

ECONOMIC DEVELOPMENT AND INCOME INEQUALITY IN NORTHERN MINDANAO

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Much development planning seems to be premised on the assumption that efforts to increase levels of economic development will tend to reduce income inequality; field studies of individual rural villages, however, often conclude the opposite. More broadly, these two perspectives have been reflected in "modernization" and "dependency" models of social change in the developing world. Using 1980 survey data from a sample of 80 barangays in Northern Mindanao, the present study seeks to test empirically the two models. In general, greater support was found for the dependency perspective, though a multiple regression analysis showed some indicators of community economic development to be correlated negatively with income inequality levels. Continued attention must thus be accorded to the possibility that development programs will benefit middle- and upper-status households more than the very poorest rural families.

"To speak of social structure is to speak of differentiation among people, as social structure is defined by the distinctions people make, explicitly or implicitly, in their role relations. An undifferentiated social structure is a contradiction in terms.

. . . The study of the various forms of differentiation among people, their interrelations, the conditions producing them, and their implications is the distinctive task of sociology. No other discipline undertakes this important task, and sociologists have too long neglected it . . . We have been much concerned with the characteristics and behavior of persons, yet little with the forms and degrees of differentiation among them, which constitute the specific structural problems. The subjects of structural inquiry are, for instance, ethnic heterogeneity, not ethnic background; political differentiation, not political opinions; the division of labor, not occupational performance; income inequality, not poverty" (Blau 1975: 222).

The Problem

Current development strategies in the Philippines emphasize that the goal of economic equity must be pursued simultaneously with the goal of economic growth. The 1978-82 development plan of the

National Economic and Development Authority, for example, was "oriented towards the attainment and sustenance of an improved quality of life for all Filipinos, as reflected in . . . a number of *interrelated* development goals" (emphasis mine), among which were included the "promotion of social justice and social development through the . . . reduction of income disparities" and the "attainment of high and sustained economic growth" (National Economic and Development Authority 1977:v). In a similar vein, President Marcos (1977: xxvii) has stressed that "Philippine development is aimed primarily at rectifying grave social and economic inequalities that have accumulated in the course of our ascent to nationhood."

The recognition that development planning should represent more than a vehicle for accelerating the growth of gross national product per capita represents, without doubt, an advance over earlier views. To a great extent, however, this emphasis has left open the larger question of the *compatibility* between development and equity. That is, is it necessarily the case that lower levels of income inequality will be associated empirically with higher levels of wealth and income? Since previous studies conducted

within the Asian context have not always found this to be the case (e.g. Soo 1974; King and Weldon 1977; Gartrell 1981) it would appear worthwhile to investigate empirically the interrelationships between development and inequality that exist in the Philippine setting.

Two main types of data have heretofore been used in investigating this question. On the one hand, a number of studies have analyzed trend data to see if time periods marked by economic expansion have been characterized by correlated changes in the distribution of income or wealth. The results of such studies, as conducted upon national-level data from a number of South Asian countries, would appear to indicate that there has been little progress towards a more equal income pattern in these settings (e.g. King and Weldon 1977; Myrdal 1968: 569-571; Soo 1974). In line with these findings, Philippine survey data for the period 1956 to 1971 show that "the relative distribution of income has, at best, been stagnating with no indication of improvement" (Sta. Romana 1976:175), though more recent figures show an apparent decline in income inequality between 1971 and 1975 (Office of the Executive Director, National Census and Statistics Office n.d.).¹

Less information is available on income distribution trends for more disaggregated geographical units. King and Weldon's (1977) analysis of Javanese survey data for the period 1963-1970 argues that "changes toward increasing inequality are visible" in urban areas, particularly in large cities, but that "in rural areas . . . there was apparently very little change in the distribution of income." If anything, these authors argue, the relative gap between rich and poor in rural Java "may have narrowed very slightly." Benjamin White, however, has challenged this conclusion. Citing probable inaccuracies in the Javanese income data, White argues that greater reliance should be placed on the findings of village-level studies of the interconnections between

agricultural modernization and economic inequality. The findings of these studies, he points out, would seem to indicate that development is typically associated with increasing, not decreasing, inequalities:

