholding redistribution. The results are not much different from those of the earlier simulation case where only rural regions with landholding inequality exceeding the national mean are covered by land redistribution.

Reducing regional differences in access to paved roads and electricity by increasing the levels of access of unfavored regions up to the national mean level has favorable effects on poverty. This is particularly the case for electricity; the simulation shows a decrease in the head count index by about five percentage points and the poverty gap by about three percentage points. Overall income inequality is also reduced, although only minimally. In the case of access to paved roads, income inequality deteriorates a little bit, owing partly to the larger income effects of road access on urban households. However, the overall head count index is reduced by three percentage points, while the poverty gap is reduced by two percentage points.

Simply raising the average educational attainment of households in unfavored regions to the national mean level does not make a substantial dent on aggregate poverty and inequality. This is because the national mean level has a low base: the 1991 FIES data indicate that the average household head has attended (but not completed) only elementary education. Moreover, the regional variation in average years of schooling of household heads is also low.

To further examine the effectiveness of human capital formation as a policy tool for reducing poverty and income inequality, we have simulated the income effects of raising the educational attainment of the regional population to at least high school graduate. The result is given in the last column of Table 4. Clearly, the poverty-reduction effects are significant: national head count index is reduced by about 10 percentage points and the poverty gap index by about 5 percentage points. Owing largely to the relatively greater income effects of secondary education among low-income urban households which typically have real income levels higher than those of low-income rural households, the overall income inequality increases, although only by a relatively small amount.

5. *Concluding Remarks*

Recent public policy discussions in developing countries have called attention to the need for reducing interregional inequality in the distribution of income and wealth as well as other aspects of well-being. In the Philippines, particular reference has been made to its relatively high income inequality and poverty, which is attributed partly to large income disparities among regions as well as between urban and rural areas. Indeed regional income (and expenditure) data show that such disparity exists. Indicators of access to infrastructure, health and sanitation, and education also reveal glaring disparities among the regions of the country. However, analysis of household expenditure data show that between-region inequality or rural-urban inequality accounts for only a small proportion—barely one-fourth—of the total (national) inequality. Redistributing income away from economically advanced regions to lagging regions may not reduce overall income inequality and poverty as substantially as expected.

In recent years, efforts to reduce rural poverty in developing Asian countries have centered on reforming agrarian relations, specifically land redistribution and tenancy reforms (e.g. APO, 1994). In the Philippines, land redistribution, as that pursued in the simulation analysis of this paper (i.e., leveling the landholding inequality in regions with above-mean inequality to the national mean), increases rural household incomes, but these increases are not likely to substantially alter the picture of aggregate poverty and inequality. The same thing can be said about tenancy reform. The observations in this paper and recent empirical and theoretical studies suggest that tenancy by itself is not as important correlate of poverty and inequality as expected: the variation in incomes within tenure classes (reflecting the effect of farm size, yield, cropping intensity, land quality, and access to technology and markets) has been found to be much greater than the variation between classes.

Very promising areas for poverty alleviation in the Philippines, as perhaps elsewhere in the developing Asian region, are in infrastructure development and human capital formation. Improvement in access to infrastructure in relatively infrastructure-deprived regions substantially reduces poverty without seriously aggravating inequality. This is one of perhaps only few cases where a move to equalize access to public resources across regions or locations of the country is clearly a big push to the poverty-reduction objective. In the case of human capital formation, the average level of formal education is low—the average adult is barely an elementary graduate—and differences in mean years of schooling across regions are small. Thus intra-regional improvement in access to education is highly desirable. The simulation suggests that increasing the level of educational attainment of the population in every region to at least high school graduate will reduce aggregate poverty incidence by about 11 percentage points. Because incomes of rural households respond to the increase almost as well as those of urban households, improvement in intra-regional access to high education does not aggravate inequality.

Needless to say, the analysis pursued in this paper has certain limitations. For one, the simulation exercise has not adequately captured long-term effects of policy reform involving access to land and rural infrastructure. Improvement in access to land may, for example, have indirect effects on productivity through nutritional improvement and household investment in human capital, as cogently described by Dasgupta (1993). It is also possible that public investments in rural infrastructure, by allowing reduction in transaction costs, affect rural-urban incentive structure, thereby influencing forms and patterns of rural organization. Thus, the results of the exercise should be interpreted as indicating only probable effects of policy reform involving access to land, infrastructure, and education on aggregate poverty and income distribution.

NOTES

1. The literature on inequality and poverty decomposition is extensive. On practical applications of inequality decomposition analysis, see Anand (1983), Tsakloglou (1993), and Cowell and Jenkins (1995). On applied poverty decomposition analysis, see Foster et al. (1984) and Datt and Ravallion (1992).

2. A logarithmic functional form of the earnings function is standard in the human capital literature (see Mincer, 1974; Atkinson, 1983).

3. Formally, this formulation is analogous to the choice-of-employment models in van der Gaag and Vijverberg (1988), Fujii and Hawley (1991), and Rubin and Perloff (1993); to the migration models in Nakosteen and Zimmer (1980) and Robinson and Tomes (1982); and to the education model in Willis and Rosen (1979).

