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Human Ecological Contribution to Rural and Urban Migration in Thailand 1970-1980

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ABSTRACT

The main objectives of this study are : (1) to explain the combined impact of human ecological characteristics on rural and urban migration streams ; and (2) to explain the impact of each human ecological characteristic on migration variations in rural and urban regions. Human ecological characteristics include population size and density, unemployment and employment rates, and division of labor.

Analyses reveal : (1) the combined impact of high population size and high division of labor in both rural and urban regions significantly associate with the low percent of in-migrants to those regions; and (2) unemployment and employment rates in rural regions are not factors related to people moving into rural regions. In contrast, high employment rates in urban regions are likely to attract in-migrants to urban areas.

Recommendations are encouraged to investigate major factors stimulating people to move into rural areas and why.

Key words : human ecology, migration.

INTRODUCTION

Internal migration has gradually become a significant impact on population redistribution in rural and urban areas in Thailand. Data (data of 1980) indicate that movement among regions, provinces, rural and urban places have continued to play an important role in population redistribution in Thailand. "It seems likely that as the rate of population growth in Thailand continues to decline through increasing control of fertility, migration will assume even greater importance in accounting for differentials in growth among regions, provinces, and urban/rural areas" (Pejaranonda et al, 1984 : 16).

On the regional level, the differences in urban and rural migration are pronounced when economic well-being is considered. In general, more job opportunities will encourage people to move from less developed to more developed areas. These phenomena, however, might not be the case of migration streams in rural and urban regions in Thailand. Therefore, the application of ecological characteristics which are linked to migration may be helpful to explain the rural and urban migration in Thailand. In doing so, the research will build upon previous studies which have already shown most of the variables in this study to be important in migration analysis. It will be the first study in which the ecological characteristics have been

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selected for multiple regression to explain the combined impact of human ecological characteristics on the rural and urban migration streams and simple regression analyses to explain the impact of human ecological characteristics on migration variations in rural or urban regions in Thailand.

Working Definitions

1. Urban/Rural area

An urban area refers to a municipal area which is a legal unit established by the Royal Decree of the 1953 Municipal Act. There are three categories of municipal areas : Nakhon (city), Muang (town), and Tambon (commune).

A rural area refers to a sanitary district or non-municipality, established by the Ministry of Interior under the provisions of the Sanitary District Act of 1952.

In this study the municipal areas in four regions and Bangkok Metropolis are referred as urban regions. Whereas non-municipal areas in four regions, except Bangkok Metropolis, are termed rural regions.

2. Migration refers to the movement of the recent migrants, who have changed their place of residence into rural or urban regions in Thailand within five years preceding the census date (March 31, 1975 to April 1, 1980). Only persons aged 5 years and over are considered. The computation of the percent of migrants is :

$$\text{The percent of migrants} = \frac{\text{\# recent migrants}}{\text{total population}} \times 100$$

3. Population size is the total population. Data were collected in 1970.

4. Population density is the population size divided by areas in square kilometer. Data were collected in 1970.

5. Unemployment rate is the measure as follows :

$$\text{Unemployment rate} = \frac{\text{\# looking for work}}{\text{total economically active population}} \times 100$$

Unemployment rate refers to the percent of experienced and new workers who are still looking for work on the census date.
Data were collected in 1980.

6. Employment rate is the measure as follows :

$$\text{Employment rate} = \frac{\text{\# employed persons}}{\text{total economically active population}} \times 100$$

Employment rate refers to the percent of presently employed and waiting for farm season workers who are employed on the census date. Data were collected in 1980.

7. Economically active population refers to all persons aged 11 years and over who are employed on the census date (April 1, 1980) as well as experienced and new workers who are looking for work and those waiting for the farm season are counted as the economically active population.

