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AN INTERSECTORAL AND SEQUENTIAL ANALYSIS OF MIGRATION DECISION: PHILIPPINES

by

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ABSTRACT

This paper attempts to refine the understanding of migration behavior by analyzing intersectorally and sequentially the decision to move. The main hypothesis is that the factors which influence migration decision vary depending on sector of origin and destination, as well as on whether the decision to be made involves a return to origin or a repeat move to another destination. The results of logit analysis show that such factors as education, occupation, expected monetary income, marital status, and sex exert different intersectoral and sequential effects on migration choice. An implication is that migration and labor mobility policy may be more realistic and, hence, effective if it views migration intersectorally and sequentially, in addition to considering the personal attributes of migrants or potential migrants.

As a methodological exercise, the results of logit analysis are compared with those of OLS. The results appear to be virtually no different, lending support to the findings of similar exercises. While the logit model has a distinct statistical (theoretical) advantage, the use of OLS analysis would seem to make practical sense considering that logit analysis is a lot more expensive.

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I. INTRODUCTION

Migration behavior was analyzed in a previous paper by means of the logit model applied to data on individuals and households (Pernia, 1977). It was then argued that the approach used had both conceptual and statistical merits. Conceptually, it seemed an improvement over the usual approach in migration analysis of using aggregate population and areal data to deal with the behavior of individuals and households (DaVanzo, 1976 a). On statistical grounds, it appeared more valid than employing OLS analysis in a case where a binary dependent variable was involved (Theil, 1971: 628-629; Pindyck and Rubinfeld, 1976: 239-243). These claimed improvements notwithstanding, that paper still left something to be desired because it treated migration decision as a very general or abstract go/no-go choice.

The present paper represents a further step in the direction of improving the understanding of migration choice. Firstly, we present the conceptual model, the method of analysis and the data to be used. Secondly, we determine the magnitudes of the various inter-

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sectoral flows, and identify the factors that influence intersectoral migration decision. Thirdly, we try to isolate return and chronic or repeat moves, and see if their determinants are different from one another as well as from first-time moves. Finally, we discuss what conclusion and implications may emerge from the investigation.

II. ANALYTIC FRAMEWORK

Traditionally, the decision to migrate has been considered as a decision to invest in human capital to the extent that one expects costs and benefits from the move (Sjaastad, 1962). Like most other practical decisions in life, migration decision is not a simple go/no-go choice. Often the factors that directly influence the decision are themselves conditioned by whence and whither the move is being contemplated, as well as whether or not an earlier move had 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, although not necessarily more beneficial in strict net present value terms, than the move from the rural sector to the urban or metropolitan areas. A similar consideration may apply as regards return

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[1] This argument is similar to what DaVanzo (1977) has 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).

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, as well as by type of move. We retain the same general framework as that in the earlier paper (Pernia, 1977)

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

where MIG_{it} denotes the choice of person i to migrate at time t, A_{it} is a vector of personal attributes at time t, E_i represents a vector of external factors (stable during the decision interval) that impinge on the decision-maker, and ε_i is the error term. However, this model is to be tested on individual migration data classified by sector of origin and destination and by 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 would be inappropriate as a statistical technique, as noted above. We, therefore, choose to adopt the logit model, which may be specified with respect to equation (1) as

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

where $P(MIG_i)$ is the probability that an individual will choose to migrate, and X_i stands for the 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 that the decision to migrate will be made.

III. THE DATA

Our source of data is the 1973 National Demographic Survey (NDS). The NDS was conducted in May 1973 by the University of the Philippines Population Institute (UPPI) in collaboration 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) life, ages 15-49 in 1973, who either changed residence or not between 1965 and 1973, and on whom there is sufficient information for our analysis.

Preliminary analysis determined the relevant variables for inclusion in the regression model. The explanatory (exogenous) variables include: age, education, occupation in 1965, 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.

A word needs to be said about each of the variables. AGE is set roughly at the mid-point of the 1965-1973 interval, that is, the mean time the mobility-stability choice is made; it ranges 11-45 in single years. Education (EDUC) or years of schooling refer to 1973, which appears to be a drawback, but we can reasonably assume that the level of education did not change measurably in such a short time (around four years from the mean time of decision-making);[3]

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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 marital status 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.

