HINTERLAND PROVINCES IN RELATION TO MIGRATION TO BANGKOK

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CHAPTER I

INTRODUCTION

Bangkok is a true primate city (Jefferson, 1939). More than one half of the urban population of Thailand lives in this one Metropolis. During the last three decades, the aggregate population of Bangkok tripled. The estimated annual growth rate from 1950-1970 was four per cent per year (National Statistical Office, 1975) and the population density for 1970 was 4,617 persons per square kilometer (Population and Housing Census, 1970). Now due to the rapid growth, Bangkok is burdened with urban problems such as inadequate public utilities, facilities, and services. Movement of people from rural areas and hinterland provinces to Bangkok in search of work or higher education is a major factor in the rapid and continuing growth of population in Bangkok (Sternstein, 1974). Lower death rates and natural increase in the population also add to the city's rapid growth.

In 1971, the central government of Thailand accepted a 20 year urban development plan for Bangkok Metropolitan area. One of the major objectives of the plan is that by 1990, the population of Bangkok Metropolis should be stabilized at 6,300,000 inhabitants. By comparison in 1970, Bangkok's population was 3,007,361 as reported by Population and Housing Census. At the level of 6,300,000 inhabitants, the government believes that services and infrastructures can be provided at relatively low cost and with efficiency (Thailand, Ministry of Interior,

1971). At present (1978), plans to reduce the natural increase are successfully operating not only in the Bangkok area itself but country-wide as well. Since the natural increase of population is not the only factor causing the rapid growth of Bangkok, the government also planned to reverse the trend of migration from the hinterland provinces by encouraging the growth of other urban centers in the hinterland provinces themselves. Three major provinces were recommended: Chiang-mai, Khon Kaen and Songkhla which are located in the northern, northeastern and southern part of the country, respectively. The reasons behind the recommendation are that these three provinces are having relatively rapid growths in population as well as economic activity and they are located in the areas appropriate for regional urban centers.

In order to reverse the trend of migration to Bangkok, we must first understand the factors influencing the migrants decision to move to Bangkok. The gravity model has been universally used to explain much of the variation in movement of people (Abler, 1971). In terms of the potential model, we would anticipate that each of the 69 hinterland provinces would contribute migrants to the city of Bangkok proportional to their population and inversely proportional to its distance from Bangkok. How much the gravity model can be accounted for the movement of people from the hinterland provinces to Bangkok? What are the factors accounted for the non-gravity migration? Are there any relationships between the socioeconomic characteristics of the provinces and the non-gravity migration? It is the purpose of this study to attempt to answer these questions with the belief that responses to these queries might provide useful approaches to the

basic problems underlying the migration patterns into Bangkok. Also it should supply applicable information to complement the government plan of regional urban centers development. Furthermore, suggestions and recommendations for alternatives also will be made.

There have been studies about migration patterns to and from Bangkok, but none of the authors have studied the characteristics of the origins of the migrants. Several studies used similar techniques in data gathering by field surveying through selected samples. The smallest geographical areal units that other studies used were broad regional areas. This study will utilize data based on the smallest areal unit available which is the province. The total number of migrants into Bangkok during the 1970s also was selected for use in the analysis, not merely a sample. It is believed that with more suitable data, the study will allow more valid inferences about the migration to Bangkok.

Statement of Research Problems

The problems to investigate are:

From 1970 census data, how much of the variation in migration to Bangkok was explained by the gravity model?

Are there any significant relationship between socioeconomic characteristics of the hinterland provinces and their contribution of migrants to Bangkok?

Which are the provinces that should be supported in order that their major cities could become regional urban centers and perform similar functions as Bangkok?

Are there any alternative ways to redistribute the population of Thailand other than those stated in the plan adopted by the Urban Planning Division?

Statement of the Hypotheses

In view of finding a solution to the above problems and to provide a basis for statistical analysis of the data gathered, this study was designed to investigate the following hypotheses:

1. As suggested in the gravity model, the volume of migration from both directions, origin and destination will decline with increased distance between origin and destination. It is hypothesized that the gravity concept will not conform rigidly in the case of Thailand. The provinces that are low in socioeconomic status but located a great distance from Bangkok will provide a larger proportion of migrants to Bangkok than the provinces that are high in socioeconomic status but located closer to Bangkok.
2. There will be a strong relationship between the migration from a given province to Bangkok and the following socioeconomic characteristics of that province:

Urban Environment: The urban area provides more attractions and a greater variety of opportunities than the rural area; thus there is a tendency for people to migrate from a rural province to one that contains a large urban center. For this study, it is hypothesized that if there is no existing large urban center (25,000 inhabitants or more) in a given province, a larger share of migration to Bangkok will be contributed by that province.

Youth Population: According to several studies, young adults are more likely to migrate than people of other age groups. It is hypothesized that the same phenomenon will occur in Thailand. The largest proportion of migrants to Bangkok are contributed by those provinces with high percentages of young people.

Education: There will be a strong relation between education and the migration to Bangkok. The more highly educated prople are associated more with migration because they have a wider range of access to information than the non-educated. The provinces with relatively high percentages of educated population will supply a larger proportion of migration to Bangkok.

Economy: The provinces that contribute more migrants to Bangkok than expected, given their population and distance from Bangkok and based on the gravity model will be those that are poor.

Public Services: The provinces with inadequate public services will provide a larger proportion of migrants to Bangkok than the ones with better or adequate public services.

Security: Migration will occur from areas of unrest to more peaceful destinations. Bangkok is the capital city of Thailand, people believe that the security in this large metropolis would be somewhat better than those in hinterland provinces. If there is a low degree of safety in a given province, excess migration can be expected.

Interaction: Among the interaction between two places is the movement of people in both directions. It is hypothesized that if the population in a given province has more interaction with Bangkok, the migration to Bangkok will be larger than the province with less interaction with Bangkok.

Study Area and Source of Data

For the purpose of this study, Bangkok province is the combination of Bangkok and Thonburi provinces. Before 1972 these two provinces were politically separated in administration. Both provinces are located on the banks of Choa Phraya River, Thonburi on the west bank and Bangkok on the east bank. Although the two provinces are geographically separated by the waterway, they are in close proximity to each other and their combined municipal areas can be considered as an urban system.

Thailand was selected as a study area for two reasons. Firstly, it is the author's home country, and the author wishes to have more geographical understanding of the country. Secondly, there is a very limited amount of geographical research done on Thailand. It is hoped that this study will be useful for planning and can be added to the geographical knowledge of Thailand.

The data employed in the statistical procedures were extracted from the limited and unorganized statistical information which is available in Thailand. The data were taken from three major government documents: (1) Population and Housing Census: 1970, National Statistical Office; (2) Statistical Yearbook: 1967-1975, No. 28-31, National Statistical Office: (3) Public Health and Vital Statistics: 1970, Division of Vital Statistics, Department of Public Health. The data were acquired during field research in the city of Bangkok during the summer of 1977.

The Basic Data Set

Since the province was the smallest areal unit for which data were available for the pre-selected variables, provincial level data were used for the development of socioeconomic indicators for each of the provinces. The same areal units were used for migration to Bangkok data. The road distance from province center to Bangkok in kilometers was chosen as the measure for distance variable in this study.

Sixteen variables were selected and used for measurement of socioeconomic and interaction conditions.

Urban Environment: At the provincial level, three measures of urbaization were available: these were percentage of the population living in municipal areas, percentage of non-agriculture households and the existence of cities or towns with 25,000 inhabitants or more (dummy variable is used for the existence of large cities or towns).

Youth Population: The measure chosen for this variable is the percentage of population between 15 and 24 years of age.

Education: The percentage of population enrolled in secondary schools was selected as the only feasible measure for education. It is assumed that when the percentage of the enrollment in secondary schools is greater the overall educational level of the local population also will be greater.

Economy: In order to measure the economic conditions locally, the percentage of population engaged in economic activities, the percentage of population employed in professional and related type works and the percentage of household owning automobiles were included. It is believed that the provincial ability in providing jobs for its population and supporting those high skilled type jobs can be used

for indication of economic conditions. Automobile is regarded as luxurious property, therefore it was included in the selection as surrogate for economic condition.

