AN INTERSECTORAL AND SEQUENTIAL ANALYSIS OF MIGRATION DECISION: PHILIPPINES

By

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Introduction

Migration behavior was analyzed in a previous paper through the logit model applied to data on individuals and households (Pernia 1978). The approach used had both conceptual and statistical merits. Conceptually, it was an improvement over the usual approach in migration analysis using aggregate population and areal data to assess the behavior of individuals and households (DaVanzo 1976a). Statistically, it appeared more valid than employing Ordinary Least Squares (OLS) analysis in a case where a binary dependent variable was involved (Theil 1971, Pindyck and Rubinfeld 1976). Notwithstanding these improvements, that paper still left something to be desired because it treated migration decision as a very general or abstract go/no-go choice.

This paper is a step further in the direction of improving the understanding of migration choice. First, the conceptual model, method of analysis and data used are presented. Second, the magnitudes of various intersectoral flows are determined and the factors influencing intersectoral migration decision are analyzed. Third, the return and chronic or repeat moves are isolated to see if their determinants differ from one another and from first-time moves. Finally, conclusions and implications derived from the investigation are discussed.

Analytical Framework

Traditionally, the decision to migrate has been considered a decision to invest in human capital expecting costs and benefits from the move (Sjaastad 1962). Like most practical decisions in life, migration is not a simple go/no-go choice. Often, the factors directly influencing the decision are conditioned by whence and whither the move is contemplated, and whether an earlier move had

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already been made.[1] For instance, the decision to move from one rural area to another may be more easily made because it is less costly in terms of information, actual pecuniary outlays and psychic costs. The decision though, may not necessarily be more beneficial in strict net present value than the move from rural to urban or metropolitan areas. A similar consideration may apply to return and chronic moves relative to first-time migration. Return and repeat migrations tend to be relatively easy compared with first-time migration and, between return and repeat moves, the former would most likely be less costly.

This conceptualization of migration decision necessitates an intersectoral and sequential analysis of individual or household migration, i.e., by sector of origin and destination, and type of move. The same general framework as that in the earlier paper (Pernia 1978) is retained.

$$MIG_{it} = f\ (A_{it}, E_i\ e_i) \qquad (1)$$

where :

MIG_{it} : choice of person i to migrate at time t

A_{it} : a vector of personal attributes at time t

E_i : a vector of external factors (stable during the decision interval) impinging on the decision maker

e_i : error term

However, this model is to be tested on individual migration data classified by sector of origin and destination and type of migration.

MIG_{it} is specified as a binary choice variable: migrate = 1, not migrate = 0. Because of the qualitative nature of this dependent variable, the OLS linear probability model is an inappropriate statistical technique. The logit model is therefore adopted specifying with respect to equation (1) as:

$$P\ (MIG_i) = \frac{1}{1 + e - \Sigma\beta_i X_i} \qquad (2)$$

[1] This argument is similar to what DaVanzo (1977) alluded to as *location-specific capital,* "which refers to the concrete assets and other features specific to a place that make it more advantageous to live there instead of somewhere else "(p. 7).

where:

$P(MIG_i)$: the probability that an individual will choose to migrate

X_i : explanatory variables

Equation (2) is a cumulative logistic probability function which, omitting intermediate steps, can be transformed to

$$\ln\left[\frac{P(MIG_i)}{1 - P(MIG_i)}\right] = \Sigma\beta_i X_i \qquad (3)$$

This shows that the dependent variable in the regression equation is the logarithm of the odds encountered when deciding to migrate.

The Data

The 1973 National Demographic Survey (NDS) is the main data source. It was conducted in May 1973 by the University of the Philippines Population Institute (UPPI) with the National Census and Statistics Office (NCSO). It involved a nationwide representative sample of 8,434 households containing 28,482 persons, 15 years old and over. The present study focuses on persons in their prime years of active working and decision making particularly those between 15-49 in 1973, who either changed residence between 1965 and 1973, and about whom there is sufficient information for analysis.

Preliminary analysis determined the relevant variables for the regression model. The explanatory (exogenous) variables include: age, education, occupation and marital status in 1965, household size, prospective income, kinship ties, locale of residence in 1965, and size of municipality of residence in 1973.[2] The first five variables are personal or household attributes, corresponding to A_{it} in equation (1), at about the time the decision to move or stay is made. The last four are external factors corresponding to E_i in the same equation.