A perusal of available case studies of agrarian and other social-economic developments in rural Java would point out the following changes in recent years: unequal distribution of the direct and indirect benefits of new biological and chemical technologies in rice production; new technologies in cultivation, weeding, harvesting and processing which cut costs for the larger farmers but reduce the employment and income opportunities of labourers; more frequent harvest failures resulting from the new varieties' vulnerability to drought, flood and particularly to pests, which have affected the income of small farmers more seriously than those of large farmers; declining real agricultural wages; unequal access to agricultural and other subsidized government credit, while informal interest rates remain high for small farmers and the landless; unequal access to other government services; differential impact of inflation on large farmers compared to small farmers/labourers; shifts in the market system with larger traders taking over the role of small traders in the bulking process of rural produce; increasing landlessness and an acceleration in the purchase of agricultural land by wealthy villagers and the urban elites; decline of many traditional labour-intensive handicrafts and home industries in competition with more capital-intensive substitute products. (White 1979: 95-96).

Although White is careful to restrict his comments to the Javanese situation, the findings of at least some observers (e.g. Ofreneo 1980; Del Rosario 1980) would indicate that parallel trends may well be underway in the rural Philippine setting.

A second empirical approach towards investigating the relationship between development and income inequality utilizes

cross-sectional, rather than trend, data. In this case ecological-type correlations between these two variables are typically examined, insofar as they exist at one point in time. Thus, a number of observers have argued that levels of income inequality are typically lower in industrialized societies such as the United States and Great Britain than they are in less developed countries (e.g. Blau 1975; Myrdal 1968: 565-567; Kuznets 1955). The implication of this finding would seem to be that development does bring with it trends toward greater economic equality, at least in the long run. Other cross-sectional comparisons, however, lead to a less optimistic conclusion. Myrdal (1968: 576), for example, concludes from his review of a number of Indian studies that income inequality is greater within the (relatively more developed) urban sector of that country than it is in the countryside. Javanese data also indicate higher income inequality in urban than in rural areas, with the greatest disparities being found in the largest and most modern cities (King and Weldon 1977: Table 1).

Some cross-sectional data on inter-regional differences in income dispersion are available from the 1975 Income and Expenditure Survey of the Philippines (Office of the Executive Director, National Census and Statistics Office n.d.: Table C). Unfortunately, no firm conclusions may be made on the basis of these data. The published figures show Metro Manila to rank highest in terms of both median income and income inequality, as measured by the Gini concentration ratio. For this reason, the overall correlation between these two variables ($r = .29$) is positive when all thirteen regions of the country are included in the analysis. However, when the figures for Metro Manila are excluded from the computations, a distinct negative correlation ($r = -.40$) between median income and the Gini ratio is found. This finding would seem to indicate that development trends could well serve to reduce levels of economic inequality within the primarily rural and agricultural sectors of the country.²

A recent study by Gartrell (1981) illustrates a number of ways in which cross-sectional data may be used to investigate more fully the linkages between development and income inequality. Using survey estimates of household and farm-related income from 84 agrarian villages in India, Gartrell employed multiple regression analysis to assess the relationships between various indicators of (1) economic development and (2) socio-political integration into the wider national society (including government sponsored rural development programs) with community-level indicators of economic inequality.