Public Services: Since public services were hypothesized to be important factors in migration decisions, public health conditions, public transportation and recreation services were pre-selected variables for this measure. Unfortunately, the only information associated with public services was public health related data. The ratio of population to the number of medical doctors and surgeons in practice in the province and the ratio of population to the number of beds in the hospitals were used to measure the public health services. The death rate per thousand of people also was chosen as a health condition measure for the provinces.

Security: The only attainable measures of provincial safety are the criminal cases reported for each province in 1970. The presumption made here is that the higher number of crimes committed in a given province, the less safety one could expect in that province which later will lead to the more movement of people to the more peaceful places.

Interaction: Among various interactions that the hinterland provinces could possibly engage with Bangkok. The percentage of households having television sets that receive television transmission from Bangkok, and the number of trains scheduled to Bangkok daily are used to measure the degree of interaction between the hinterland provinces and Bangkok.

The percentage of total population that has television sets will indicate the degree of interactions that take place between the

hinterland provinces and Bangkok. Out of 70 provinces in Thailand, more than 35 provinces are within the direct coverage of the signals from the television stations in Bangkok. The population of the area under direct coverage is more than half of the total population. In 1961, three regional stations were constructed at Lampang in the north, Khon Kaen in the northeast and at Songkhla in the south. These three regional stations are linked with the stations in Bangkok where most of the programs were produced from the station bases in Bangkok.

Definition of Terms

The following terms are used in this study according to the definitions given:

Bangkok Metropolis: This refers to the twin cities of Bangkok and Thonburi. At the time the original data for this study were collected, the two provinces were politically separated. However, most Thai people perceive them as one functioning urban system. Finally, in 1972, they were actually combined as one political unit.

Hinterland Provinces: This means all of the 69 provinces excluding Bangkok and Thonburi.

Migrants to Bangkok: This phrase means persons five years of age and over who have migrated to Bangkok from the hinterland provinces after April 1, 1965, and any time during the five years preceding the census date of April 1, 1970.

Municipal Area: A legal unit established by the Royal Decree of the 1953 Municipality Act. There are three categories of municipal areas: city, town, and commune.

A commune municipality is established wherever there is a grouping of people sufficiently large enough to merit incorporation. There is no specific population category for a place to be a commune.

A town municipality is an area where an administrative seat of the provincial government is located, or where the population is at least 10,000 persons with an average density of not less than 3,000 persons per square kilometer.

A city municipality is an area where the population is at least 50,000 persons, with an average density of not less than 3,000 persons per square kilometer.

Agricultural Household: This is a private household where the occupation of the head of the household is agricultural regardless of whether the working status was worker or employer.

Economically Active Population: This includes all persons 11 years of age and over who were employed, regardless of the types of occupations, including agriculture, or who had worked for wages on any day preceding the Census regardless of whether his or her working status was worker or employer.

Procedure and Methods Employed

The overall objective of this study is to investigate the factors influence the migration to Bangkok. Specifically, the objectives are:

1. To examine the conformity of the gravity model in migration to Bangkok pattern.
2. To investigate the relationship between the socioeconomic characteristics of the hinterland provinces and the non-gravity migration.

3. To determine the hinterland provinces that might qualify for development support in order that their major cities or towns could become the regional urban centers and serve local populations that otherwise might move to Bangkok.

The results of this study should lend implementation, recommendation or alternative suggestions to the regional planning in order to improve the social well-being of the people of Thailand.

The following procedures were used to achieve the above objectives. Chapter II reviews the major literary contributions that are concerned with migration study. Chapter III contains a general description of Thailand and its urbanization. The distribution of migrants from the hinterland provinces into Bangkok is also discussed in this third chapter. The description of the nature of techniques used in the analysis of the data and the results of the analysis are found in Chapter IV. The findings from Chapter IV are extended in Chapter V with the discussion of provincial socioeconomic characteristics and regional urban development. The basic objective of Chapter V is to put together descriptive verbal interpretation of the analysis performed in Chapter IV. The attempt also will be made to identify areas of need for provinces and regions attempting to obtain support through national programs for development of regional urban centers. The Chapter is concluded with the discussion of some feasible alternatives in redistribution of the population of Thailand. Finally, in Chapter VI, summary and conclusions along with suggestions for further research are conferred to complete the study.

In analyzing the data, gravity and non-gravity related migration variables were generated based on the gravity model and later used in

the correlation and factor analyses. The methods selected in the analysis of the data are believed to be appropriate since they are designed to find the causal relationship between the independent variables and the dependent variables.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to present a review of pertinent literature concerning the distribution of population, migration, and specifically movement to Bangkok, Thailand.

In most studies of the spatial redistribution of population, the term "migration" has been applied freely to all types of population movement ranging from daily commuting to permanent settlement in another country. The semantic connotation of the word is defined by the Webster Dictionary as ". . . the act, or an instance of moving from one country, region, or place to settle in another." It has been frequently used as a mean of "the change of place of residence," but the question of at what point such a change constitutes an act of migration must be asked. Most people take the view that movements across administrative demarcations are migrations, but whether these are boundaries between local civil, intermediate county, and larger provincial units is subject to the workable definition of the particular census bureau.

The distribution of population and migration have been studied by a number of fields including geography, economics, regional sciences, demography, and sociology. There have been two basic approaches. The first involves the proposal of basic concepts and theory on migration and the latter are those studies applying and testing the theories.

Concept and Theory in Migration

No discussion on the principles of migration can be complete without reference to the Ravensteinian Laws (1885, and 1889), the major classic work which emphasized distance as the most important factor that explains the movement of people over space. His theories are considered as the starting point for works in migration theory. His first paper was based upon the British Census of 1881, and in 1889 he returned to the subject with data from more than 20 countries. Ravenstein's laws are summarized in his own words below:

1. Migration and distance.---(a) 'the great body of our migrants only proceed a short distance' and 'migrants enumerated in a certain center of absorption will . . . grow less as distance from the center increases' (I, pp. 198-99).---(b) 'migrants proceeding long distances generally go by preference to one of the great centers of commerce and industry' (I, p. 199).

2. Migration by stages.---(a) 'there takes place consequently a universal shifting or displacement of the population, which produces "currents of migration," setting in the direction of the great centers of commerce and industry which absorb the migrants' (I, p. 198).---(b) 'the inhabitants of the country immediately surrounding a town of rapid growth flock into it; the gaps thus left in the rural population are filled up by migrants from more remote districts, until the attractive force of one of our rapidly growing cities makes its influence felt, step by step, to the most remote corner of the kingdom' (I, p. 199).---(c) 'the process of dispersion is the inverse of that of absorption, and exhibits similar features' (I, p. 199).

3. Stream and counterstream.---'Each main current of migration produces a compensating counter-current' (I, p. 199). In modern terminology stream and counterstream have been replaced for Ravenstein's current and counter-current.

4. Urban-rural differences in propensity to migrate. ---'the natives of towns are less migratory than those of the rural parts of the country' (I, p. 199).

5. Predominance of females among short-distance migrants.

---'females appear to predominate among short-journey migrants' (II, p. 288).

6. Technology and migration.---'Does migration increase? I believe so! . . . Wherever I was able to make a comparison I found that an increase in the means of locomotion and development of manufactures and commerce have led to an increase of migration' (II, p. 288).

7. Dominance of the economic motive.---'Bad or oppressive laws, heavy taxation, an unattractive climate, uncongenial social surroundings, and even compulsion (slave trade, transportation), all have produced and are still producing currents of migration, but none of these currents can compare in volume with that which arises from the desire inherent in most men to "better" themselves in material respects' (II, p. 286).

During the past three quarters of a century, Ravenstein has been much quoted and occasionally challenged. However, both of his papers have stood the test of time and remain the starting point for studies in realm of migration.

