

AN EMPIRICAL ANALYSIS OF SELECTED ACCESS INDICATORS

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The significance of the "access" dimension in development strategy is examined using a three-phased analytical framework that is limited to six sectors. The factor analysis reveals that access is a multi-dimensional concept, with the five dimensions identified accounting for 69 percent of the variance in access. Ranking of the 66 provinces in terms of their access levels shows Rizal obtaining the highest, and Mountain Province, the lowest index score. The regression analysis confirms the inverse relationship of poverty to access and the direct correlation between income and access.

Almost two decades of research reveal that social indicators are: (1) a kind of social statistics, (2) instruments for detecting changes in the quality of life of individuals, groups and societies, (3) instruments to monitor progress toward societal goals and (4) social statistics that measure changes that are components in a social system model (Brooks, 1971). Alternatively, studies of social indicators have been classified by Land (1975) as having one or a combination of the following rationale: (1) social policy, (2) social change, and (3) social reporting.

The evaluation of the use of social indicators from the descriptive and the monitoring to the explanatory functions reflects the complexity of social phenomena, the increasing sophistication of social scientists in viewing their objects of

study and the growing demand from policy-makers for a more comprehensive picture of the relationships between policy instruments and goal states.

Addressing the issue of what are the dimensions of welfare or quality of life and what are the indicators to measure these dimensions, Mangahas and his associates (1977) identified nine dimensions and suggested 30 indicators which are output or impact variables. The social indicators work of the Social Research Associates (1976) chose eight domains of social concern and came up with a list of 75 indicators per domain. In addition to providing measures of the relevant components of national welfare, these social indicators are variables of a social accounting framework that specifies interrelationships at the macro and micro levels. Given a set of sectoral projects and programs: what are the impacts of these on national and on individual well-being; and what are the mechanisms or processes involved. Hence, we find in this list a compendia of input, access and impact indicators.

Efforts have been made to provide pertinent statistics for selected social indicators. The

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National Census and Statistics Office (NCSO) published two volumes containing statistical data for provinces and regions reflecting eight dimensions of social indicators (NCSO, 1976). An evaluation of territorial indicators of social well-being has been done on the national and regional levels, the results of which are useful for development planning (Cant, 1975).

Merriam (1968) argues that the measurement of welfare rests on two basic axes: (1) quantity and quality of all the elements that compose the level of living, and (2) distribution of welfare among the population. Earlier, Sheldon and Moore (1965) suggested that one of the five major areas for monitoring social change be the distributive feature, which is operationalized in the U.S. Department of Health, Education and Welfare (Cowhig and Beale, 1965) as availability of facilities such as dwelling units, water, telephone and automobile. AID similarly suggested that a major consideration in the preparation and assessment of sector loans be their implications for the distribution or redistribution of wealth, power and status; and that a criterion for assessing social costs and benefits is access to resources and opportunities and the ways and extent by which such access is broadened or narrowed (Cohn, 1971).

Access refers to the relationship between the administrative allocation of resources and the people who need them and for whom they are intended (Schaffer and Wen-hsien). We conceive of access as an intervening variable interposed between input and impact indicators. If so, the phenomenon of access needs closer analyses than has been done to date.

The stress given on "balanced growth and development" in the recently formulated five-year development plan connotes drawbacks encountered by completed and on-going development projects (NEDA, 1977). The term "access" acquires particular significance in providing a criterion for successful programmatic impact. The concern has been to set up a distribution network or a rationale for the distribution of goods and services to the affected sectors of the population. In short, the answer to development needs has been the pro-

liferation of assistance programs, financial, technological, institutional, or a combination of these. Minimal concern has been given to setting up appropriate channels whereby the target sectors can benefit most from these programs. The ability to provide these is met by shortcomings posed by the absence of venues facilitating and guaranteeing access to assistance either in the form of benefits or improvements. Our proposed analytical framework endorses the significance of the "access" dimension in development strategy.