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[2] From the correlation matrices there is no evidence of the multicollinearity problem. Marital status in 1965 is highly correlated with age, 0.82 for males and 0.76 for females. But it is dropped in a subsequent run. The correlation coefficients between occupation and age, and occupation and income are both about 0.53. All other correlations are much lower.

Age is set roughly at the midpoint of the 1965-1973 interval — the mean time the mobility-stability choice is made. It ranges from 11-45 in single years. Education (EDUC) or years of schooling refer to 1973, which appears to be a drawback. But it can be reasonably assumed that education level did not change measurably in such a short time (around four years from the mean time of decision making)[3]; EDUC ranges 0-16 in single years of academic or vocational schooling. Occupation in 1965 (OCC65) is clearly an *ex ante* attribute. This goes from 0 for those without occupation (presumably unemployed), 1.0 for farm and mine laborers, up to 13 for upper professionals, i.e., classified according to a combination of education, income and prestige criteria (see Bacol 1971 and the Appendix for specific categories and codes).

Marital status in 1965 (MAR65) is coded 1 for single, 2 for divorced or separated, and 3 for married, i.e., ordered from least attached to most attached. Household size (HHSIZE) information also refers to the time of the survey. Again, it is an apparent shortcoming, but it can be assumed that a household moves or stays as a unit and the size should not vary much immediately. HHSIZE ranges from 1 to 22 household members. Prospective income (EXINC) refers to cash income for 1972. It ranges from 0 for those without income (presumably unemployed), 1 for incomes less than ₱1,000, up to 7 for incomes greater than ₱10,000.[4] Kinship ties (KIN) is a dummy variable for presence (=1) or absence (=0) of relatives at destination. Locale of residence in 1965 (RES65) is also a dummy variable: agricultural = 0, nonagricultural = 1. Finally, size of municipality (MUNI73) refers to residence in 1973. It ranges from 1 for municipalities with less than 8,000 population to 7 for those with 50,000 or more.[5]

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[3] It is conceivable, however, for a person to absorb in a short time certain kinds of vocational and on-the-job training readily available especially in a big city.

[4] The term prospective income should be qualified. It does not strictly refer to income expected or hoped for at the time the decision to migrate is made, but rather to income reported during the survey. The assumption is that income *ex post* roughly corresponds to income *ex ante*. In 1972 the exchange rate was approximately US$1.00 = ₱6.90.

[5] A municipality is the smallest administrative (statistical) subdivision short of the *poblacion* or *barrio*. As a unit of destination in migration analysis, it is a substantial improvement over the province and region, used in previous studies of Philippine migration (Zosa 1973, Smith 1974, de los Santos 1976).

The logit model (equation 3) is estimated by the maximum likelihood method using a computer program developed by Nerlove and Press (1973).

Migration by Sector and Type of Move

Intersectoral flows

Apart from using aggregate data (mainly regional or provincial), migration research in the Philippines and other developing countries has largely focused on rural-to-urban migration (e.g., Hendershot 1971, Devoretz 1972, Cariño 1973, Narayanan 1977, Garnjana-Goonchorn 1977). While rural-to-urban migration is undoubtedly important in terms of sheer volume and socioeconomic implications, other streams have to be considered if migration is to be understood. The 1973 NDS data indicate that internal migration in the Philippines has been characterized not just by rural-to-urban streams, as commonly supposed, but by other intersectoral flows as well. Table 1 illustrates this by both the absolute and relative magnitudes of migration between sectors during two intervals: birth to 1965 and 1965 to 1973.

The said table shows that during the earlier period (birth to 1965) the most sizable flows were rural-to-rural, rural-to-urban, and rural-to-metro, in that order. All these accounted for over three-fourths of the total volume of internal migration. The rural-to-urban stream however, became more important than the rural-to-rural flow from 1965 to 1973. But, both streams diminished in overall dominance as all other streams gained some significance. There was less mobility from rural areas, greater movement between urban areas and greater movement from the urban and metro locales to the rural scene.[6]

[6] For purposes of statistical analysis, the focus is on the four dominant flows of the period 1965-1973, viz. rural-to-rural, rural-to-urban, rural-to-metro, and urban-to-rural. The first three correspond to those in Table 1 while the last includes urban-to-rural (as in Table 1) and metro-to-rural. The rest in Table 1 are considered transfers within the same general environment rather than migration as such.