4. Dummy variables for regions were also included to control for other region-specific effects on household earnings. However, F test indicates that their joint coefficients are not statistically different from zero at conventional significance level.

5. These results do not discount the possibility that skill (productivity) differences rather than differences in schooling input, determine earning differentials (see Boissiere et al., 1985). Our data do not allow us to include measures of basic cognitive skills—reading, writing, and simple arithmetic—as well as school quality. The human capital theory predicts that it is these variables, rather than years of schooling per se, that will determine earning differentials.

6. There is an extensive discussion in the literature on aggregate poverty measurement. See, e.g., Foster et al. (1984) and Atkinson (1987). For an excellent synthesis of the conceptual and measurement issues, see Ravallion (1994).

7. Based on the *1991 Census of Agriculture*, farms exceeding 10 hectares comprise only 23 percent of the total (national) farm area. Thus, the simulation covers about three-fourths of all lands with sizes exceeding 10 hectares.

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Table 1
Variables, Definitions, and Means

Variable	Definition	Mean	
		Rural	Urban
SEX	1 if household head is male, 0 otherwise	0.882	0.831
AGE	age of household head	45.915	45.962
AGESQ	AGE squared	2,312.600	2,305.400
FSIZE	number of family members	5.383	5.461
TOTEMP	total employed members of the household	1.612	1.637
EDUC1	1 if completed elementary, 0 otherwise	0.263	0.197
EDUC2	1 if attended or completed high school, 0 otherwise	0.205	0.333
EDUC3	1 if attended college, 0 otherwise	0.051	0.137
EDUC4	1 if completed college, 0 otherwise	0.042	0.143
ELEC	proportion of households with electricity in region of residence	0.532	0.674
ROAD	road density in region of residence	0.257	1.641
TENANCY	tenancy incidence in region of residence	0.239	
FARMSIZE	average farm size in region of residence	2.291	
FARMDIST	farmholding distribution in region of residence	0.223	
IRRIG	proportion of irrigated to total farm area	0.213	
YEAR88	1 if year is 1988, 0 otherwise	0.334	0.292
YEAR91	1 if year is 1991, 0 otherwise	0.367	0.441
ASSETS	household assets	9.298	9.428
EARNINGS	earnings from employment	12.295	12.636
Number of Observations		7,202	7,676

Table 2
Regression Estimates of Earning Functions a/

Variable	Rural Workers		Urban Workers	
	Coefficient	t-ratio	Coefficient	t-ratio
SEX	-0.044	-0.80	-0.027	-1.41
AGE	0.001	0.25	0.013	3.63
AGESQ	-0.0001	-0.14	-0.0008	-2.15
FSIZE	0.092	24.35	0.077	19.22
TOTEMP	0.114	13.08	0.134	15.53
EDUC1	0.068	0.99	0.141	4.69
EDUC2	0.199	2.12	0.279	7.14
EDUC3	0.350	2.36	0.483	9.87
EDUC4	0.415	2.50	0.711	14.67
ELEC	0.891	3.24	1.145	16.46
ROAD	0.100	0.75	0.092	8.97
TENANCY	-0.512	-1.78		
FARMSIZE	0.067	2.87		
FARMDIST	-0.392	-2.16		
IRRIG	0.173	0.96		
YEAR88	0.256	12.23	-0.061	-2.76
YEAR91	0.329	6.02	-0.011	-0.51
SELECTIVITY	0.294	0.73	0.417	6.01
CONSTANT	11.020	97.08	10.143	69.85
R-squared	0.425		0.314	
F value	115.70		250.25	

a/ Corrected for selectivity bias.

Table 3
Structural Employment Choice Equation

Variable	Coefficient	t-ratio
SEX	-0.357	-10.34
AGE	-0.056	-10.76
FSIZE	0.051	9.55
CTOTIN-a/	4.937	5.49
ASSETS	0.560	23.28
CONSTANT	3.913	12.52

Log-likelihood	-7,505.55
Chi-Squared	5,499.09
Percent of Cases Predicted	71.06

a/ Predicted difference between earning from urban employment and earning from rural employment. Earnings are in natural logarithms.

Table 4
Simulation Results

	Base Estimate	Value for Simulation Less Base Estimate						
		Land Distribution	Farm Size	Tenancy	Road Density	Electricity	Education b/	Education c/
Poverty								
Head Count	55.66	-0.50	-0.84	-0.89	-3.32	-4.72	-0.27	-11.29
Poverty Gap	19.70	-0.29	-0.50	-0.47	-1.85	-2.86	-0.21	-5.93
Distribution-sensitive Measure	9.12	-0.18	-0.29	-0.27	-1.12	-1.72	-0.14	-3.33
Income Inequality a/								
Theil T	36.53	-0.24	-0.36	-0.37	0.48	-0.88	-0.17	0.84
Theil L	30.30	-0.26	-0.30	-0.33	0.72	-0.65	-0.16	0.66
Variance of Logarithm	51.64	-0.43	-0.49	-0.55	1.57	-1.05	-0.28	0.87

a/ Indices are multiplied by 100.
b/ Used elementary graduate as minimum educational attainment.
c/ Used high School graduate as minimum educational attainment.

Figure 1
Landholding Distribution, Poverty and Inequality