Most essays in migration theory have dealt with migration and distance and have advanced mathematical formulations of the relationship. The observation of exceptions to the inverse distance rule led Stouffer (1940) to replace the distance determinant by his well-known hypothesis of "intervening opportunities." Stouffer's hypothesis argued that the volume of migration at a given distance is directly proportional to the percentage increase of opportunities at that distance. Another well-known hypothesis that has been tested and applied in several studies was proposed by Zipf (1946). Zipf's $P_1 P_2/D$ theory was an attempt to predict the volume of migration in both directions between two cities rather than those moving in one direction.

The emphasis on basic concepts of migration has been generalized in Petersen (1958). He developed the typology for the analysis of both internal and international migration. Types, classes, causes, and

reasons of movement made by people are proposed. The class of migration in this study included primitive, force, impelled, free and mass migration. The type of migrations are classified by process of migration or in other words, the way in which the migrant moved from the place of origin to place of destination.

In 1966, Lee evaluated and acknowledge several other migration theories and developed a more general scheme of spatial movement of people with the concern on the volume of migration, the development of streams and counterstreams, and the characteristics of migrants. Lee has made an interesting observation that the volume of migration varies with the socio-economic status of the place of origin. His concern on the concepts of stream and counterstream is obvious in his paper. He states that:

> . . . migration tends to take place largely within well defined streams . . . For every major migration stream, a counterstream develops . . . The efficiency of the stream and counterstream tends to be low if origin and destination are similar . . . The efficiency of a migration stream will be high if the intervening obstacles are great . . . The efficiency of a migration stream varies with economic conditions, being high in prosperous times and low in times of depression (p. 29).

In Dodd's study (1950) on the interaction between places, he proposed that groups of people interact more as they are closer in distance, facilitated by better communication and having the same kind and level of activities among them. Migration studies done by Morrill (1963 and 1965) also revealed a great deal about the varying impact of distance upon social activity and movement. Here, several different functions have been used to describe the observed distribution of migration distances. The pareto and exponential distributions are broadly the same as the formulation given in the gravity model, but

normal, log normal, and gamma functions have all been fitted with varying degrees of success. Norris (1972) saw the redistribution of people through the geographical concept of spatial interaction. Migration models were proposed with the recognition of intervening opportunities, push and pull factors and feedback between places.

Sociologists have been interested in migration studies. Most of them are concerned more with the behavior of the migrants rather than the spatial point of view. The books Migration and Development (1975) edited by Helen I. Safa and Brian M. Du Toit, Rural Migrants in Urban Settings by G. Beijer (1963), Why Families Move by Peter Rossi (1955), and Human Migration by J.J. Manglam (1968), all emphasize the life of the migrants and how they can adjust or assimilate in the new environment. Safa and Du Toit (1975) in their book explore the implications for ethnic consciousness and political conflict of the international mass migration. They state that:

> . . . migration is no longer limited to shifts of families from country to city, but now involves wholesale population movements across national boundaries and into different cultures and economies . . . The ethnic minorities created as a result of this new form of migration are increasingly rejecting assimilation as a mode of adaptation and seeking instead to maintain their identity within a new pluralistic framework (p. 11).

An article appearing in the Milbank Memorial Fund Quarterly entitled "Chain Migration, Ethnic Neighborhood Formation and Social Networks" by J. S. MacDonald and L. D. MacDonald (1964) discusses the chain migration of a certain ethnic groups with the belief that current migration and population problems are part of historical migration. They concluded that chain migration was an adaptation of the familism and dyadic patronage which were the crucial forms of the contributing

society, providing a feedback of information and assistance from immigrants in the place of destination to prospective emigration in their hometowns.

Migration, Inductive Studies

There has been much inductive research and many studies done on the small scale. Bright and Thomas (1941) tested Stouffer's hypothesis on 1930 U.S. population. Their findings upheld Stouffer's ideas. Isabell (1944) also attempted to test the intervening opportunities theory using Swedish census data, and the results supported the theory. The author further suggested that "opportunities" needed a refinement of definition. Strodbeck (1949) again challenged Stouffer's theory of intervening opportunities by applying the theory to Kentucky's migration of 1930. His findings did not add significantly to what already was known.

Examining migration from three small towns in the southern part of the United States, Mauldin (1940) concluded: one, that slightly more than one-half of all the subjects studied had migrated; two, that the largest proportion of migrants came from the well-to-do group; and three, that girls were more migratory than boys except that superior boys were more mobile than any other group. Gist et al. (1941) in their study concerning selective aspects of rural migration found that two-thirds of the individuals studied had moved since they had been in town. The results showed no significant difference in the selective process for the sexes, that is, men migrated from rural communities in about the same proportions as women. Bowles (1957) found that females migrated from farms more than males and that non-

white migration rates were higher than white migration rates. In general, rates for females were higher or the same as those for males among the age between 15 to 19; for the ages 20-29, the rates for males were higher or the same as rates for females; and for persons over 35 the rates were higher for females than for males.

In 1961, Tarver made a study on the prediction of migration. It indicated that migration was not a corollary of a unitary element, but rather a composite of interrelated demographic, economic, and social factors. The analysis demonstrated that independently the three sets of variables explained 72 per cent of the variation in white net migration rates. Interdependently, the three sets of variables accounted for an additional 26 per cent of the variation. Therefore, independently and interdependently the three sets of variables accounted for 98 per cent of the variation in the 1940-1950 white net migration rates. Later in 1963, Tarver examined interstate migration differentials. He found no significant difference in interstate migration rates of males and females. Males had slightly higher interstate migration rates than females, but females tended to move at younger ages and reach their peak movement at an earlier age than males. These results coincided with those found by Bowles (1957). In 1965, Tarver again worked with Gurley studying the variation of net migration rates by counties. Their study showed that a percentage of nonwhite and median family income accounted for the variation of net migration by counties in the United States during the 1950-1960 period.

Rose (1968) attempted to relate distance of migration to the sociological variables. The variables used in his study were rent, education and professional employment as well as white population.

His findings also confirm Stouffer's theory that persons of higher socioeconomic status tend to move greater distances. Later, in 1970, Brown and Longbrake related the socioeconomic characteristics of place of origin and destination to volume of migration. They suggested that the role of the housing market at the place of destination is an important factor in intraurban migration.

Goldstein (1964) analyzing commuting and migration patterns based on census tract data, found that the majority of the labor force resident in most suburban communities do not commute to work in the central cities of metropolitan area; rather they hold jobs either within their own or in other suburban communities. Within the respective zones, purely local migration takes place independent of changes in job location and for those migrating greater distance. The greater the distance moved, the less strong is the tendency to retain jobs in the area of origin.

The results of Fielding's (1966) study of internal migration and regional economics in France indicated that migration flows are the adjusting mechanism of a population to the fairly complex employment supply-demand changes in different regions. He also noted that the adjustment of population to the employment market is incomplete because employment changes vary in the extent to which they attract migrants rather than natives and very often that migrants are incompletely informed on where job opportunities exist.

J. S. Lowry wrote Migration and Metropolitan Growth: Two Analytical Models in 1966 utilizing data collected from U.S. Census 1950-1960 on 90 SMSA's. Two analytical models used are the multiple linear correlation and regression anylysis. His study showed that migration has

an effect of redistributing population over space. Distance and labor-markets at the distinations influenced the out-migrants in making their decision. The volume of out-migration from a given place is a function of the size and composition of its population. He further indicated that a depressed community, unable to attract enough in-migrants to offset its losses through out-migration, the population would likely decrease. When measured over a substantial time interval, net migration to a given place has a direct relationship with the growth of employment at that place and an inverse relationship to the natural increase of the resident labor force.

Charles T. Stewart, Jr. (1960), investigated the growth of urban population and applied the results against migration models and historical data. His study showed that migration is proportional to the population of the city of destination, and that it is inversely proportional to the distance of migration but was not supported when he used the historical development of city-size distributions. He concluded that a study of the historical development of many city hierachies is needed both as a rough measure of migration rate differentials by size of city and of growth-rate differentials of cities by size or rank.

Curtis C. Roseman focused his interest in intraurban migration. In his article "Migration as a Spatial and Temporal Process" in the Annals of the Association of American Geographers (1971) made an observation that

> . . . one possible explanation for intraurban mobility of in-migrants concerns the process by which they adjust to a new environment . . . The in-migrant may soon make an

> intraurban move as part of this adjustment, a process distinct from any assimilation process that may characterized in-migrants of a particular minority group (p. 593).