Besides shedding light on the policy-related question of the egalitarian implications of development efforts, Gartrell argues that his findings also have important implications for sociological theory. More specifically, he contrasts a number of hypotheses on the topic which may be derived from mainstream "modernization" theory with those which are implied by a conflict (or "dependency") model of society:

To summarize, . . . two . . . general perspectives (have been discussed) and their differences have been maximized in order to facilitate exploratory analysis. The dependency model . . . sees government inputs as directed towards increasing the development of capitalist agriculture. Higher levels of development (surplus) and higher penetration (inputs) by the wider society are positively related to inequality. Also, precapitalist elements of local economic and social systems may act to limit the penetration of the wider society that decreases the autonomy of the local community. Stronger traditional jajmani (i.e. labor exchange) relationships would therefore be associated with lower inequality. Against this, the modernization model . . . predicts opposite effects for the same antecedents. Development and modernization result in lower inequality. Higher government inputs and increasing integration of the village into the wider society are necessary for higher levels of development. By increasing production,

breaking down traditional social structures (seen as ascriptive), and replacing them with new achievement-oriented opportunities, modernization lowers inequality within these agrarian communities. (Gartrell 1981: 771).

The empirical results of Gartrell's study do not allow for facile generalizations. While the main drift of his findings support the dependency model outlined above, community modernization indicators were by no means all related positively to economic inequality. The methods of data analyses utilized also leave open a number of questions, such as the presumed causal direction between development patterns and inequality and the possibility that the long-term impact of community development upon income equality may differ considerably from its short-term effects. Nevertheless, the study represents a major contribution to the literature, both by virtue of its comparative study design and its explicit concern for larger theoretical questions. Further replications of this approach appear called for, a task towards which the present analysis will be directed.

Data and Methods of Analysis

Data to be analyzed in this study are taken from the 1980 round of the Area Fertility Surveys (AFS) of the Philippines, as carried out in the Northern Mindanao region. The unit of analysis for the study is the barangay, eighty of which were sampled within this region. Thus, within-barangay income inequality will be measured and the findings of the study should not be taken to apply to questions of income inequality within larger territorial groupings such as provinces or regions. This is in some way unfortunate but within-community data such as those utilized in this paper are clearly of particular relevance for the sociological study of income inequalities. After all, it is at the community level (in this case, the barangay level) that interaction and exchanges between the social strata typically take place. If social

inequalities can be posted to be psychologically "painful" this must certainly be more true when they involve neighbors than when the comparison is with someone from another municipality or province. Similarly, the whole question of competing interest groups may well have its greatest relevance at the community level, as indicated by White's summary comments on the differential impact of agrarian development programs in Java upon large farmers, small holders and landless laborers.

A two-stage design was used in drawing the sample of respondents interviewed during the 1980 AFS round. In the first stage, eighty barangays were chosen from the region, using probabilities proportionate to size and sampling with replacement. Barangay sizes from the 1975 Census of the Philippines served as the weights in the sampling frame, with approximately equal numbers of barangays being chosen from three strata: urban, semi-urban and rural. That is, proportionate probabilities were used within but not across strata, so that urban and semi-urban barangays were deliberately oversampled.³ Twenty-seven barangays were selected for the first stage from both the urban and the rural strata, while twenty-six semi-urban barangays were chosen. Selection into the second stage of the sample was then carried out according to established procedures of the probability proportionate to size technique (cf. Palma, Tabor and Madigan 1981). Sample sizes within each barangay varied from 32 to 110 cases. The average number of respondents per barangay was 56.5.

Since the main purpose of the AFS study was to investigate trends and correlates of fertility behavior in the region, great detail was not used by the survey instrument in measuring income. A single item, which was directed towards the head of the family and which read as follows, was used to accomplish this:

Approximately what is your total monthly family income (excluding

boarders, servants, household helpers) in cash? (Including contributions and payments from members of the family and income from other sources like investments on land.)

The quality of the data produced by this item is of course open to question. No doubt, most family heads could give only approximate answers while some may have responded in deliberately misleading terms. Unfortunately, a detailed analysis of this issue has yet to be made. Results from the present study indicate, however, that reasonably high positive correlations do exist at the barangay level between this variable and some other level-of-living indicators available from the survey. For this reason, it seems fair to conclude that income data from the survey is about as valid as could be reasonably expected from a survey study of this type.⁴