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

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), then 1.0 for farm and mine laborers and on 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 an apparent shortcoming, but we can assume that a household moves or stays as a unit and that the size should not vary much in a short time; HHSIZE ranges from 1 to 22 household members. Prospective income (EXINC) refers to cash income for 1972, the year prior to the survey; it ranges from 0 for those without income (presumably unemployed), then 1 for incomes less than ₱1,000, and on 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, non-agricultural = 1. Finally, size of municipality (MUNI73) refers to residence in 1973; it ranges from 1 for municipalities with less

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[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.

than 8,000 population to 7 for those with 50,000 or more.[5]

Our logit model (equation 3) is estimated by the maximum likelihood method using a computer program developed by Nerlove and Press (1973: 88-130).

IV. 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., Devoretz, 1972; Zosa, 1973; Smith, 1975; Hendershot, 1971; Cariño, 1973; Narayanan, 1976; Garnjana-Goonchorn, 1976). While rural-to-urban migration is undoubtedly important in terms of sheer volume and socioeconomic implications, other streams have to be considered if the whole phenomenon of migration is to be understood. As data from the 1973 NDS indicate, 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. This fact may be illustrated in Table 1 by both the absolute and relative magnitudes of migration

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

between sectors during two intervals, birth-to-1965 and 1965-to-1973.

Table 1 shows that in 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 together accounting for over three-fourths of the total volume of internal migration. In the more recent period (1965-to-1973), the rural-to-urban stream became more important than the rural-to-rural flow, but both streams diminished in overall dominance as all the 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]

Chronic and Return Migration

A practically neglected aspect in migration research is the phenomenon of chronic (repeat) and return moves.[7] Again, data from

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[6] For purposes of statistical analysis, we focus 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 that in Table1 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.

[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 migrants are those who moved two or three times to different destinations; return migrants are those who moved back to area of origin; and stable migrants are those who moved once and stayed put at destination.

Table 1. Intersectoral Migration in the Philippines

Stream	Birth-to-1965		1965-to-1973	
	Number (thousands)	Percent	Number (thousands)	Percent
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, Paranaque, Pateros, Pasig, Taguig, Meycauayan, and Valenzuela.

Source: 1973 National Demographic Survey.

the 1973 NDS indicate that these types of moves are by no means negligible. Of the 7.9 million migrants identified in 1973, about 1.5 million (19 percent) were chronic migrants and 541 thousand (6.9 percent) were return migrants.[8] Observations in other countries suggest that these types of moves gain relative importance over time. An examination of this aspect of migration is, therefore, warranted.

It is important to understand what factors influence the decision to move again either somewhere else or back to place of origin. We expect that the factors which affect chronic migration would vary from those that determine return migration, as well as from those that impinge on the initial decision to move at all. The socioeconomic consequences or implications of chronic and return migrations, of course, would be different from first-time migration or migration in general. Understanding these implications would also be of use to policy but is beyond the scope of the present inquiry.

V. RESULTS OF LOGIT ANALYSIS

The results of logit analysis on factors hypothesized to influence intersectoral migration decision are presented in Table 2.

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[8]Total migrants (15 years old and over) constituted some 35 percent of total population (15 years old and over).

Table 2. Factors Affecting Intersectoral Migration Decision: Philippines, 1965-1973

Variable	Rural-Rural		Rural-Urban		Rural-Metro		Urban-Rural	
	Male	Female	Male	Female	Male	Female	Male	Female
AGE	0.001	-0.011	0.005	-0.009	-0.002	-0.007	-0.019	-0.030
	(0.135)	(1.881)*	(0.768)	(1.766)*	(0.158)	(1.022)	(2.108)*	(3.581)**
EDUC	-0.022	0.001	0.054	0.030	0.109	0.017	-0.038	-0.040
	(1.954)*	(0.083)	(5.678)**	(3.644)**	(7.413)**	(1.556)	(2.800)**	(3.136)**
OCC65	0.006	0.011	0.023	0.006	0.038	-0.002	-0.006	-0.021
	(0.304)	(0.670)	(1.696)*	(0.437)	(1.629)	(0.130)	(0.269)	(1.090)
MAR65	-0.012	0.031	-0.015	-0.074	-0.225	-0.326	0.092	0.059
	(0.232)	(0.669)	(0.332)	(1.989)*	(2.834)**	(5.150)**	(1.378)	(0.989)
EXINC	0.095	0.182	0.129	0.205	0.193	0.404	0.138	0.131
	(2.068)*	(2.636)**	(3.354)**	(3.844)**	(3.097)**	(6.007)**	(2.722)**	(1.644)
KIN	1.259	1.354	1.089	1.084	1.146	1.108	0.948	1.144
	(12.001)**	(16.178)**	(10.025)**	(14.050)**	(7.221)**	(10.276)**	(7.983)**	(11.559)**
RES65	0.247	-0.002	0.128	0.181	-0.269	-0.474	-0.043	0.006
	(2.155)*	(0.018)	(1.413)	(2.173)*	(2.108)*	(4.079)**	(0.395)	(0.056)
MUNI73	-0.045	-0.027	0.232	0.183	15.698	1.092	-0.227	-0.192
	(2.065)*	(1.292)	(8.556)**	(8.281)**	(0.000)	(10.255)**	(8.037)**	(6.767)**
CONSTANT	-0.648	-0.814	-2.693	-1.728	-111.227	-7.873	0.452	0.494
	(3.460)	(4.922)	(11.818)	(10.068)	(0.000)	(10.466)	(1.745)	(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 percent level; *significant at 5.0 percent level.
#Like F-test for OLS, -2 log likelihood ratio tests the null hypothesis that all multiplicative coefficients vanish simultaneously; the value is asymptotically distributed as Chi-square with 8 degrees of freedom and is significant at 0.1 percent or better.