Roseman argued that the choice of general area and the specific location within it are likely to be satisfactory with total displacement moves, but that dissatisfaction with house or immediate neighborhood may require a partial displacement move within a short time after a household enters a new area.

Also in his study on "Channelization of Migration Flows from the Rural South to the Industrial Midwest," in the Proceeding of AAG (1971), Roseman concluded that information flow regarding migration opportunities in particular Midwestern cities has not been limited to single local communities in the South.

Heide (1963) indicated that migrants tend to focus on particular places as potential destinations not only because of their desire to be near friends and relatives, but also because of the role of friends and relatives as sources of information regarding job and housing opportunities.

Julian Wolpert, a regional scientist, in his article entitled "The Decision Process in a Spatial Context" that appears in the Annals of the Association of American Geographers (1964) has convincingly demonstrated that in migration studies, the individual behaves more as a "rational being" than a purely "economic man." Therefore, if the definite economic factors have to give way to the whole complex of understood abstract values, appreciation of the decision-making process undertaken by the migrants is often denied even the most careful investigator and thorough observer.

Migration and Urbanization in Thailand

Literature dealing with migration and urbanization in Thailand was found to be very limited. It was not until Jefferson (1939) had brought to attention urbanization in the developing countries that works on Thailand's urbanization, distribution and movement of people began to appear in various social science and scientific journals. Jefferson gave the basic theory of why the primate city developed. He stated that greater opportunities were the major attractions that drew people to the city. Jefferson referred to Bangkok as a true example of a primate city.

Berry (1961) argued that the primacy pattern is the phenomenon associated mostly with countries that are low in economic development, but his study did not confirm his hypothesis. Linsky (1965) added to the primacy theory by suggesting they are small colonial and ex-colonial countries, and they are dependent on one or a few export goods for their well-being.

Examining the internal population movement in Thailand, Ng (1969) found that regional population balance was strongly affected by the continuing centripetal flow toward Bangkok, and he also believed that this trend will likely become more significant in the future. He further noted that in choosing a destination, the migrant generally prefers an area with which he is more familiar, where he can practice his traditional skill, where he will be living among people with similar cultural background and above all, an area where the necessary changes and adaptations are at a minimum. He concluded that intraregional movement in Thailand is the main redistribution process and is

governed to a certain extent by the differences in the physiologic density, but it appears to be more strongly influenced by the creation of new opportunities either through the provision of irrigation or by diversification of the agricultural economy. Sidney Goldstein in his articles "Urbanization in Thailand, 1947-1967," and "Thailand's Urban Population Reconsidered" concluded that there were very small urban populations in Thailand but the rate of urbanization is high and the quantity of medium size urban places are steadily increasing during the last 30 years.

Larry Sternstein, a former adviser to the Bangkok Municipality, is one of the major contributors to migration studies in Thailand (1965, 1966, 1971, 1974, 1975, 1976, and 1977). Most of his works emphasized the character of the migrants and their reasons for moving. His studies indicate the sources of migrants to Bangkok, the certain characteristics of the migrants, sex and age. He stated that migration to Bangkok is caused by the pull factors of the city.

In the book edited by Philip M. Hauser (1957), he argued that

> . . . the volume of rural-urban migration has been relatively high in countries of Asia. This was of course not strictly dictated by the avenues of industrial and other productive employment opportunities opened up in the urban areas. Generally, the push factor predominated the pull factor of urban centers also operated. Those push factors are the limited economic development in the rural areas (p. 18).

The report concerning migration to Bangkok published by the National Statistical Office of the Prime Minister, Bangkok, Thailand emphasized the migration of children and youth into the Municipal area of the Bangkok Metropolis. The report was based on the sample survey concerning the types of in-migration, reason for in-migration, and the characteristics of the population migrating to Bangkok.

The results of this survey correspond to what already was known that the central region is the major source of migrants to Bangkok and the next is the northeastern region. The most important migratory motives were economic.

Summary Review of Literature

In summary, this review of literature by no way means an exhaustive work; it merely brought to the attention of the reader the strengths and weaknesses of literature on the subject of migration study.

Awareness of the importance of migration studies has steadily grown over the years since Ravenstein's laws of migration. There has been a steady increase in the number of journal articles and also a sophistication in the techniques of collection and processing of migration data, a diversification of variables used in recent migration studies, and a growing concern with theoretical aspects of the study of migration. Migration has become recognized not only as a problem-creating phenomenon but also as a problem solving social process. The diversification of variables and techniques used in the study of migration is the result of the complex nature of migration. Basically, most of the works on migration were aimed to answer these general questions: (a) Who are the migrants? (b) Why did they migrate? (c) Where did they migrate? and (d) What are the consequences of migration?

Most of the earlier works were based on a theoretical point of view such as those of Ravenstein's Stouffer's, Zipf's and Petersen's. Migration studies later have become largely statistical and occasionally case studies. Much of the migration studies done on Thailand are limited to a very few scholars (Goldstein, Sternstein and Ng). Most

of their works focused on the migration to Bangkok. The migrants and sources of migrants are the main focus of their studies, but the attributes of the sources of migrants itself have been ignored. With this in mind, this thesis was designed to examine the factors affecting the migration to Bangkok from a slightly different point of view. Instead of focusing on migrants themselves, the characteristics of the place of origins will be emphasized with the belief that they will represent the characteristics of the migrants to Bangkok as well.

CHAPTER III

GENERAL DESCRIPTION OF THAILAND AND ITS POPULATION, URBANIZATION, AND MIGRATION

A Brief Review of Physical Characteristics of Thailand

Three main geological regions cover most of Thailand's 542,373 square kilometers (198,455 square miles). They are: the folded mountains in the north, the Khorat uplift in the east, and the Choa Praya lowlands that cover most of the central alluvial plains. The Himalayan system from Northern India extends southward into Thailand along the northwestern and western border. It continues into the peninsula and finally ends in Malaysia. The mountainous systems in the northwest are drained by the four major tributaries of the Choa Phraya River, Thailand's major river. Many of the provincial urban centers such as Chaingmai, Lampang, Phrae and Nan grew up along these four streams; Ping, Wang, Yom and Nan.

The Khorat uplift region in the northeast is the result of a geological fault. The area was tilted rather than having a uniform uplift of the underlying sedimentary rocks. Surface elevations in the Khorat region are about 650 feet. The terrain is rolling and the hilltops generally slope in conformity with the tilt of the land. Monsoon rains over the thin forest cover produce rapid runoff, flooding occurs almost yearly.

The central plains which have soils that are rich and fertile surround the Choa Phraya River. The alluvial plains and the river delta form the Thai heartland. The central plains are important not only as a major region for agricultural activities, but for political, social and cultural activities as well. Two capital cities were built on this flood plain. They are the once famous old capital city, Phra Nakhon Si Ayuthaya, and the present capital city and the country's only primate city and major metropolis, Bangkok.

The peninsula shaped like an elephant's trunk is rolling to mountainous with little flat basins. Massive mountains on the west contain difficult passes between Thailand and Burma. Off the rugged west coast of the southern region lie numerous major islands, the most important one is the island of Phuket, the most urbanized province of the South.

Administrative Divisions of Thailand

At the time the data were collected, Thailand was divided into 71 provinces (Changwat), the areal unit on which the data were based. Each of provinces is subdivided into districts (Amphur), subdistricts (King Amphur), communes (Tambon) and villages (Mooban) for the purposes of administration (Figure 1). The Census of 1970 indicates that there were 520 districts, 26 subdistricts, 4,926 communes and 41,630 villages. Among these administrative units, there were only 120 municipalities (See definition of term page 9 for municipal area definition). Figure 2 presents the map of Thailand and its provinces.