This dimension poses problems of assessment and quantification. The complications involved in evaluating access are somehow circumvented by confining our analyses to selected number of sectors and their corresponding target beneficiaries. Selection is based on the sectoral priority listing of the 1978-82 NEDA Development Plan. Among the selected sectors are: education, housing, agriculture, infrastructure, women in development, and health and welfare. A number of indicators were constructed for each sector and these are presented in Table 1.

A total of 21 access indicators are evaluated. To be characterized as access indicators in our analysis, certain criteria have to be met. As a measure of access, it should show a quantified allocation of resources to a specified number from the target group. An acceptable measure used is the proportion of the target group that is directly benefitted by the resources or source of assistance. A limiting factor in selecting and constructing access indicators is the availability of secondary data. A minimum of three indicators were selected for each, with the exception of the agricultural sector. Among the secondary data sources consulted were:

NCSO. *1970 Census of Population and Housing*, National Summary, Vol. II, Manila.

NCSO. *Social Indicators*, Vol. II, Manila. Efren Yambot (editor-in-chief). *Philippine Almanac and Handbook of Facts*, Quezon City, Philippine Almanac Printers, Inc., 1975.

Table 1
SELECTED ACCESS INDICATORS FOR THE SIX SECTORS

Variable No.	Access Indicator
	I. Education
1	No. of primary schools per 10,000 aged 5-9 (1971)
2	No. of secondary schools per 10,000 aged 10-14 (1971)
3	No. of colleges and universities per 10,000 aged 15-24 (1971)
4	Percent of persons aged 6-14 attending school (1970)
5	Percent of persons aged 15-24 attending school (1970)
	II. Housing
6	Percent of households in dwelling units with radios
7	Ratio of households to occupied dwellings
8	Percent of households in occupied dwelling units with piped water
9	Percent of households with electricity
10	Percent of households with flush toilets
	III. Agriculture
11	Farms (in hectares) per person in the agricultural work force
12	No. of rural banks per 10,000 farm operators
	IV. Infrastructure
13	Per capita consumption of electricity
14	Kilometer of road per 1,000 persons
	V. Women in Development
15	Percent of female high school students to total number of high school students
16	Percent of female college students to total number of college students
17	Percent of females enrolled at 2 ^o level
	VI. Health and Welfare
18	Bed capacity per 1,000 persons
19	Percent births attended by MD, RN, Midw. (1974)
20	Cases served per 1,000 persons
21	Cost of project/1,000 persons

NCSO. *1970 Census of Agriculture*, Manila. Department of Health. *Annual Report*, 1974.

NCSO and NEDA, *Philippine Yearbook*, 1977.

Provincial data utilized in the study are set in the common time frame.

Two additional measures are included in our analysis: income per capita and the proportion of families earning an annual income of ₱3,000 or below. The latter is regarded as a poverty measure.¹ A second major concern of the study is to see how these two measures relate to a composite access measure which will be constructed from these indicators. These interrelationships can be depicted by the following diagram:

tested in relation to our model. These are:

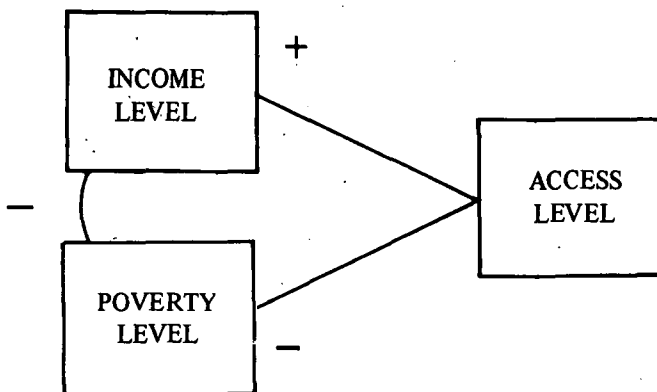
- (1) Income is directly (+) correlated while Poverty is inversely (-) correlated with Access;
- (2) Poverty has a greater explanatory capacity than Income when explaining Access.

The two independent variables, namely Income and Poverty can likewise be expected to be inversely related. The curved line in our diagram (see Figure 1) linking the two variables indicates a hypothetical relationship which is in certain respects controversial.