Returning to Gartrell's Indian study, it may be recalled that this author made a distinction between a community's level of economic *development* and its level of *integration* into the larger society. Various indicators of each concept were used by Gartrell and, while "they are obviously closely related" (Gartrell 1981: 772) the distinction seems worth preserving as an exploratory analytical device. Five indicators of barangay development levels have thus been used in the present study along with three indicators of community integration and the 1980 population size of the barangay (which may be taken as a crude reflection of either development or integration levels).⁵

The five development indicators utilized by the study included, first, the average level of income in the barangay (AVEINC); second, the percentage of household heads employed in nonfarm occupations (NONFARM); third, the average level of educational attainment found among household heads in the barangay (AVEED); fourth, the percentage of homes in the barangay with electric lights (ELEC); and fifth, the average number of consumer

appliances owned per household in the barangay (APLNCE). Data for all of these measures were obtained by aggregating responses for each barangay from the AFS data. The variable referring to possession of consumer items (APLNCE) was based on questions appearing in the survey which pertained to seven basic household appliances, namely, radio, electric iron, electric fan, stereo/tape recorder/cassette, refrigerator, television and air conditioner.

Three "integration" indicators were used. In this case, data were obtained from government offices in Region 10 and refer to the municipality or city in which the barangay is located (data were not available at the barangay level). The first indicator used was the official classification (CLASS) of the city or municipality as determined by the Ministry of Finance. City/municipality classifications were measured on a five point ordinal scale, as based on the amount of taxes collected within the community.

Secondly, figures on the number of agricultural extension workers assigned to each city/municipality (AGEXT) were obtained from the Bureau of Soils, Region 10. These figures refer to the year 1982 and should serve to represent a rough indicator of government development inputs.

Third, highway distance, in kilometers, between each city or municipality and the nearest first class chartered city (whether within or outside of the region) was obtained under the assumption, common to both human ecological and center-periphery theories, that economic and political integration should be highest among communities located near to a major urban center. Figures for this variable (DISTANCE) were obtained from the Ministry of Public Highways, Region 10.

Because the chief interest of this paper lies in the relationship between rural economic development and income inequality, data on

the indicators discussed above were collected only for the 27 rural barangays included in the AFS sample for Northern Mindanao. Zero-order correlations among these variables, along with their means and standard deviations are presented in Table 1. For the most part, these data show rural barangays within the region to be relatively small, undeveloped and poorly integrated with the larger society.

Average monthly income among the 27 barangays stood at about P330 in 1980, a figure which finds itself reflected in low levels of electricity use (only 10.2 percent electrified) and of appliance ownership (less than one appliance owned per house).⁶ Most (about three quarters) household heads were farmers and most have not progressed beyond the elementary grades of education. Barangays sampled were typically located within fourth or fifth-class municipalities, which in turn had relatively few extension agents ($\bar{X} = 17.6$) and which were located eighty or more kilometers from a major city. Finally, population sizes of the barangays averaged less than 2,000 persons each.

With the exception of AGEXT, correlations between all indicators are consistently in the expected direction. For example, barangays with higher mean incomes also scored high in terms of the percentage of household heads employed in non-agricultural occupations, average educational levels, electricity use, appliance ownership and population size, while they scored somewhat lower than average on CLASS and DISTANCE (since less integrated barangays received *higher* raw scores on these variables, these negative correlations are to be expected). Intercorrelations between AGEXT and the other variables are inconsistent and generally low, though a fairly strong tendency for extension agents to be assigned to higher ranking (i.e. first, second or third class) cities is noticeable in the data ($r = .48, p < .001$).

For purposes of the present study, community-level income inequality has been

measured in terms of the Gini concentration ratio. Readers interested in the strengths and weaknesses of this measure, as well as the means by which it is computed are referred to discussions on these topics by Shyrock and Siegel (1976: 97-99), Myrdal (1968 Appendix 14) and Gartrell (1981). Thirteen monthly income categories were used in computing the concentration ratio for each barangay.⁷ The mean concentration ratio of family incomes for the 27 rural barangays was 32.4, with a standard deviation of 10.1.⁸

Two approaches to the analysis of the relationship between community-level development and economic inequality will be utilized in this paper. First, a simple comparison will be made of the mean levels of income concentration found to exist in urban, semi-urban and rural communities of the region. This analysis is based on the assumption that more urbanized barangays will also be more economically developed, an assumption which receives some support from the fact that monthly income levels were clearly highest in the urban setting ($\bar{X}_U = P1,054.44$) followed in order by semi-urban ($\bar{X}_S = P586.40$) and rural ($\bar{X}_R = P329.37$) barangays.