TABLE 1

Intersectoral Migration in the Philippines

Stream	Birth to 1965		1965 to 1973	
	Number (thousands)	Per cent	Number (thousands)	Per cent
Rural-to-rural	1,582	33.0	594	19.9
Rural-to-urban	1,437	30.0	758	25.3
Rural-to-Metro	603	12.6	433	14.5
Urban-to-Rural	462	9.6	313	10.4
Urban-to-Urban	256	5.3	180	6.0
Urban-to-Metro	149	3.1	126	4.2
Metro-to-Rural	83	1.7	126	4.2
Metro-to-Urban	41	0.9	85	2.8
Metro-to-Metro	174	3.6	374	12.5
Total	4,787	100.0	2,989	100.0

Note: The numbers refer to migrants 15 years old and over. Rural sector includes all barrios, and urban sector includes all poblaciones and cities as of 1970. Metro sector comprises Manila, Caloocan, Pasay, Quezon, Makati, Mandaluyong, Navotas, San Juan, Malabon, Marikina, Las Piñas, Parañaque, Pateros, Pasig, Taguig, Meycauayan, and Valenzuela.

Source: 1973 National Demographic Survey.

Chronic and Return Migration

A practically neglected aspect in migration research is the chronic (repeated) and return moves.[7] Again, data from the 1973 NDS indicate that these types of moves are significant. Of the 7.9 million migrants in 1973, about 1.5 million (19 per cent) were chronic and 541 thousand (6.9 per cent) were return migrants.[8] Observations in other countries suggest that these types of moves gain relative importance over time, hence warrant some study.

It is important to understand what factors influence the decision to move again either somewhere else or back to place of origin. Factors affecting chronic migration are expected to vary from those determining return migration, and those impinging on the initial decision to move at all. The socioeconomic consequences or implications of chronic and return migrations would, of course, be different from first-time migration or migration in general. Understanding these implications would be useful to policy but is beyond the scope of the present inquiry.

Results of Logit Analysis

The results of the logit analysis on factors hypothesized to influence intersectoral migration decision are presented in Table 2. **Age** appears to have no influence on rural-to-rural migration for males. It is however, a retarding factor for females, as expected. The same pattern holds for the other types of intersectoral moves. But for urban-to-rural migration, age seems to be a disincentive for males and even more so for females. It seems that a move from urban to rural areas is more difficult than the reverse when age is concerned. This may be explained by the pioneering effort usually required as exemplified, for instance, by the migration to Mindanao in the 1960s (Simkins and Wernstedt 1971).

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[7] In the U.S., attempts to study chronic migration have been made by Morrison (1971), and return migration by DaVanzo (1976b and 1977). For purposes of this study, *chronic* migration are those who move two or three times to different destinations; *return* migrants are those who move back to area of origin; and *stable* migrants are those who move once and stay put at destination.

[8] Total migrants (15 years old and over) constituted about 35 per cent of total population (15 years old and over).

Variable	Rural-Rural		Rural-Urban		Rural-Metro		Urban-Rural	
	Male	Female	Male	Female	Male	Female	Male	Female
AGE	0.001 (0.135)	−0.011 (1.881)*	0.005 (0.768)	−0.009 (1.766)*	−0.002 (0.158)	−0.007 (1.022)	−0.019 (2.108)*	−0.030 (3.581)**
EDUC	−0.022 (1.954)*	0.001 (0.083)	0.054 (5.678)**	0.030 (3.644)**	0.109 (7.413)**	0.017 (1.556)	−0.038 (2.800)**	−0.040 (3.136)**
OCC65	0.006 (0.304)	0.011 (0.670)	0.023 (1.696)*	0.006 (0.437)	0.038 (1.629)	−0.002 (0.130)	−0.006 (0.269)	−0.021 (1.090)
MAR65	−0.012 (0.232)	0.031 (0.669)	−0.015 (0.332)	−0.074 (1.989)*	−0.225 (2.834)**	−0.326 (6.150)**	0.092 (1.378)	0.059 (0.989)
EXINC	0.095 (2.068)*	0.182 (2.636)**	0.129 (3.354)**	0.205 (3.844)**	0.193 (3.097)**	0.404 (6.007)**	0.138 (2.722)**	0.131 (1.644)
KIN	1.259 (12.001)**	1.354 (16.178)**	1.089 (10.025)**	1.084 (14.050)**	1.146 (7.221)**	1.108 (10.276)**	0.948 (7.983)**	1.144 (11.559)**
RES65	0.247 (2.155)*	−0.002 (0.018)	0.128 (1.413)	0.181 (2.173)*	−0.269 (2.108)*	−0.474 (4.079)**	−0.043 (0.395)	0.006 (0.056) *
MUN173	−0.045 (2.065)*	−0.027 (1.292)	0.232 8.556**	0.183 (8.281)**	15.698 (0.000)	1.092 (10.255)**	−0.227 (8.037)**	−0.192 (6.767)**
CONSTANT	−0.648 (3.460)	−0.814 (4.922)	−2.633 (11.818)	−1.728 (10.068)	−111.227 (0.000)	−7.873 (10.466)	0.452 (1.745)	0.494 (1.954)
−2 log λ	178.843#	311.416#	322.161#	452.475#	629.734#	742.987#	132.267#	223.375#
Observations	1,246	1,321	1,390	1,621	1,223	1,433	1,484	1,580