Methodology

The analysis consists of three parts or phases

FIGURE 1
A PROPOSED ACCESS
MODEL



Our task will be to evaluate the proposed model on the following counts: (a) the degree and direction of relationship of the three variables, more specifically the kind of relationship income level (I) and poverty level (P) has with access level (A), our dependent variables; and (b) the adequacy of P and I in explaining variability on A. A number of hypotheses can be

namely: (1) the inter-correlation of access indicators and identification of indicator clusters subsumed under extracted factors; (2) the construction of a composite access index based on the factors and the ranking of provinces in terms of the derived access index; and (3) the assessment of the impact of provincial income per capita and poverty level on access.

The first phase of our analysis consists of the identification of access indicators. Data for the 21 indicators from published statistical and census reports were collected for 66

provinces.² The means and standard deviations estimated from our data are shown in Table 2. The last two measures are used in the third phase of our analysis.

Table 2
ESTIMATED MEANS AND STANDARD
(Deviation of the Twenty-three Variables)

Variable*	Mean	Standard Deviation
1	81.64	81.64
2	9.89	2.91
3	0.92	0.38
4	63.47	5.85
5	27.05	5.13
6	46.68	13.90
7	101.82	1.10
8	16.85	13.95
9	15.79	18.42
10	18.64	14.04
11	0.81	0.41
12	4.93	6.39
13	30.79	40.33
14	2.54	2.12
15	4.68	6.84
16	5.70	0.61
17	5.08	0.28
18	1.00	0.86
19	3.54	1.76
20	5.43	3.26
21	0.51	0.63
22	64.16	18.24
23	9.10	4.45

*Variables 1 to 21 are the selected access indicators of the study while variables 22 and 23 are to be used as independent variables in the multiple regression analysis.

Intercorrelation of access indicators are evaluated in terms of estimated simple correlations (Pearson correlation coefficients). Factor analysis is applied to discern patterns of interrelationships. The specific techniques of factoring and rotation used are the principal components' method and orthogonal rotation. These are commonly applied techniques in factor analysis (Harman, 1966).

In determining the level of access of provinces, a composite index was constructed based on the five extracted factors and their corresponding indicators. Only those indicators with high loadings ($r_1 > \pm .6$) were considered. These rotated loadings were adjusted in accordance with the percent of common variance (or re-adjusted percent of total variance) for each of the five factors. These were consequently used as weights and applied to their corresponding indicators. The composite access index for each province is derived by the following formula:

$$AI = \sum w_i C_i$$

where, C_i would be the particular access indica-

tor and w_i its weight (or adjusted loading).

Phase three of our analysis is devoted to evaluating the simple access model depicted earlier (Figure 1). Multiple regression analysis is used to assess the capacity of poverty level and income level to explain the level of access and to test the goodness of fit of the proposed linear additive model as expressed in the following equation:

$$Y = a + b_1X_1 + b_2X_2 + c$$

where, Y is the level of access and our independent variables are poverty level (X_1) and income level (X_2).

The Findings

Preliminary to the factor analysis was an assessment of the bivariate correlation of the access indicators included in the study. This correlation matrix is found in Table 3. From this matrix we saw that there was considerable within- and between-dimension independence among the indicators included in the study. With this knowledge we proceeded to factor analyze the data.