Secondly, further insight into the links between rural economic development and income inequality will be achieved by examining zero-order correlation coefficients and partial regression coefficients between the income concentration ratio and the nine indicators of development and integration discussed above.

As a final comment on the data to be analyzed in this study, it is perhaps appropriate to point out that the study of income inequalities within Mindanao is of particular theoretical and practical interest. Given this region's status as a "frontier" setting, some observers have been led to conclude that trends toward economic development in rural areas of the island may be accompanied by rather low levels of economic inequality. An early paper by

Table 1. *Zero-order Correlations, Means and Standard Deviations for Nine Indicators of Community Economic Development and Integration: Twenty-Seven Rural Barangays in Region X, 1980*

	<i>I n d i c a t o r</i>								
	1	2	3	4	5	6	7	8	9
1. AVEINC		.66***	.57**	.38*	.59***	-.51**	.21	-.30	.46*
2. NONFARM		--	.74***	.65***	.78***	-.30	.07	-.34	.60***
3. AVEED			--	.41*	.81***	-.41*	-.02	-.38*	.53**
4. ELEC				--	.43*	-.15	.20	-.28	.18
5. APLNCES					--	-.39*	-.11	-.50**	.79***
6. CLASS						--	-.48*	.29	-.35
7. AGEXT							--	.04	-.03
8. DISTANCE								--	-.47*
9. POPSIZE									--
Mean	329.4	26.5	5.10	10.2	0.77	3.74	17.6	79.6	1820.4
Standard Deviation	177.9	23.5	1.71	17.3	0.37	1.29	20.4	57.1	1444.1

*p < .05

**p < .01

***p < .001

Hackenberg and Hackenberg (1970: 15, 21), for example, speaks of "an emerging middle class . . . of small cultivators" in rural Davao and concludes that "there appears to be development without wealth, in the sense that standards of living are being substantially improved, yet no one is acquiring a fortune at the expense of his neighbors." In contrast, however, some recent commentators have been less sanguine about the impact of development trends in Mindanao, concluding in at least one case that

. . . the present economic structures in Mindanao reveal elements that have frequently been identified as major sources of social unrest and mass movements. . . . The root of the problem is the monopoly control over human and natural resources by a few individuals and corporations. . . . Unequal distribution of wealth and income affects the entire working population. . . . (Tadem 1980: 86).

Again, the lines appear drawn between observers who would apply some variation of modernization theory to the Mindanao setting and those who would opt for a neo-Marxist or dependency approach. The present study is intended to provide some data on this question, so that the two contrasting perspectives can be empirically evaluated.

Findings

Comparative data on family income inequality levels in urban, semiurban and rural barangays of Northern Mindanao will first be examined. In interpreting these data it is of use to point out an important distinction between "urban" and "semiurban" barangays. For the purposes of the AFS study, barangays lying within the poblacion district of a chartered city were defined as "urban" while those located within a poblacion of a municipality were considered as "semiurban" in character.