Thailand is also geographically divided into four regions; north, northeast, central and south (Figure 3). Most of the statistical studies on Thailand have been based on these regional units. Among

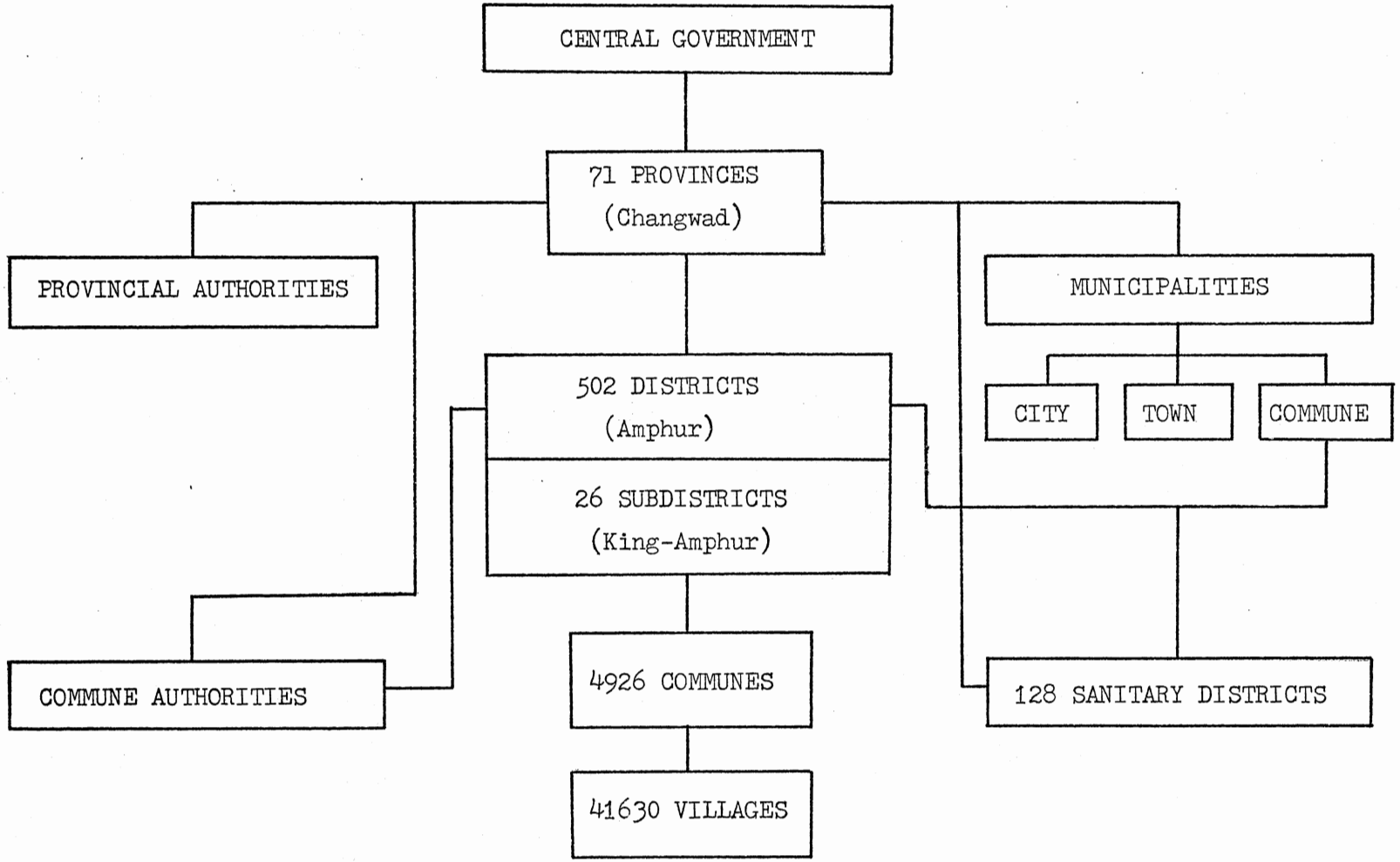


Figure 1. Structure of Provincial and Local Administration

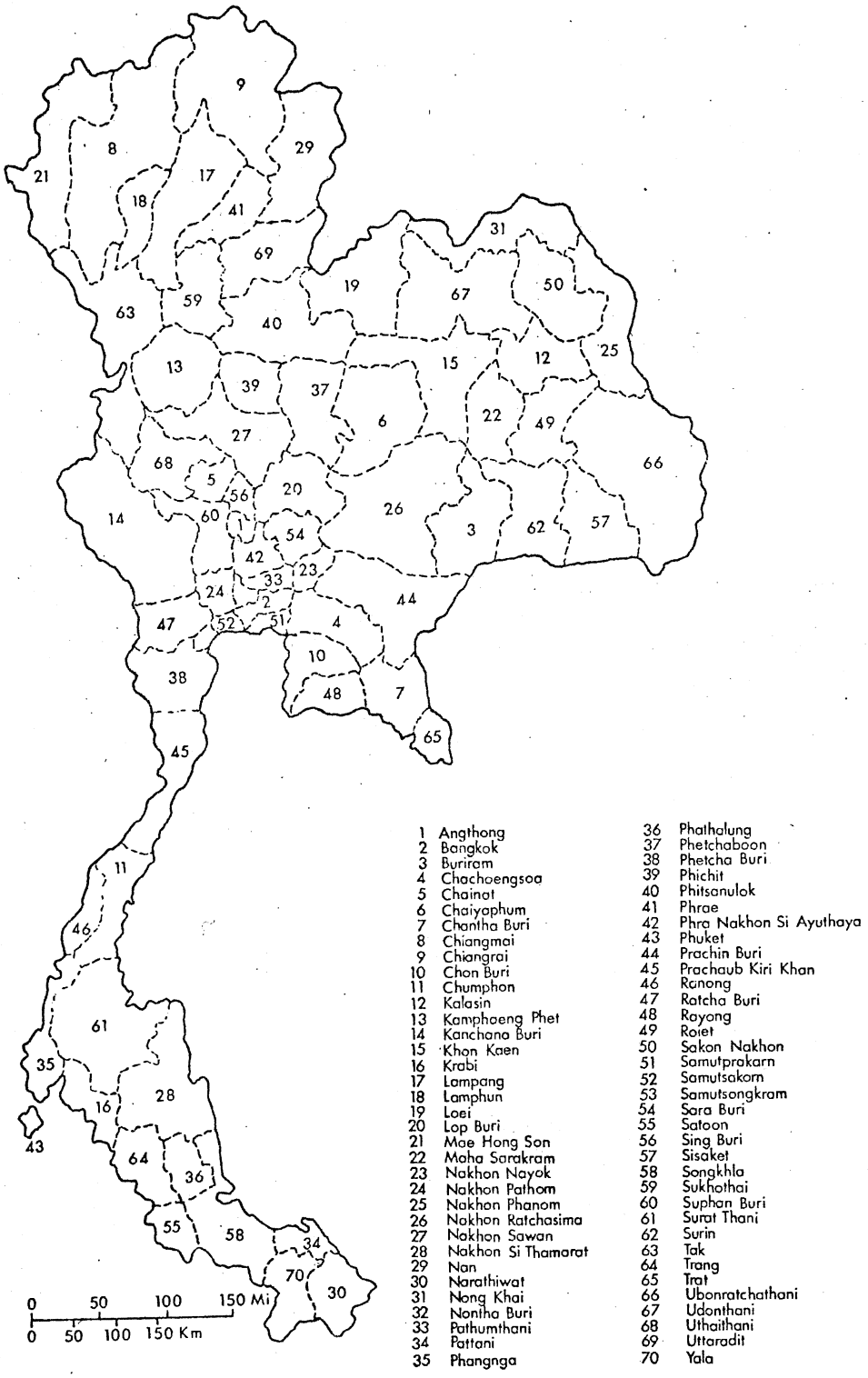


Figure 2. Thailand Administrative Provinces, 1970

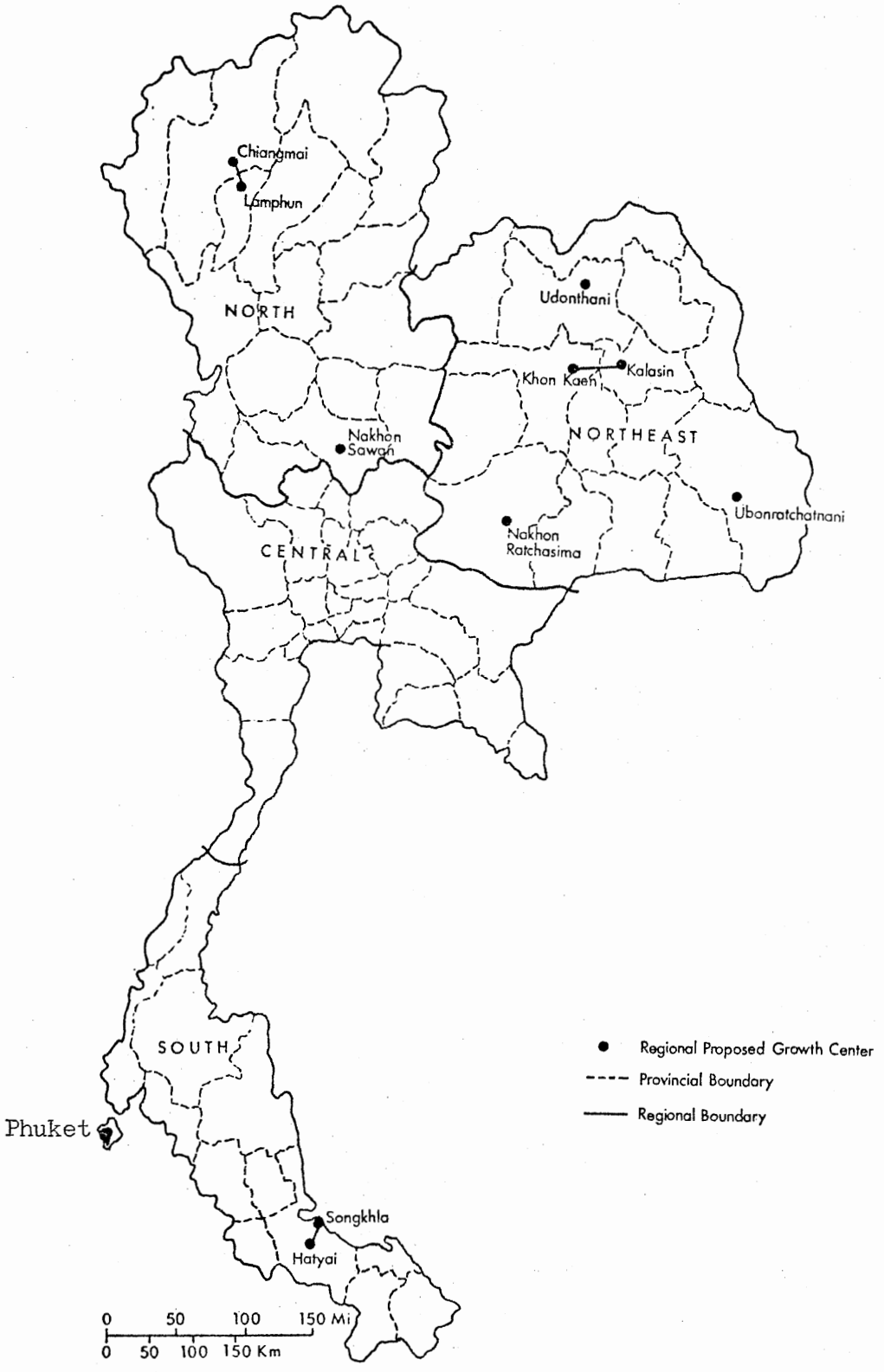


Figure 3. Thailand, Regions and Proposed Regional Urban Centers

the four regions, the northeastern has been described as the lowest in socioeconomic characteristics (Darling, 1971). The northeastern is the largest region with 170,200 square kilometers, and about one-third of Thailand's people inhabit this area. The region remains the most backward part of the country (Sternstein, 1977). The northeast is heavily dependent on agriculture both for income and employment. With a poor water supply due to the characteristics of its landforms, agricultural practice in the northeast relies heavily on the monsoon. Starting in the early 1950s, attention has been given to the poverty and political unrest within the region. Part of the problem has been the wars in the neighboring Indo-China, Vietnam, Cambodia and Laos areas (Nakahara and Witton, 1971). The Thai government as well as a number of international agencies have been involved in raising the low standard of living. Improved irrigation and widespread road construction have been major parts of the program to help the farmers in the northeast. Still there was an argument that this was insufficient to generate a reversal of the regional growth as heavy investment in irrigation has failed to produced any worthwhile return. Roads were aimed at security rather than development, and efforts were primarily designed to increase the government's popularity among the people in this area (Pakkasem, 1973).

The north ranks a very close second in area with 170,000 square kilometers and contains only one-fourth of Thailand's population. With a milder climate than the rest of the country and endowed with thick forests and fertile valleys, the northern area permits the people to maintain a better standard of living than those in the northeast, but not as high as those in the central or the south.

The southern section is the smallest area of the country with only 70,000 square kilometers located on the narrow peninsula of Indo-China. Less than one-eighth of the country's population live in this region. Water is generally plentiful due to the monsoon permitting rich agricultural production. Mineral deposits, especially tin, and products from the sea also account for the high standard of living.

The central region covers approximately 20 per cent of the country's total area and is about 101,000 square kilometers. It contains slightly over one-third of the total population. Because of its central position, manpower and modernization are heavily concentrated in the central region, especially in Bangkok and its immediate areas. As a result, the central region has a higher standard of living than any other region in the country which is obvious in the life style and way of living among its people. While difference dialects and simple way of living are preserved in other regions, the people in the central region, especially in Bangkok, are indulgent with western influnces.