Table 3
CORRELATION MATRIX OF THE
TWENTY-ONE ACCESS INDICATORS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1	1.00																					
2	.32	1.00																				
3	-.24	.37	1.00																			
4	-.00	.33	.18	1.00																		
5	-.08	.41	.34	.69	1.00																	
6	-.44	.05	.26	.71	.48	1.00																
7	-.19	.34	.25	.35	.56	.34	1.00															
8	-.18	-.18	-.13	.37	.19	.32	.14	1.00														
9	-.28	-.14	-.06	.60	.42	.74	.36	.57	1.00													
10	-.09	.06	-.01	.52	.46	.48	.42	.47	.53	1.00												
11	.03	-.07	-.09	-.41	-.40	-.29	-.15	-.08	-.13	-.42	1.00											
12	-.24	-.09	-.06	.54	.45	.57	.49	.60	.85	.57	-.14	1.00										
13	-.26	.007	.03	.04	.27	.53	.28	.17	.52	.22	-.15	.33	1.00									
14	-.03	.06	.08	-.28	-.05	-.16	.18	-.14	-.25	-.24	.28	-.17	.02	1.00								
15	-.08	-.16	-.04	-.08	.02	.004	.16	.08	.001	-.09	.13	.05	.05	.84	1.00							
16	.25	-.07	-.11	.08	.04	-.30	-.19	.02	-.29	-.01	-.26	-.22	-.33	-.16	.07	1.00						
17	.47	-.05	-.15	-.65	-.36	-.55	-.25	-.25	-.49	-.24	.15	-.34	-.46	.28	.19	.14	1.00					
18	-.14	-.06	.10	.36	.42	.34	.52	.59	.64	.53	-.14	.87	.14	-.13	.03	-.14	-.11	1.00				
19	.003	.03	-.12	.63	.53	.63	.33	.36	.80	.48	-.22	.71	.51	-.10	.08	-.10	-.36	.54	1.00			
20	-.04	.04	-.04	.09	.17	.002	.10	.16	.27	.15	.12	.39	-.09	-.14	-.24	-.06	-.21	.31	.22	1.00		
21	.04	.22	.06	.09	.13	-.04	-.05	-.10	-.10	-.12	.35	.08	-.10	.07	-.11	-.09	.06	.11	-.01	.16	1.00	

The factor analysis produced seven factors from the 21 access indicators. The rotated factor matrix is presented in Table 4.

The following observations are seen from

the factor matrix:

- a. The magnitude of the factor loadings of some variables on a factor is considerably large and there is a high degree of

Table 4
FACTOR ANALYSIS RESULTS OF THE SELECTED ACCESS INDICATORS

Access Indicators	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	h^2
1. No. of primary schools per 10,000 aged 5-9 (1971)	-.12	.04	-.07	.18	.03	.89	.15	.88
2. No. of secondary schools per 10,000 aged 10-14 (1971)	-.16	.78	-.08	-.10	.17	.35	-.04	.80
3. No. of colleges and universities per 10,000 aged 15-24 (1971)	-.10	.72	-.001	.04	-.01	-.44	-.04	.73
4. Percent of persons aged 6-14 attending school (1970)	.32	.35	-.14	-.76	.02	.02	.32	.92
5. Percent of persons aged 15-24 attending school (1970)	.37	.63	.03	-.45	.03	.06	.23	.80
6. Percent of households in dwelling units with radios	.31	.19	-.03	-.74	-.13	-.29	-.13	.80
7. Ratio of households to occupied dwellings	.47	.60	.22	-.14	-.13	-.05	-.22	.72
8. Percent of households in occupied dwelling units with piped water	.69	-.22	.02	-.18	-.04	-.15	.17	.61
9. Percent of households with electricity	.69	-.10	-.07	-.62	-.02	-.09	-.18	.91
10. Percent of households with flush toilets	.65	.21	-.16	-.25	-.30	.05	.09	.66
11. Farmers (in hectares) per person in the agricultural work force	-.14	-.27	.22	.22	.65	-.03	-.37	.74
12. No. of rural banks per 10,000 persons in the agricultural labor force	.88	.01	-.01	-.36	.07	-.06	-.11	.93
13. Per capita consumption of electricity	.05	-.01	.09	-.79	-.18	-.04	-.36	.37
14. Kilometer of road per 1,000 persons	-.13	.11	.92	.13	.10	-.002	-.15	.92
15. Percent of female high school students to total number of high school students	.06	-.08	.97	-.02	-.07	-.04	-.10	.96
16. Percent of female college students to total number of college students	-.07	-.07	.001	.15	-.10	.12	.90	.87
17. Percent of females enrolled at 2 ^o level	-.08	-.10	.24	.69	-.08	.47	-.06	.78
18. Bed capacity per 1,000 (1973-74)	.92	.16	.01	-.04	.06	-.04	-.07	.87
19. Percent of births attended by MD, RN, Midw. (1974)	.55	.01	.06	-.69	.02	.24	-.02	.84
20. Cases served per 1,000	.45	.02	-.24	.09	.50	-.11	.01	.55
21. Cost of project per 1,000 (1974-75)	-.04	.18	-.002	-.04	.81	.08	.03	.70
Eigenvalues	6.59	2.21	2.16	1.81	1.73	1.21	1.00	
Percent of Total Variance	31.4	10.5	10.3	9.6	8.2	5.8	4.8	

- orthogonality among the seven factors;
 b. The proportion of variance explained by the seven factors is 80 percent, with the first three factors accounting for 52 percent.