Perhaps because they are geographically larger and more densely inhabited, poblacion districts in chartered cities of Northern

Mindanao have often been subdivided into a number of separate barangays (e.g. 40 in Cagayan de Oro, 27 in Butuan City). For this reason, the typical urban barangay chosen into the sample represents only a *part* — in some cases a rather small part — of the poblacion district. In contrast, the poblacion areas of most municipalities in the region consist of a *single* barangay.⁹

These distinctions are worth noting insofar as previous research has shown that a moderately high level of residential segregation occurs between social classes in the Philippine urban setting (cf. Costello and Palabrica-Costello 1981). Given that this is the case, a certain amount of clustering by income class is to be expected within smaller subdivisions of a city's poblacion. That is, there are "upper class districts," "slum areas" and the like. As a result, income disparities within smaller subdivisions of the poblacion may be expected to be *lower* than they are for the poblacion as a whole. It thus follows that the semiurban barangays may well exhibit higher levels of income inequality than the urban barangays, solely by virtue of their greater tendency to comprise the entire poblacion district. For this reason, caution will have to be used in interpreting the results of this comparison.

Attention may now be directed towards Table 2, which presents the mean levels of income inequality found in urban, semiurban and rural barangays of Northern Mindanao. As these figures show, a moderately large, and statistically significant, difference exists on this variable between rural barangays and both urban and semiurban barangays. Income inequality is lowest in the rural setting, a finding which supports both Myrdal's conclusions in this matter and the thesis that higher development levels will tend to be associated with increased levels of income inequality.

No significant difference could be found in the data between levels of income inequality in semiurban and urban barangays. As

Table 2. Means and Standard Deviations for Gini Coefficients of Family Income Inequality Among 80 Barangays in Northern Mindanao, by Community Type

Community Type	Mean ^a	Standard Deviation ^a	N
Urban	41.7	6.6	27
Semiurban	42.0	8.2	26
Rural	32.4	10.1	27

$t(\text{urban vs. semiurban, d.f.} = 50) = -0.14, p = \text{n.s.}$
 $t(\text{urban vs. rural, d.f.} = 51) = 3.97, p < .001$
 $t(\text{semiurban vs. rural, d.f.} = 50) = 3.76, p < .001$

^aGini coefficients were multiplied by 100 to represent the percentage of the area lying between the Lorenz curve and the line of perfect equality.

discussed above, the interpretation of this finding is problematic since it cannot be determined on *a priori* grounds whether it reflects an underlying similarity among barangays found in these two settings or merely definitional differences between the urban and semiurban sampling units. Urban inequality levels are almost certainly not any lower than those for semiurban barangays, but it remains open to speculation whether they are higher.

If rural barangays are actually less inegalitarian than those found in more urbanized settings, a second question immediately arises. Does a parallel association exist between development patterns and inequality levels as they exist within the rural stratum itself? This question may be studied by means of a regression analysis of the impact of various community-level development/integration variables upon family income inequality within the 27 rural barangays found in the AFS sample. The results of this analysis are presented in Table 3.

The first column in Table 3 shows the zero-order correlation coefficients between the

indicators of community development and integration and the income inequality measure. Based on the "modernization" model of development trends, all coefficients should be negative, except for those involving CLASS and DISTANCE, which should be positive. This is clearly not the case as far as the bivariate correlations are concerned. Indeed, the signs of all coefficients are in the direction opposite to that posited by modernization theory, save for CLASS, which is, in any case, negligible ($r = .06$). None of the zero-order coefficients are statistically significant,¹⁰ but this may be attributed largely to the very small sample size. Clearly, it seems fair to conclude from these data that higher levels of community-level development and integration are associated in a general way with greater levels of income inequality.

The fact that the development and integration indicators are themselves positively intercorrelated, however, indicates the need for a multivariate analysis of the data in order to separate out the unique effect of each independent variable. The low positive correlation between AVEINC and GINI, for example, may well be spurious artifact of the common association of these two factors with

Table 3. *Inequality in the Distribution of Family Income Among 27 Rural Barangays in Northern Mindanao, 1980: Multiple Regression Results*

<i>Variables</i>	<i>r</i>	<i>b</i>	<i>Beta^a</i>	<i>Standard Error of b</i>	<i>F</i>
AVEINC	.02	-.013	-.229	.017	0.61
NONFARM	.24	.021	.047	.195	0.01
AVEED	.34	3.087	.520	1.930	2.56
ELEC	.27	.029	.049	.174	0.03
APLNCS ^b	.24	—	—	—	—
CLASS	.06	2.592	.328	2.260	1.32
AGEXT	.02	.115	.231	.112	0.86
DISTANCE	-.30	-.056	-.317	.043	1.73
POPSIZE	.08	-.001	-.156	.021	0.29

$R^2 = .306$, $F = 0.99$ Intercept = 14.891

^aStandardized partial regression coefficients.