Age appears to have no influence on rural-to-rural migration for males but is a retarding factor for females, as expected. The same pattern holds for the other types of intersectoral moves, except for urban-to-rural where 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 move in so far as age is concerned. This may be explained by the pioneering kind of effort usually required, as exemplified, for instance, by the migration to Mindanao in the 1960s (Simkins and Wernstedt, 1971).

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. But, interestingly, education 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, destination 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, i.e., a high level of occupation is required for the move to urban and metro areas relative to the move to rural areas.

The move to the city seems to be made more difficult the more tied up by the marital bond one is, especially the woman.

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

The inhibiting effect of the marital bond is even more pronounced for the move to the metro area. Marital status, however, seems to be immaterial for migration to the rural sector. Most probably, this differential effect has to do with the fact that the move to rural areas is relatively easy (except for age as seen above) and less costly, as hypothesized. Related to this is the differential effect of expected income on the decision to move to cities vis-á-vis the countryside: a relatively high expected monetary income is necessary to induce the move to the urban and metro areas but not so much the move to rural areas.

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

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

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 less of a problem compared with moving again some place else. It may be that return migration is not that easy after all for older people if we accept the finding that migration in the Philippines, contrary to the pattern in other countries, largely entails long distances (Simkins and Wernstedt, 1971; Smith, 1975).

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, on the surface, may not have the favorable consequence on area of origin commonly assumed. The occupation effect is positive and significant only for male chronic migration.

Marital status exerts a significant negative influence on male chronic migration (and also slightly negative for female chronic migration). It acts as a strong restraint on female return migration but has no effect on male return moves. Also, as expected, income is an important consideration for the decision to move again elsewhere for males but seems immaterial for the decision to move back to origin. The kinship effect is again unexpected: it is not operative

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	-0.008	-0.020	-0.018	-0.012	-0.007
	(3.078)**	(3.916)**	(5.379)**	(5.281)**	(3.071)**	(2.158)*
EDUC	0.017	0.022	-0.001	-0.013	-0.017	-0.028
	(2.577)**	(3.734)**	(0.077)	(1.481)	(1.821)*	(3.084)**
OCC65	0.018	-0.000	0.006	0.008	-0.013	0.004
	(2.098)*	(0.230)	(0.460)	(0.655)	(1.109)	(0.285)
MAR65	-0.050	-0.030	0.023	-0.772	0.051	-0.064
	(1.709)*	(1.377)	(0.566)	(2.387)**	(1.228)	(1.825)*
EXINC	0.044	0.024	0.008	0.061	-0.027	0.018
	(2.158)*	(0.843)	(0.265)	(1.458)	(0.831)	(0.387)
KIN	0.084	0.324	0.258	0.299	0.163	0.012
	(1.385)	(7.352)**	(3.472)**	(4.716)**	(1.998)*	(0.167)
RES65	0.025	-0.007	0.038	0.068	-0.049	-0.035
	(0.445)	(0.133)	(0.508)	(0.953)	(0.559)	(0.488)
MUNI73	0.018	0.062	-0.062	-0.130	-0.075	-0.179
	(0.982)	(3.126)**	(2.321)**	(6.390)**	(3.239)**	(7.812)**
CONSTANT	-0.492	-0.768	0.068	0.515	0.557	1.184
	(3.607)	(5.250)	(0.410)	(3.184)	(3.077)	(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 percent level; *significant at 5.0 percent level.