The presence of several factors suggests that access is a multi-dimensional concept.

Furthermore, the differential magnitudes in the proportion of variance explained by the seven factors suggest that the dimensions are not similarly weighed in their contribution to variations in access.

The variables that load significantly on each factor is presented in Table 5.

Table 5
**SEVEN EXTRACTED FACTORS AND THEIR
 CORRESPONDING ACCESS INDICATORS**

Factor	Access Indicator	Rotated Factor Loadings
1	<i>Health Access</i>	
	Number of hospital beds per 1,000 population	.92
	Number of rural banks/10,000 persons in agriculture	.88
	Percent of households in dwelling units with pipe H ₂ O	.69
	Percent of households in dwelling units with electricity	.69
2	<i>Education Access</i>	
	Percent of 2 ^o schools / 10,000 aged 10-14 years	.78
	Percent of colleges and universities/10,000 aged 15-24 years	.72
	Percent of persons aged 15-24 attending school	.64
	Ratio of households to occupied dwellings	.60
3	<i>Development Access of Women</i>	
	Percent female high school students	.97
	Roads (in km.)/1,000 population	.92
4	<i>Use of Goods and Services</i>	
	Percent of persons aged 6-14 attending schools	-.76
	Per capita consumption of electricity	-.75
	Percent of households in dwelling units with radio	-.74
	Percent of females enrolled in 2 ^o schools	-.69
5	<i>Welfare Access</i>	
	P cost of projects/1,000 population	.81
	Farm area (hetcare)/persons in agriculture	.65
	Welfare cases served/1,000 population	.50
6	Number of 1 ^o schools/10,000 population 5-9 years	.89
7	Percent female college students	.90

Factor I consists of a health variable, an agriculture variable and three quality of housing variables. Since health and quality of housing are correlated we name this factor "health access." This factor accounts for 31 percent of the variation in provincial access.

Of the four variables with high loadings on Factor II, three are supply of education variables and we therefore name this factor "education access." This factor accounts for the second highest proportion of variance explained in access (11%).

Two variables, women in development and infrastructure loaded significantly on the third factor and we are not able to interpret why these two variables are related this way. Since the women in development variable has a higher factor loading of the two, we tentatively label this factor "development access of women." This factor accounts for another ten percent of the variance in access.

Five of the six dimensions of access are represented in Factor IV; these are education, infrastructure, housing, women in development, and health. A closer look at the indicators show that they reflect consumption behavior for certain goods and services and we therefore name this factor "use of goods and services." This factor accounted for nine percent of the variance in access.

Factor V we call a "welfare factor." This is because of the three variables with high loadings on the factor, two are welfare indicators. This factor accounted for another eight percent of the variance in access.

For Factors VI and VII only one variable loaded significantly for each and since one of our primary objectives in doing the factor analysis was data reduction we decided not to include them in further analysis. Besides, the proportion of variance explained by these factors was five to six percent which is lower than any of the other five factors that we consider further.

In the second phase of our analysis, composite access index scores were computed for the 66 provinces. These provinces were ranked accordingly with Rizal heading the list obtaining an index sum of 124.9 (see Table 6) followed by Batanes (86.3) and Sulu (84.4). A high index score is interpreted to characterize a high level of access. The lowest ranking province by our index scores is the Mountain Province (-16.3).

We can conveniently categorize these provinces into three homogeneous groups, each with an equal number of provinces (n=22) and considering the following classification:

- (1) Group A – composed of provinces ranking from 1 to 22 and collectively considered as a High Level of Access Group;
- (2) Group B – composed of provinces ranking from 23 to 44 and collectively considered as a Moderate Level of Access Group; and
- (3) Group C – composed of provinces ranking from 45 to 66 and collectively considered as a Low Level of Access Group.