Structure and Growth of Population

The population of Thailand continues to increase with a rate of growth annually of 3.3 per cent (National Statistical Office, 1970). The expansion of population results from an excess of births over deaths. No clear picture is available of the population size in Thailand prior to the Nineteenth Century. Several studies on Thailand's population used free guesses or vague estimates but they may not be far removed from reality. Ingram (1955) made an estimate that about 6,000,000 people resided in Thailand around 1830. If this figure was close to reality for the early Nineteenth Century, it appears to have

multipled about six times since then (Table I). From the last half of Nineteenth Century until the early Twentieth Century, Thailand's growth rate appears to have been very slow but had an accelerating pattern compared to other countries in Southeast Asia. This has been contested by Sternstein (1965) who argues that there is no evidence to suggest that birth levels had more than the slightest margin over those of death until about 1900. During the last three decades the annual growth of 3.3 per cent is exceeded only by the Philippines among the Southeast Asian countries (U.N. Demographic Year Book, 1974). Declines in mortality due to better care and immigration from China and India are the reasons for the growth of Thailand's population. The phenomena are similar to all the Southeast Asian countries. Among the regions, the Southern has the highest fertility rate followed by Bangkok, the Norteast, the Central and the North (Table II). The total birth rate for the whole country in 1970 was 33.3 per thousand population. The South also leads in the death rate. These rates are very high by the standards of the world's economically developed countries, but they are fairly typical among developing countries in Asia or in other parts of the world.

Age and Sex Composition

Thailand is characterized by a very youthful population which means that a relatively small working component must support the large proportion below working age. As a result, the requirements for education are disproportionately high. More than half of the Thai population is under 20 years of age and only three per cent are over 65 and over.

TABLE I

POPULATION BY REGION 1947-1970

Region	Population 1947	1960	1970	Per Cent Increase 1947-1960	1960-1970
Central	5,428,897	8,271,302	10,611,877	52.4	28.3
Northeast	6,210,281	8,991,543	12,025,140	44.8	33.7
North	3,642,711	5,723,106	7,488,683	57.1	30.8
South	2,160,800	3,271,965	4,271,674	51.4	30.6
Total	17,442,689	26,257,916	34,397,374	50.5	31.0

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No, 28-31 (1975).