#Significant at 0.1 percent or better (8 degrees of freedom).

for male chronic migration (only for females), but it remains strongly operative for both male and female return moves. We had expected that kinship support would be unnecessary for returnees. At any rate, the kinship effect seems to be weaker for return migrants relative to that for first-time migrants (Pernia, 1977).

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 the one hand, and the OLS model, on the other. An inspection of the two results reveals that there is practically no difference between them as to the signs, relative magnitudes of the coefficients, and relative 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 that one can draw from OLS are essentially the same as those from the logit model. Given the costliness of the logit program relative to the OLS (the logit being from five to ten times as costly), the use of the OLS for analysis involving a binary dependent variable has something to recommend it.

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[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	-0.009	-0.003	-0.003	-0.021	-0.019	-0.005	-0.004
	(3.230)**	(4.232)**	(2.945)**	(4.085)**	(5.716)**	(5.730)**	(5.613)**	(5.847)**
EDUC	0.017	0.023	0.007	0.010	0.003	-0.010	0.001	-0.003
	(2.621)**	(3.823)**	(2.635)**	(4.008)**	(0.301)	(1.086)	(0.267)	(1.132)
OCC65	0.016	-0.001	0.007	0.001	0.001	0.005	-	0.001
	(1.927)*	(0.142)	(1.825)*	(0.228)	(0.112)	(0.434)	-	(0.416)
MAR65	-0.044	-0.025	-0.021	-0.014	0.034	-0.068	0.002	-0.027
	(1.480)	(1.129)	(1.728)*	(1.538)	(2.858)	(2.118)*	(0.054)	(3.230)**
HHSIZE	-0.024	-0.031	-0.010	-0.013	-0.056	-0.049	-0.014	-0.012
	(2.791)**	(3.895)**	(2.829)**	(3.876)**	(4.528)**	(4.110)**	(4.532)**	(4.151)**
EXINC	0.045	0.017	0.020	0.007	0.001	0.044	-0.001	0.007
	(2.184)*	(0.563)	(2.247)*	(0.561)	(0.038)	(1.025)	(0.165)	(0.596)
KIN	0.095	0.323	0.042	0.137	0.280	0.300	0.089	0.081
	(1.570)	(7.179)**	(1.600)	(7.295)**	(3.748)**	(4.708)**	(3.951)**	(4.818)**
RES65	0.029	-0.004	0.012	-	0.041	0.070	0.013	0.023
	(0.518)	(0.073)	(0.494)	-	(0.546)	(0.986)	(0.651)	(1.263)
MUNI70	0.019	0.063	0.008	0.023	-0.058	-0.126	-0.017	-0.041
	(1.029)	(3.127)**	(1.021)	(3.182)**	(2.701)**	(6.180)**	(2.746)**	(6.755)**
Constant	-0.335	-0.539	0.335	0.271	0.429	0.863	0.499	0.668
	(2.266)	(3.402)	-	-	(2.334)	(4.700)	-	-
-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)

VI. CONCLUSION AND IMPLICATIONS

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

Level of education and occupation appear to stimulate the choice to move from rural to urban and metro areas, but deter the reverse move and that between one rural area and another. The marital bond acts a restraint on 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 so much the move to rural areas.

The education effect is positive for chronic migration but negative for return migration, implying that return migration 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 is immaterial for the decision to move back to origin.

An implication of the results of the study is that migration policy would be more realistic and, hence, effective if it views migration intersectorally and sequentially, in addition to 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, would still have to be specified and tested by actual policy analysis.

For further research, two items may be mentioned. One is whether the positive education effect with respect to migration from rural to urban and metro areas and negative education effect for the reverse move reflect an urban bias in educational curriculum or an information effect, or something else. Another worthwhile effort may be research into the consequences at both individual and community levels of return and chronic migration.

Finally, on a methodological point, OLS analysis reveals virtually the same results as those of logit analysis. This finding lends support to 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 a lot more expensive, the use of OLS analysis would seem to make practical sense.

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 NEC's (not elsewhere classified)
5	Service: janitors, barbers, housekeepers, launderers, market vendors, service station attendants, waiters, service NEC's
6	Skilled (lower): furnacemen, carpenters, millers, bakers, craftsman, 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 NEC's , 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: 194-196) for a discussion of this occupational classification scheme.

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