By this classification, we can readily identify Rizal as the highest ranking province in Group A, Bohol in Group B, and Palawan in Group C.

Another way of noting variations is by grouping these provinces under their respective regions. Table 7 presents a regional breakdown of these provinces and their obtained rank. A salient pattern shown is the heterogeneous nature of access levels for the twelve regions. Almost all regions contain provinces ranking in varying levels of access. Region XI (Southern Mindanao) can be considered as an exception since most provinces in this region are characteristically from Group C. Regions I (Ilocos) and III (Central Luzon) contain provinces ranking high and moderate in terms of access levels.

Table 6
**ACCESS INDEX SCORES FOR THE
 SIXTY-SIX PROVINCES AND THEIR
 CORRESPONDING RANK**

Rank	Province	Access Index Score
Group A		
1	Rizal	124.916
2	Batanes	86.254
3	Sulu	84.405
4	Surigao del Norte	80.872
5	Benguet	72.757
6	Camiguin	68.487
7	Cavite	65.328
8	Bulacan	63.434
9	Laguna	63.433
10	Bataan	54.159
11	Abra	53.444
12	Ilocos Sur	51.338
13	Southern Leyte	50.076
14	Ilocos Norte	48.700
15	Misamis Oriental	47.797
16	Cebu	46.873
17	Lanao del Norte	46.564
18	Catanduanes	46.450
19	Agusan del Norte	46.401
20	Cagayan	46.224
21	Zambales	45.000
22	Leyte	44.565
Group B		
23	Bohol	44.334
24	Pampanga	42.983
25	Quezon	42.638
26	Albay	42.535
27	La Union	41.511
28	Aklan	41.442
29	Negros Oriental	40.786
30	Negros Occidental	40.704
31	Misamis Occidental	40.582
32	Tarlac	40.277
33	Sorsogon	40.260
34	Davao del Sur	39.546
35	Marinduque	39.049
36	Batangas	38.586
37	Camarines Sur	37.188
38	Pangasinan	37.063
39	Kalinga-Apayao	37.029

(Table 6 continued)

40	Surigao del Sur	36.781
41	Lanao del Sur	36.745
42	Romblon	36.048
43	Nueva Ecija	35.929
44	Zamboanga del Norte	35.573
Group C		
45	Palawan	34.804
46	Iloilo	34.748
47	Zamboanga del Sur	34.632
48	Nueva Vizcaya	34.591
49	Western Samar	34.268
50	Occidental Mindoro	34.003
51	Oriental Mindoro	33.693
52	Capiz	33.618
53	Isabela	33.614
54	Antique	33.420
55	Camarines Norte	32.369
56	Bukidnon	32.099
57	Davao del Norte	31.943
58	Agusan del Sur	31.263
59	Eastern Samar	31.211
60	Ifugao	30.626
61	Northern Samar	29.565
62	Masbate	28.944
63	Davao Oriental	27.652
64	Cotabato	26.678
65	South Cotabato	24.489
66	Mountain Province	— 16.295

Table 7
 PROVINCES CLASSIFIED BY REGIONS AND
 THEIR RANKS BASED ON ACCESS INDEX SCORES

I. Ilocos	Rank	VI. Western Visayas	Rank
Abra	11	Aklan	28
Benguet	5	Antique	54
Ilocos Norte	14	Capiz	52
Ilocos Sur	12	Iloilo	46
La Union	27	Negros Occidental	30
Mt. Province	66		
Pangasinan	38	VII. Central Visayas	
		Bohol	23
II. Cagayan Valley		Cebu	16
Batanes	2	Negros Oriental	29
Cagayan	20		
Ifugao	60	VIII. Eastern Visayas	
Isabela	53	Leyte	22
Kalinga-Apayao	39	Southern Leyte	13