Note: Figures in parentheses are asymptotic t-ratios.
** Significant at 1.0 per cent level; *significant at 5.0 per cent level.
# Like F-test for OLS, −2 log likelihood ratio tests the null hypothesis that all multiplicative

Level of education has a strong positive effect on the decision to move from rural to urban areas for both males and females, and from rural to the metro area for males. Education, interestingly, has the opposite effect on moves to rural areas from either urban or other rural places. This may be expected as educational preparation is essential for the urban, especially metro areas, but not for the less demanding rural environment.[9] A similar observation, though less significant, seems to hold with respect to occupational status at the time the decision to move is made. A high level of occupation for instance, is required for the move to urban and metro areas relative to the move to rural areas.

The move to the city seems more difficult with married people, especially women. The inhibiting effect of marriage is even more pronounced when the move is to the metro area. Marital status, however, seems immaterial for migration to the rural sector. Most probably, the differential effect is due to the fact that the move to rural areas is relatively easy (except for age) and less costly, as hypothesized. Related to this is the differential effect of expected income on the decision to move to cities vis-a-vis the countryside. A relatively high expected monetary income is necessary to induce the move to the urban and metro areas but is not much with the move to rural areas.

Presence of kin seems to be a very important consideration in the decision to migrate. This result was unexpected because the *a priori* assumption was that presence of kin is less crucial in less complex areas of destination, i.e., the kinship effect may be significant for the metro sector but should be less for other urban and rural areas.

The variable RES65 suggests that many of those moving to the metro area come directly from agricultural areas rather than non-agricultural rural or urban areas. This result seems contrary to the popular notion of stepwise migration, i.e., migrants from the agricultural sector move first to urban areas before moving to the metro area. Finally, variable MUNI73 indicates that migration to urban areas means a move to large urban places or municipalities.

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[9] This result can also be interpreted as the consequence of urban-oriented (or urban-biased) education.

Table 3 presents the findings on chronic and return migration decision. The negative age effect is expected for chronic migration but not for return migration, as going back home should be a lesser problem than moving again somewhere else. Return migration however may not be that easy after all for older people if the finding that migration in the Philippines largely entails long distances, is accepted, contrary to the pattern in other countries. (Simkins and Wernstedt 1971, Smith 1977).

TABLE 3

Factors Affecting Chronic and Return Migration Decision: Philippines, 1965-1973

Variable	Chronic[a]		Return[b]		Chronic or Return[c]	
	Male	Female	Male	Female	Male	Female
AGE	− 0.007 (3.078)**	− 0.008 (3.916)**	− 0.020 (5.379)**	− 0.018 (5.281)**	− 0.012 (3.071)**	− 0.007 (2.158)**
EDUC	0.017 (2.577)**	0.022 (3.734)**	− 0.001 (0.077)	− 0.013 (1.481)	− 0.017 (1.821)*	− 0.028 (3.084)**
[illegible]	0.018 (2.098)*	− 0.000 (0.230)	0.006 (0.460)	0.008 (0.655)	− 0.013 (1.109)	0.004 (0.285)
MARR	− 0.050 (1.709)*	− 0.030 (1.377)	0.023 (0.566)	− 0.772 (2.387)**	0.051 (1.228)	− 0.064 (1.825)*
EXINC	0.044 (2.158)*	0.024 (0.843)	0.008 (0.265)	0.061 (1.458)	− 0.027 (0.831)	0.018 (0.387)
KIN	0.084 (1.385)	0.324 (7.352)**	0.258 (3.472)**	0.299 (4.716)**	0.163 (1.998)*	0.012 (0.167)
RESP	0.025 (0.445)	− 0.007 (0.133)	0.038 (0.508)	0.068 (0.953)	− 0.049 (0.559)	− 0.035 (0.488)
MUNIT3	0.018 (0.982)	0.062 (3.126)**	− 0.062 (2.321)**	− 0.130 (6.390)**	− 0.075 (3.239)**	− 0.179 (7.812)**
CONSTANT	− 0.492 (3.607)	− 0.768 (5.250)	0.068 (0.410)	0.515 (3.184)	0.557 (3.077)	1.184 (6.427)
− 2 log λ	95.268	161.248	94.479	159.370	55.719	97.822
Observations	2,229	2,413	1,837	1,937	1,030	1,146