^bEliminated from the multiple regression equation due to multicollinearity between this variable and three other predictors.

such associated variables as AVEED and NONFARM.

Because the indicator of consumer goods ownership (APLNCS) is very highly correlated with three other predictors (.81 with AVEED, .79 with POPSIZE and .78 with NONFARM) this variable has been deleted from the multiple regression equation in order to circumvent the problem of multicollinearity.¹¹ When all other variables were included in the equation, however, some interesting contrasts with the bivariate findings become apparent. As suspected, the relationship between AVEINC and our income inequality measure now becomes inverse in nature. The coefficient between POPSIZE and GINI is also negative, while the positive correlation between CLASS and inequality levels is strengthened considerably. All three of these findings support modernization theory insofar as they indicate that barangays which have higher average incomes, which are large in size, and which are located in a higher ranking class of city tend to have lower levels

of income inequality, once all other factors have been controlled.

The remaining coefficients have signs which continue to fit the dependency model of community development. Three of these (AGEXT, ELEC, NONFARM) have standardized partial regression coefficients that are small or negligible but the comparative statistics for AVEED and DISTANCE (Beta = .52 and -.32, respectively) are certainly worthy of note. These statistics may be interpreted as indicating that barangays which have either higher average levels of educational attainment or which are located near to one of the region's major urban centers have higher levels of family income inequality.

Because none of the coefficients shown in Table 3 achieves statistical significance, it will not be possible to provide a definitive summarization of these results. Based on the comparative sizes of the beta weights and taking into account the difficulty of achieving statistical significance with a sample size of

only 27 cases, a tentative interpretation of the findings may be put forth, however. According to this view, a distinction must first be made between indicators of what might be termed the "preconditions" and the "manifestations" of community development. The first of these two categories might include such variables as AVEED, DISTANCE, NONFARM, ELEC, and AGEXT, all of which can be viewed as underlying structural factors which tend to bring about higher levels of community development.¹² In and of themselves these structural variables tend to generate both higher levels of economic surplus (the "manifestations" of development) and greater local-level income inequality.

A second group of predictor variables consists of indicators which seem to measure the extent to which new (surplus) wealth has been generated by development trends within the barangay. Such "manifestation" variables would include both AVEINC and CLASS, with the latter of these two variables serving as an indicator of a community's ability to generate tax revenue. These variables do not appear to be positively associated with income inequality levels once controls have been instituted for such underlying structural conditions as educational levels, distance to a major urban center, and the like. Thus, development *inputs* (or "preconditions") may well be expected to increase community-level income inequality but development *outputs* ("manifestations") appear, if anything, to have an opposite effect.

Summary and Conclusions

The purpose of this paper has been to assess the extent to which income inequality, as measured at the barangay level, is correlated with certain measures of social and economic development. Much development planning seems to be premised on the assumption that efforts to increase levels of economic development will tend to bring about a decline in income inequality, an assumption which finds theoretical support

from the so-called "modernization" model.

As the paper's literature review has demonstrated, however, not all previous studies have found development measures to be correlated positively with an area's level of income equality. In at least some cases, the higher income levels generated by development trends have accrued largely to families in the middle and upper classes, thus bringing about an even more inegalitarian income distribution. These findings have given rise to an alternative theoretical perspective to that offered by modernization theorists, i.e. the "dependency" model of development trends.

Using 1980 survey data from a sample of barangays in Northern Mindanao, the present study failed to obtain unequivocal support for either of the two competing models. In a general sense, more developed barangays were found to have higher levels of income inequality, as shown by a series of bivariate comparisons. Mean income inequality levels were significantly lower in rural barangays than they were in either the urban or semiurban setting. Similarly, when the analysis was confined exclusively to rural barangays, zero-order correlations showed income inequality to be linked positively to eight out of nine indicators of community-level economic development and/or integration.