Nueva Vizcaya	48	Eastern Samar	59
III. Central Luzon		Northern Samar	61
Bataan	10	Western Samar	49
Bulacan	8	IX. Western Mindanao	
Nueva Ecija	43	Sulu	3
Pampanga	24	X. Northern Mindanao	
Tarlac	32	Agusan del Norte	19
Zambales	21	Agusan del Sur	58
IV. Southern Tagalog		Bukidnon	56
Batangas	36	Camiguin	6
Cavite	7	Misamis Occidental	31
Laguna	9	Misamis Oriental	15
Marinduque	35	Surigao del Norte	4
Occidental Mindoro	50	XI. Southern Mindanao	
Oriental Mindoro	51	Surigao del Sur	40
Palawan	45	Davao del Norte	57
Quezon	25	Davao Oriental	63
Romblon	42	Davao del Sur	34
Rizal	1	South Cotabato	65
V. Bicol		XII. Central Mindanao	
Albay	26	Lanao del Norte	17
Camarines Norte	55	Lanao del Sur	41
Camarines Sur	37		
Catanduanes	18		
Masbate	62		
Sorsogon	33		

Our regression analysis is mainly concerned with testing the validity of our simple model. To recall, two variables are hypothesized to explain level of access, and these are income level and poverty level. The regression results shown in Table 8 would tend to confirm the hypothesized direction of interrelationships, as revealed by the simple correlations. Poverty level is shown to be inversely related to access level while income level is directly correlated with access. Poverty is also assessed as significantly related to access ($\alpha = .025$) as seen from its estimated regression coefficients and the corresponding t value. Both variables ex-

plain 11.6 percent of the total variance with poverty contributing 86.6 percent of the explained variation for both variables. Furthermore, it should be noted that the obtained explained variation is substantial considering that only the variables were fitted in the model. Thus, our regression equation can now be filled with the appropriate values and can be read as follows:

$$Y = 55.0 + (-.28)(X_1) + .54(X_2) + 16.7$$

These regression results are significant at the .05 level.

Table 8
PREDICTION OF ACCESS
(Correlation, Regression and t Statistics)

Predictors	r	b	t-value
Poverty level	-.32	-.28	2.34*
Income level	.19	.54	1.03**
N = 64			
R	.34		
R ²	.12		

*Significant at $p = .025$

**Not significant

Summary and Conclusions

The following are the highlights of the three analytic phases of the study. From the factor analysis we find that access is a multi-dimensional concept. Five significant dimensions were identified namely: health access, education access, development access of women, use of goods and services, and welfare access.

These five dimensions or factors account for 69 percent of the variance in access with health access as the most significant contributor. While we desire further improvement in this figure, we feel that it is high and significant enough to merit further examination and use of the variables included in our analyses in studies dealing with access, especially those that will focus on actual links between administrative allocation of resources or goods and services and target clients.

The findings from the factor and regression analyses tend to indicate that access levels do not improve the provinces characterized with high poverty levels. This simply confirms and provides adequate empirical support to the contention that poverty is unfortunately

equated with minimal access to services and facilities. An added dimension to the problem of poverty is revealed in that the level of access is determined to be low in areas characterized by poverty. This suggests that poverty amelioration programs may need some redirection of efforts. They should aim at a more equitable distribution of resources and services as well as the provision of means and channels of access. After all, the best measure of impact is still actual and active utilization of these resources, services and other benefits.

Ranking and identifying provinces having varying access levels will be expected to be a useful input to planners and program facilitators and implementors. It can provide a guide as to which provinces need further attention in enhancing programmatic action and providing better venues for greater access to programs. To policy makers it will likewise be useful insofar as indicating priorities for action and implementation. Perhaps, one immediate concern would be to systematize plans and policies to increase greater homogeneity of access levels by embarking on a more vigorous regional development strategy.

Notes

¹Data for the poverty measure were drawn from an unpublished Project Report entitled, "An Analytic Description of the Poor Majority: Project Report I-B," submitted by the Social Research Associates to the U.S. Agency for International Development, May 1977, pp. 20-22.

²The data sources were enumerated earlier (see pages 12 and 14). The 66 provinces considered in our study represent the total number of provinces listed in the 1970 *Census of Population and Housing*. Six new provinces are included in the more current list.

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