Note: Figures in parentheses are asymptotic t-ratios.

[a] Chronic = 1, stable = 0; [b] Return = 1, stable = 0;

[c] Return = 1, chronic = 0. See footnote 7 for relevant definitions.

** Significant at 1.0 per cent level; *significant at 5.0 per cent level.

Significant at 0.1 per cent or better (8 degrees of freedom).

Education continues to be a significant determinant of chronic migration, but has a negative effect on return migration, as expected. In other words, the more highly schooled a migrant is, the less likely will he/she go back home. This implies that return migration may not have the favorable consequence on area of origin as commonly assumed. On the other hand, occupation has a positive and significant effect on male chronic migration.

Marital status exerts a significant negative influence on male chronic migration (and also slightly negative for female chronic migration). It strongly restrains the female's return migration but has no effect on male return moves. Expectedly, income is an important consideration in the males' decision to move again elsewhere but seems immaterial in the decision to move back to origin. The kinship effect is again somewhat unexpected. It is not operative for males' chronic migration (only for females), but remains strongly operative for both male and female return moves. It was expected that kinship support will not be necessary for returnees. At any rate, the kinship effect seems weaker for return migrants than for first-time migrants (Pernia 1978).

Finally, the RES65 variable is insignificant, while MUNI73 shows that chronic migration tends to be toward large places (municipalities), especially for females, but returns are usually toward small places.

Table 4 compares the results of regression analysis using the logit model, on one hand, and the OLS model, on the other. The comparison reveals that no difference practically exists between them as to the signs, relative magnitudes of coefficients, and levels of significance (t-values).[10] The same conclusion was arrived at by Snow (1976) and Syahruddin (1978). Thus, it seems that while logit analysis is more appealing because it satisfies the standard statistical assumptions, the conclusions drawn from OLS are essentially the same as those from the logit model. Because the logit program is relatively costly than the OLS (it being five to ten times costly), the use of the OLS for analysis involving a binary dependent variable is more recommendable.

[10] The absolute values of OLS coefficients are simply smaller than those of the logit.

TABLE 4

Comparison of Logit and OLS Regression Results: Chronic and Return Migration, Philippines, 1965-1973

Variables	Chronic				Return			
	LOGIT		OLS		LOGIT		OLS	
	Male	Female	Male	Female	Male	Female	Male	Female
AGE	− 0.008 (3.230)**	− 0.009 (4.232)**	− 0.003 (2.945)**	− 0.003 (4.085)	− 0.021 (5.716)**	− 0.019 (5.730)**	− 0.005 (5.613)**	− 0.004 (5.847)**
EDUC	0.017 (2.621)**	0.023 (3.823)**	0.007 (2.635)**	0.010 (4.008)**	0.003 (0.301)	− 0.010 (1.086)	0.001 (0.267)	− 0.003 (1.132)
OCC65	0.016 (1.927)*	− 0.001 (0.142)	0.007 (1.825)*	0.001 (0.228)	0.001 (0.112)	0.005 (0.434)	— —	0.001 (0.416)
MAR65	− 0.044 (1.480)	− 0.025 (1.129)	− 0.021 (1.728)*	−0.014 (1.538)	0.034 (2.858)	− 0.068 (2.118)*	0.002 (0.054)	− 0.027 (3.230)**
HHSIZE	− 0.024 (2.791)**	− 0.031 (3.895)**	− 0.010 (2.829)**	− 0.013 (3.876)**	− 0.056 (4.528)**	− 0.049 (4.110)**	−.0.014 (4.532)**	− 0.012 (4.151)**
EXINC	0.045 (2.184)*	0.017 (0.563)	0.020 (2.247)*	0.007 (0.561)	0.001 (0.038)	0.044 (1.025)	− 0.001 (0.165)	0.007 (0.596)
KIN	0.095 (1.570)	0.323 (7.179)**	0.042 (1.600)	0.137 (7.295)**	0.280 (3.748)**	0.300 (4.708)**	0.089 (3.951)**	0.081 (4.818)**
RES65	0.029 (0.518)	− 0.004 (0.073)	0.012 (0.494)	— —	0.041 (0.546)	0.070 (0.986)	0.013 (0.651)	0.023 (1.263)
MUNI70	0.019 (1.029)	0.063 (3.127)**	0.008 (1.021)	0.023 (3.182)**	− 0.058 (2.701)**	− 0.126 (6.180)**	− 0.017 (2.746)**	− 0.041 (6.755)**
Constant	− 0.336 (2.266)	− 0.539 (3.402)	0.335 —	0.271 —	0.429 (2.334)	0.863 (4.700)	0.499 —	0.668 —
−2 log λ	103.188	176.780	—	—	116.104	177.078	—	—
F-value	—	—	11.513**	22.717**	—	—	14.522**	21.298**
R-square	—	—	0.045	0.070	—	—	0.060	0.090
Observations	2,229	2,413	2,229	2,413	1,837	1,937	1,837	1,937