TABLE II

BIRTH, DEATH AND GROWTH RATE BY REGION 1970

Region	Population	Birth	Death	Rate per 1000 Population Birth	Death	Natural Increase (Per Cent)
Central*	7,543,516	232,636	44,422	30.9	5.9	2.5
Northeast	12,025,140	429,330	81,606	35.7	6.8	2.9
North	7,488,683	214,569	51,535	28.7	6.9	2.2
South	2,144,558	148,739	23,320	69.4	10.9	5.8
Bangkok	3,077,361	120,019	23,016	39.0	7.5	3.2
Total	34,397,374	1,145,293	223,899	33.3	6.5	2.7

* Bangkok Metropolis is excluded from central region and was treated separately.

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No. 28-31 (1975).

Almost 40 per cent are under 13 years of age (Thailand National Statistical Office, 1975). There is no significant difference between the number of males and females. The statistics show that in 1970 there were 99.1 males per 100 females.

Urbanization in Thailand

Thailand does not have an official rural-urban classification scheme. None of the censuses from 1911 through 1970 showed any evidence of urban-rural classification. Municipality has been used in place of urban areas by several urbanization studies done on Thailand, but this has been far from satisfactory and it has been argued that the Thai classification should be changed.

As it has been defined in the section of Definition of Terms, there are three types of municipalities: city, town and commune. The Municipality Act of B.E. 2496 calls for a city municipality to be established when the population of such an area exceeds or equals 50,000 people and an average density of not less than 3,000 persons per square kilometer. Also the tax revenues must be sufficient for the execution of municipal public affairs. Areas where a population of at least 10,000 with an average density of at least 3,000 persons per square kilometer, and having enough tax revenues for municipal activities or the areas where the provincial administrative seats located regardless of population size are qualified as town municipality. There is no specific numerical criterion for a place to be a commune municipality. Commune municipalities may be established at the discretion of the central government. The creation of a municipality is made by Royal Decree. The powers and functions of these units

are prescribed in the provisions of the Municipal Act of B.E. 2496 (A.D. 1953).

Due to the many obstacles involved, such as the inefficiency of municipal personnel, the shortage of financial resources, and the lack of interest on the part of local people, the establishment of municipalities in Thailand has since the end of the Second World War been in the process of stagnation. From 1947 to 1960, there has been a slight change in the number of municipalities from 116 to 119 and no urban growth has occured during the interval 1960-1970 (See Table III). Because of this, it was thought that there should be some kind of local government to provide health and welfare services in the country's many scattered and under-developed communities, plus an opportunity for the people to practice self-government prior to being granted the larger autonomy of municipality. This point of view led to the establishment of the sanitation districts, which are under the control of the provincial authorities (See Figure 1). Using municipality as the urban-rural classification results in Thailand's population being mostly rural. During the past three decades, urbanization in Thailand has proceeded quite steadily.

Recent levels of urbanization, given by size of place and type of place are shown in Table III. Between 1947 and 1970, if the municipal areas were designated by population size, from the Table III, it indicates that a considerable shift of population had taken place from small to moderate-size places. As a consequence, where places with fewer than 10,000 persons accounted for 71 per cent of all urban places in 1947, by 1970 their proportion was reduced to 34 per cent. The number of towns with population of 20,000 to 50,000 increased

from 4.3 per cent in 1947 to 16.8 per cent in 1960 and 26.8 per cent in 1970. These changing distributions occured although a constant number of places designated as municipal areas was maintained. Small places were growing from commune municipalities and became town municipalities, but no additional smaller places were established as communes.

TABLE III

DISTRIBUTION OF MUNICIPAL AREAS BY SIZE AND TYPE OF MUNICIPAL IN THAILAND

Size and Type of Municipalities	1947	1960	1970
Size of Municipalities			
1,000,000 +	-	1	1
500,000 +	1	-	-
250,000 +	-	-	-
100,000 +	-	-	-
50,000 +	-	1	3
20,000 +	5	20	32
10,000 +	27	41	42
5,000 +	47	44	33
Under 5,000	36	12	8
Total	116	119	119
Type of Municipalities			
City	1	2	2
Town	32	61	76
Commune	83	56	41

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No. 28-31 (1975).

During the last three decades, the position of Bangkok as Thailand's only primate city remained unchallenged. With the population in its metropolitan area of 2,495,312 in 1970, it was 30 times greater than that of Chiangmai, the next largest city. This phenomenon is most fitting of Mark Jefferson's idea of a primate city. Regardless of the reason why one city might originally exceed its neighbors in size, once it does, this mere fact gives it an impetus to grow that cannot affect any other city, and it will draw away from all of them in character as well as size (Jefferson, 1939). The data indicates that this process is continuing along with a small but growing number of cities with populations in the range of 50,000 - 100,000. In 1947, there were none in this size, but in 1970 there were four.

TABLE IV

URBAN POPULATION IN 1970 BY REGION

Region	Total Population	Urban Population	Percentage of Urban Population
Central*	7,534,516	717,669	9.5
Northeast	12,025,140	445,273	3.7
North	7,488,683	439,854	5.9
South	2,144,558	454,992	21.2
Bangkok	3,077,361	2,495,312	81.1
Total	34,397,374	4,553,100	13.2

* Bangkok Metropolis is excluded from central region and was treated separately.

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No. 28-31 (1975).

TABLE V

PERCENTAGE DISTRIBUTION OF URBAN PLACES AND URBAN POPULATION BY REGION IN THAILAND 1970

Region	Number of Places	Urban Population	Urban Population (Per cent)
Central	49	3,212,981	70.5
Northeast	21	445,273	9.8
North	24	439,854	9.7
South	25	454,992	10.0
Total	119	4,553,100	100.0

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No. 28-31 (1975)

TABLE VI

DISTRIBUTION OF MUNICIPALITIES BY TYPE AND REGION

Municipality	Central	Northeast	North	South
City	1	-	1	-
Town	31	15	19	17
Commune	17	6	4	8
Total	49	21	24	25

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No. 28-31 (1975)

Table IV illustrates the distribution of urban population by region. Bangkok was treated separately from the remainder of the Central Region. The South had the highest urban population with 21.2 per cent of its people living in urban places. Urbanization levels in both the North and Northeast were very low with 5.9 and 3.7 per cent, respectively. Even though the rate of urbanization in Thailand is accelerating rapidly (with only 13.2 per cent of its population living in urban places), Thailand is still the least urbanized among the Southeast Asian countries except for Cambodia and Loas (Clarke, 1971). When Bangkok is included within Central Region, it increased the share of urban population from 15.8 to 70 per cent. It also has the largest number of urban places, 49 out of the total 119 (See Table V). The Northeast and the South do not contain any cities (Table VI). With 15 towns and six communes in the Northeast, that contain only 3.7 per cent of its population, the rest of 96.3 per cent of its population live in small villages.

It has been argued for some time that the Thai classification system should be changed and that at a minimum, more use should be made of the sanitary districts as a basis for identifying the urban population of the country. The inclusion of sanitary districts for urban classification was brought to attention by Robinson (1976) when he proposed a basic revision with the criteria of having population of at least 5,000 and a minimum average density of 1,000 persons per square kilometer. With the Robinson's criteria, the urbanization of Thailand would be higher than what it is now. These include (a) a substantial 42 per cent increase in the size of urban population, from 5.2 to 7.4 million; (b) level of urbanization up 6.1 per cent from

13.2 to 19.3; (c) the addition of 128 sanitary districts to the 119 municipal areas, the number of places classified as urban would be 247; (d) Bangkok's primacy will be reduced from 54.8 per cent of the total urban population in 1970 to 45 per cent. But even this substantial increase in the level of urbanization, Thailand would remain very much rural nation.

The 23 largest urban places with population of 25,000 and over are shown in Table VII. The smallest among the top 23 in 1970 was Saraburi. Out of 23 largest urban places, ten were in the Central Region. The South holds six, while the Northeast contains four and only three urban places with population of at least 25,000 persons who were in the North (See Figure 4). The analysis of urbanization for the country as a whole indicates the continuing dominance of the primacy of Bangkok. As shown by the data on urban places and urban population, it suggests that urban development has begun to permeate all regions of the country slowly but steadily.