8. Division of labor is the measure of distribution of employed people among the principal occupations. The more distribution of workers among principal occupations will result on the high number of the index (division of labor). The measurement of the index is :

$$\text{Division of labor} = 1 - \frac{(\Sigma/X - \overline{X}/)/2}{\Sigma X}$$

where

X = # of employed people in each principal occupation.

$$\overline{X} = \frac{\Sigma X}{N}$$

where

ΣX = summation taken across occupations :

N = # of listed principal occupations. Those are :

(1) Agriculture, forestry, hunting, and fishing;
(2) Mining and quarrying;
(3) Manufacturing;
(4) Construction, repair, and demolition;
(5) Electricity, gas, water and sanitary serrvices;

(6) Commerce;
(7) Transport, storage and communication;
(8) Services; and
(9) Banks and other financial institutions, insurance and real estate.

Data were collected in 1980

DATA AND METHODS

Population size and density in rural and urban regions are derived from: (1) the 1970 Population and Housing Census; (2) the Statistical Yearbook Thailand No.29 (1970-1971), and No.30 (1972-1973).

Unemployment rate, employment rate, and division of labor are from the 1980 Population and Housing Census.

Percent of migrants to rural or urban regions is the data on the recent migration derived from the one percent census sample tape (1980).

Units of analysis

Four regions (Central, Northeast, North, South) and Bangkok Metropolis are units of analysis. Each of them (except Bangkok Metropolis) is subdivided into rural and urban areas.

Analysis Procedures

Stepwise multiple regression techniques will be employed to test the combined effect of five independent variables on the percent of migrants into rural and urban regions.

Contributions of Human Ecological Approaches to Migration

The following discussion is concerned with the investigation of human ecological characteristics which influence migration. The variables selected for the analyses are grouped into two main factors: the push and pull factors.

1. Population pressure as a push factor for migration

Population pressure is operationalized as the population size and density in an area. Previous studies have agreed upon the meaning of the general concept of migration, namely a process of demographic response to the conditions of imbalance within and among units of analysis.

Friedlander emphasizes the role of migration, particularly rural to urban migration, as a process of demographic response to population pressure and social change. He points out that population pressure resulting from high natural increase can be relieved through out-migration because "out-migration is a relatively easy, effective, and socially appropriate response" (Friedlander, 1968 : 361).

Sly and Tayman reexamine the migration model by suggesting that migration may be a demographic response to environmental conditions created by organization and technology. There were 90 cities in the industrialized northeast and 77 cities located in the northcentral states in the US during the 1960-1970 time period. Findings from path analysis have strongly supported the assertion that "migration is a response to environmental conditions within the city" (Sly and Tayman, 1977 : 788). Obviously, city population density is one among three environmental variables that influence migration.

London focuses his studies on the empirical tests of hypotheses which are implicit or explicit in the studies of the theoretical perspective of Hawley, the ecological system approach of Duncan 1959, 1961 ; Duncan and Schnore 1959; Schnore 1958, 1961, and the sustenance organization approach of Gibbs and Martin 1959 (London, 1987). He also replicates those studies in order to determine and explain internal migration in Thailand in 1960-1970. London finds that population density in each province is significantly associated with the percent of recent migrants to Bangkok Metropolis. Provinces with high population density

tend to have a high rate of recent migrants to Bangkok Metropolis.

Prasartkul in patterns and determinants of internal migration in Thailand focuses his study on the recent migration patterns that have Bangkok and 69 provinces as the common place of the migration streams (Prasartkul, 1977).

In delineating Bangkok as a common directional flow of migration, Prasartkul uses 69 provinces as units of analysis. The results of the multiple regression analysis indicate that the greater the population size in each province, the higher the in-migration to Bangkok. Also, the greater the in-migration to Bangkok, the shorter the distance between Bangkok and that province.

In determining the patterns of interprovincial migration (among 69 provinces except Bangkok Metropolis), Prasartkul defines migration as the net migration rate of each province. He hypothesizes that the net migration rate of each province has a positive association with its economic conditions but a negative association with its population density and its social disequilibrium. The results of the multiple regression analysis support these hypotheses.

As a consequence of population pressure as a push factor for migration, his results support the previous studies that high population density associates with the degree of net out migration of a province. As indicated, a province having low population density and favorable economic conditions will gain population through net in-migration.