Note: The logit results in this table are not the same as those in Table 3 because here household size (HHSIZE) is added as an explanatory variable. See also notes under Table 2.

Conclusion and Implications

This paper attempted to refine the understanding of migration behavior by analyzing intersectorally and sequentially the decision to move. The main hypothesis is that factors influencing migration decision vary, depending on the sector of origin and destination, and whether the decision involves a return to origin or a repeat move to another destination. The logit analysis results seem to bear out this hypothesis.

Level of education and occupation appear to motivate the move from rural to urban and metro areas, but deter the reverse move and that between one rural area and another. The marital bond seems to restrain migration to the city, particularly for females, but seems immaterial for migration to the rural sector. A high expected monetary income is necessary to induce the move to the urban and metro areas but not the move to rural areas.

The education effect is positive for chronic migration but negative for return migration, implying that the latter may not bring about the often-assumed beneficial effect on area of origin. Marital status tends to inhibit chronic migration and female return migration but is inconsequential for male return move. Likewise, the income effect is positive for the decision to move again elsewhere but not for the decision to move back to origin.

The results of the study imply that migration policy would be more realistic and effective if it views migration intersectorally and sequentially besides considering the personal attributes of migrants or potential migrants. In other words, migration and labor mobility policy may have to adopt different measures for different types of moves, e.g., intersectoral, chronic and return, apart from the question of what types of persons constitute these flows. These policy measures, of course, will still have to be specified and tested by actual policy analysis.

Two items may be mentioned for further research. One is whether the positive education effect on migration from rural to urban and metro areas and negative education effect on the reverse move reflect an urban bias in educational curriculum, an information effect, or something else. Moreover, research may be done on the consequences of return and chronic migration at both individual and community levels.

Finally, from a methodological point, the OLS analysis virtually reveals the same results as those of logit analysis. This finding supports the results of similar exercises (e.g., Snow 1976, Syahruddin 1978). The distinct advantage of the logit model is that it satisfies standard statistical assumptions. However, since the logit computer program is more expensive, the use of OLS analysis seems more practical.

APPENDIX

Occupational Categories And Codes

Code Used	Description
0	Not applicable (includes unemployed)
1	Farm laborers, miners, quarrymen
2	Farm owners, managers, mines foremen
3	Fishermen, loggers
4	Unskilled (non-farm): packers, laborers NECs (not elsewhere classified)
5	Service: janitors, barbers, housekeepers, launderers, market vendors, service station attendants, waiters, service NECs
6	Skilled (lower): furnacemen, carpenters, millers, bakers, craftsmen, spinners, footwear makers, potters, chemical workers, tobacco preparers, lifting equipment operators, firemen, ship crews
7	Transportation and communications: drivers, conductors
8	Skilled (upper): tailors, precision instrument operators, machinists, electricians, compositors, painters, bricklayers

9 Sales workers: proprietors, commercial travelers, salesmen

10 Clerical and related: bookkeepers, steno-office machine and telecom operators, clerical NECs, mail carriers, policemen, inspectors

11 Administrative: government officials, directors, armed forces

12 Lower professional: teachers, nurses, technicians, artists

13 Upper professional: chemists, professors, physicians, lawyers, clergymen, social scientists, engineers, pilots

Note: See Bacol (1971, pp. 194-196) for a discussion of this occupational classification scheme.

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