A multivariate analysis of the rural data, however, showed at least partial support for modernization theory. Net of other factors, barangays located in higher ranked municipalities and those which possessed higher average income levels were found to have somewhat *lower* levels of income inequality. These findings were tentatively interpreted as showing that the generation of higher levels of economic surplus (higher incomes, greater tax funds) *per se* need not be associated with increased levels of economic inequality. In contrast to these variables, however, stand a number of structural and ecological factors (educational attainment levels, distance to a major city, and, to a

smaller extent, employment in nonfarm activities, the presence of agricultural extension agents and rural electrification) which seem to serve as preconditions for economic growth. As predicted by the dependency model, these variables continued to be positively associated with income inequality, even when all other factors had been held constant.

Despite these somewhat conflicting results, the overall implication of this study is clearly to the effect that development efforts should not be expected, on a purely *a priori* basis, to be able to solve the income inequality problems now confronting the nation. Indeed, many of the structural changes brought about

by such efforts may serve only to increase income disparities, at least as they refer to the community or barangay level.

This, of course, is not to say that development programs should be done away with. Such efforts have other beneficial effects and, in any event, may work to reduce income inequalities *between* communities if not necessarily *within* them. What is needed, though, is continued attention to possibly regressive impacts of such programs upon income distribution patterns and continued efforts to develop programs that are at once both "socially sound" (cf. Illo 1978) and economically generative.

Notes

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¹A number of economists have voiced doubts about the quality of the income data used in documenting this decline, however. See Tan and Holazo 1979, footnote 1.

²The above correlation coefficients have been computed by the author, as based on the NCSO tabulation.

³"Urban" barangays consisted of all barangays lying within the poblacion of a chartered city, while semiurban barangays lay within the poblacions of municipalities. Remaining (i.e., non-poblacion) barangays made up the rural stratum.

⁴Correlations between the average level of income found within the twenty-seven rural barangays and four other level-of-living indicators were as follows: .59 ($p < .001$) with the average number of consumer appliances owned per household in the barangay; .38 ($p < .05$) with the percentage of electrified households; .57 ($p < .002$) with the average level of educational attainment and .66 ($p < .001$) with the percentage of household heads employed in nonfarm occupations.

⁵Barangay population sizes were obtained from a special tabulation of the 1980 Census figures (National Economic and Development Authority, National Census and Statistics Office n.d.).

⁶Note that these figures are averages of (barangay-level) averages or proportions and do not actually represent the mean scores for the 1,520 rural *households* interviewed during the course of the survey.

⁷The following categories were used: P0-99 per month, P100-199, P200-299, P300-399, P400-499, P500-599, P600-799, P800-999, P1000-1499, P1500-1999, P2000-2999, P3000-4999, and P5000 and over.

⁸Gini coefficients were multiplied by 100 to represent the percentage of the area lying between the Lorenz curve and the line of perfect equality.

Of some interest is the fact that comparative figures for household incomes in Gartrell's Indian

study are higher than these: 46.2 for the mean Gini ratio, with a standard deviation of 11.4. Apparently income inequalities are greater in the rural Indian setting than they are in the Philippines.

⁹Only 9 of the 27 urban barangays chosen covered the entire poblacion area, as compared to 17 of the 26 semiurban barangays.

¹⁰That for AVEED comes close ($p < .078$).

¹¹When the multiple regression program was run with APLNCES included, results differed little from those shown in Table 3 (e.g. the signs for all variables remained the same). These results, as well as the results of regression runs where AVEED and NONFARM were individually deleted (the intercorrelation between these two variables was .74 indicating a mild problem of multicollinearity) are available from the author.

¹²As the findings from Table 2 have indicated, urbanization appears to be yet another structural factor associated with higher levels of income inequality.

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