Therefore, there is enough evidence to support the credibility of the hypotheses of this study that rural regions during the transitional period of population increases due to high birth rates will have a low percent of migrants as an appropriate response to population size and population density in those areas unless of course the labor market expands.

Urban regions, on the contrary, tend to have higher capacity than rural regions to absorb an increasing population into such areas. An analysis of the one percent census sample tape (data of 1980) which indicates a greater proportion of recent migrants who have moved to urban regions than to rural regions. This phenomenon may reflect the capacity of the urban sectors to become a mechanism to relieve the population pressure on rural regions. Therefore, there is evidence to support the hypotheses that high population size, and high population density in urban regions combined with a strong economy can absorb high rates of recent migration.

2. Job opportunity as a pull factor for migration

In this section, job opportunity as an economic structure and its relation to migration will be discussed. Previous studies concerning the explanations of ecological characteristics on migration phenomena have operationalized job opportunities as unemployment rate, employment rate, and degree of division of labor. These variables are tested for their effect on migration.

Frisbie and Poston explore the relationships between age structure, racial composition, economic opportunity, and proximity to metropolitan areas and the population movement into the nonmetropolitan counties of the US 1960-1970 (Frisbie and Poston, 1975). Economic opportunity is defined by median family income and employment levels in those areas. They hypothesize that the probability of population gain could be greater in counties with high levels of employment and income. The multiple regression analysis illustrates findings as hypothesized.

Frisbie and Poston then turn to examine the relationship between degree of division of labor and the net migration rate in nonmetropolitan counties of the US in the 1960-1970 time period (Frisbie and Poston, 1978)

Division of labor is measured by the number of industrial occupations and the distribution of workers among those occupations in nonmetropolitan counties. Pearson correlation shows a positive correlation between degree of division of labor and net migration into nonmetropolitan areas. Frisbie and Poston, then, include other independent variables ; those are, employment levels, median income, median age, racial composition, and proximity to metropolitan areas in the multiple regression analysis. These variables are hypothesized to have an association with the variability in net migration among nonmetropolitan counties. Findings show a positive association between net migration and employment rate, median income, and division of labor as expected. Of all the independent variables, division of labor accounts for 14 percent of the variation in the net migration and this percentage is reduced by only 2 percent when five independent variables are operated in the equation. Frisbie and Poston summarize that "the results suggest that an ecological interpretation of migration dealing with sustenance differentiation (division of labor) must be judged superior to the competing explanations" (Frisbie and Poston, 1978 : 52) Therefore, nonmetropolitan counties where degree of division of labor is high tend to attract more people to move into such areas.

London also working with the 1960 and 1970 census data of Thailand, focuses on the explanations of ecological characteristics of 69 provinces of Thailand and their association with in-migration patterns to Bangkok Metropolis (London, 1987). He hypothesizes a positive relationship between the unemployment rate of 69 provinces and percent of recent migrants from those provinces to Bangkok Metropolis. He also hypothesizes that provinces with more distribution of individuals among various principal occupations (high division of labor), may have high migration rates to Bangkok Metropolis since its population includes more people with "urban" entrepreneurial skills. These people, then, are likely to leave the provinces and go to the city. The multiple regression analysis supports his hypotheses. According to his findings, a province having high unemployment rates and high division of labor will lose its population through in-migration to Bangkok Metropolis.

While the impact of degree of division of labor on population migration is still a controversial issue between the studies of Frisbie and Poston (1975; 1978) and London (1987), they have a common agreement that people tend to migrate in search of better economic opportunity. Places where job opportunity as an economic structure is booming tend to attract in-migrants. Job scarce areas, on the other hand, tend to push people out.

However, the significance of job opportunity is still one of the most challenging hypotheses to be tested. Drawing from the above discussions, hypotheses concerning job opportunity factors and migration may be stated: places (rural or urban regions) with low unemployment rates, high employment rates, and a high degree of division of labor tend to gain population through in-migration to such areas.

RESULTS AND DISCUSSION

As illustrated by the stepwise multiple regression analyses (Table 1), the population size and division of labor indicate statistical significance on the percent of migrants. These phenomena may reflect the fact that population size and division of labor may be judged superior to the competing explanations of migration streams in both rural and urban regions in Thailand. The combined effect of population

Table 1 Stepwise multiple regression between five human ecological characteristics and percent of migrants to rural and urban regions, 1970-1980.

Name of Variable	Regression Coefficient	R^2	R^2 (adjusted) total	F
Population Size	-1.8974	.7637	-	27.600*
Division of Labor	-183.3219	.1012	.8198	4.490*

*Statistical significance at 0.05 level

Source of data available upon request.

size and division of labor will associate with percent of migrants to rural and urban regions 81 percent (Adjusted R^2 = .8198).

According to the findings, the high population size and high division of labor in both rural and urban regions will associate with the low percent of in-migrants to those regions. As supported by previous studies, high population size will be a push factor for people to migrate into rural and urban regions. In contrast, the low division of labor with become a pull factor which stimulates more people to migrate into rural and urban regions. The plausible explanation of the latter findings is based upon the fact that there are low distributions among employed workers of principal occupations in Thailand particularly in rural regions. Obviously, Thailand is primarily an agricultural country. The migration of agricultural workers particularly in rural regions may reflect these phenomena.

In Rural Regions

The directional relationships between percent of migrants and each of the ecological variables are indicated by the regression coefficients (Table 2).

According to the simple regression analyses, high rates of in-migration to rural regions tend to be explained by low population size, high density, high unemployment rates, low employment rates, and high division of labor. However, none of the ecological characteristics show a significant impact (confidence interval > = 95%) on percent of migrants to rural regions. In addi-

Table 2 Simple regression analyses between each human ecological variable and percent of migrants of rural regions, 1970-1980

Name of Variable	Regression Coefficient	T (DF = 2)	R^2	F	Confidence Interval (%)
Population Size	-1.3850526	-0.518	.1183907	0.269	65
Density	.0037515	0.100	.0050102	0.010	< 55
Unemployment Rates	1.8076593	2.014	.6697584	4.056	90
Employment Rates	-1.8076599	-2.014	.6697582	4.056	90
Division of Labor	25.2332765	0.758	.2233484	.575	70

Source of data available upon request.

Table 3 Simple regression analyses between each human ecological variable and percent of migrants to urban regions, 1970-1980

Name of Variable	Regression Coefficient	T (DF = 3)	R^2	F	Confidence Interval (%)
Population Size	-.0000025	-2.467	.6698203	6.086	95*
Density	-.0006140	-1.603	.4613913	2.570	85
Unemployment Rates	-.9374158	-1.027	.2601114	1.055	80
Employment Rates	.9374159	1.027	.2601115	1.055	80
Division of Labor	-	-	-	-	-

Statistical significance at 0.05 level
Source of data available upon request.

tion, economic factors particularly unemployment and employment rates in rural regions are not the important factors relating people to move into rural areas.

In Urban Regions

The directional relationships between percent of migrants and each of the ecological characteristics are indicated by the regression coefficients (Table 3).

According to the simple regression analyses, urban regions with low population size, low density, low unemployment rates, and high employment rates tend to have high rates of in-migration. Population size shows significant impact on percent of migrants moving to urban areas (confidence interval > = 90%). Also, economic factors particularly unemployment and employment rates show their relationship to the population movements to urban regions, which are opposite to those findings in rural regions.

CONCLUSION

Results from the regression analyses of this research support the previous studies that urban regions are likely to attract a large number of in-migrants due to job opportunities. On the other hand, a large amount of rural in-migration is not based on the economic opportunities. Further studies are, therefore, encouraged to investigate major factors stimulating people to migrate to rural areas.

The research methodology, however, encounters some limitations due to the small number of units of analysis. For testing hypotheses, some directional relationships between human ecological characteristics and percent of migrants to rural or urban regions are not supported by regression analyses. Though the above exceptions occur, one of the findings of these analyses is that it supports human ecological approaches, conclusions express that a large population size in urban regions becomes a significant push factor for people to migrate to urban regions unless their labor market expands.

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