Migration Patterns

During the 1920's and 1930's, the growth and distribution of the population in Thailand were caused largely by international immigration especially, Chinese and Indian people moving into the country. In 1949, the "Immigration Act" created a quota system and attempted to control the international immigration to certain numbers and nationalities each year. The international immigration now has virtually ceased (Skinner, 1957). Over the last two decades, internal redistribution has surpassed the external exchange in determining the pattern of population in the country.

TABLE VII

URBAN PLACES WITH POPULATION 25,000 AND OVER IN THAILAND 1970

Rank	Place	Region	Population
1	Bangkok	Central	2,495,312
2	Chaingmai	North	83,729
3	Nakhon Ratchasima	Northeast	66,071
4	Udonthani	Northeast	56,218
5	Hadyai	South	47,953
6	Nakhon Sawan	North	46,853
7	Samut Prakan	Central	46,632
8	Songkhla	South	41,193
9	Nakhon Si Thamarat	South	40,671
10	Ubon Ratchathani	Northeast	40,650
11	Lampang	North	40,100
12	Chon Buri	Central	39,367
13	Phra Nakhon Si Ayuthaya	Central	37,213
14	Phuket	South	34,362
15	Nakhon Pathom	Central	34,300
16	Samutsakorn	Central	33,619
17	Trang	South	32,985
18	Ratcha Buri	Central	32,271
19	Yala	South	30,051
20	Khon Kaen	Northeast	29,431
21	Petcha Buri	Central	27,755
22	Nontha Buri	Central	27,465
23	Sara Buri	Central	25,025

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No.28-31 (1975)

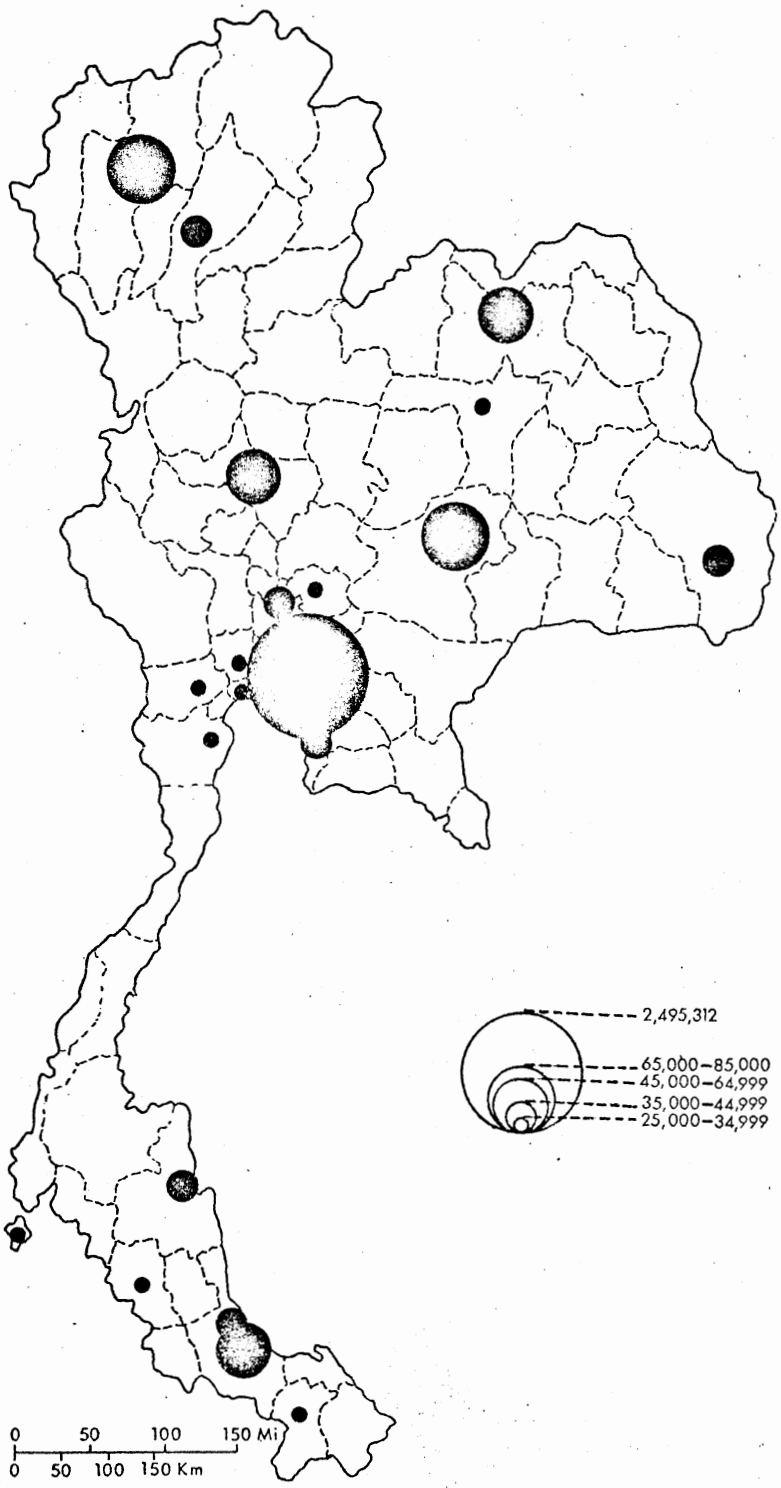


Figure 4. Urban Places with Population 25,000 and Over in 1970

Migration studies in Thailand have been interesting for social scientist during the past 20 years due to the rapid growth of the population, and due to the availability of more improved censuses; 1947, 1960 and 1970. Sternstein (1965) made an observation that the rapid upwelling of the population has not yet strained local carrying capacities, but he warned of several areas that many have serious difficulties. Population movements in Thailand are spontaneous. There are no administrative restrictions imposed and whatever inducement the is to migration is indirect. Thailand is an agricultural country with 85 per cent of its population engaged in agricultural economy (Silcock, 1967). Interregional movement in Thailand is the main redistribution process and it appears to be strongly influenced by the differences in the physiologic density, the expansion of opportunities of irrigation, and diversification of the agricultural economy through out the country. More specifically, interregional migration in Thailand is in two forms: rural to urban and interrural. Due to the absence of other large urban centers in other parts of the country, the major stream of rural-urban migration is toward Bangkok. The general pattern of migration to Bangkok will be discussed later in this chapter. The interrural movement is influenced by agricultural development. However, the movement of people between provinces appears to be less significant than the other type of movement in population redistribution in Thailand.

Migration To and From Bangkok

At this point, the discussion about population and migration patterns is drawn to the most important city of the study area, Bangkok

Metropolis, the twin cities of Bangkok and Thonburi. As pointed out earlier, Bangkok is a pull factor for interregional migration in Thailand. In most cases, the power of the pull factors is greater than the push factors in these hinterland areas. Bangkok has been the capital city of Thailand since 1782. After World War II, Bangkok grew with unprecedented rapidity, the population tripled and the area has been extended three times to include more than 233 square kilometers. Today, Bangkok Metropolis is the link between Thailand and the rest of the world and remains the integrating center for the country's political, economic, social and intellectual life (McGee, 1969). Concentrated within Bangkok are the major universities, a disproportionate number of the health services, the major industrial and commercial organizations, the prominent newspapers and other communication media, and the social and political elite. Bangkok is not a planned city and it is now undergoing rapid, if not choatic, changes. The province of Bangkok-Thonburi includes 23 districts (See Figure 5). The districts in the inner city are now becoming more clearly institutional and commercial; these districts are Phra Nakhon, Samphantawong, Pomp Prap Sattru Phai, Dusit and Phaya Thai. The outer city is more residential and industrial. The city is expanding to the Northeast and Southwest. The population in these inner city districts has been decreasing during the past decade (Table VIII). During a five year period, 1968-1972, Bang Kapi district had the highest net in-migration of 32.67 per cent. On the Bangkok side, only five districts out of 14 gained population by in-migration; Yanawa, Bang Khen, Bang Kapi, Phra Khanong and Lat Krabang (See Figure 6). Industrial expansion in Yanawa and Bang Khen and the increased housing market

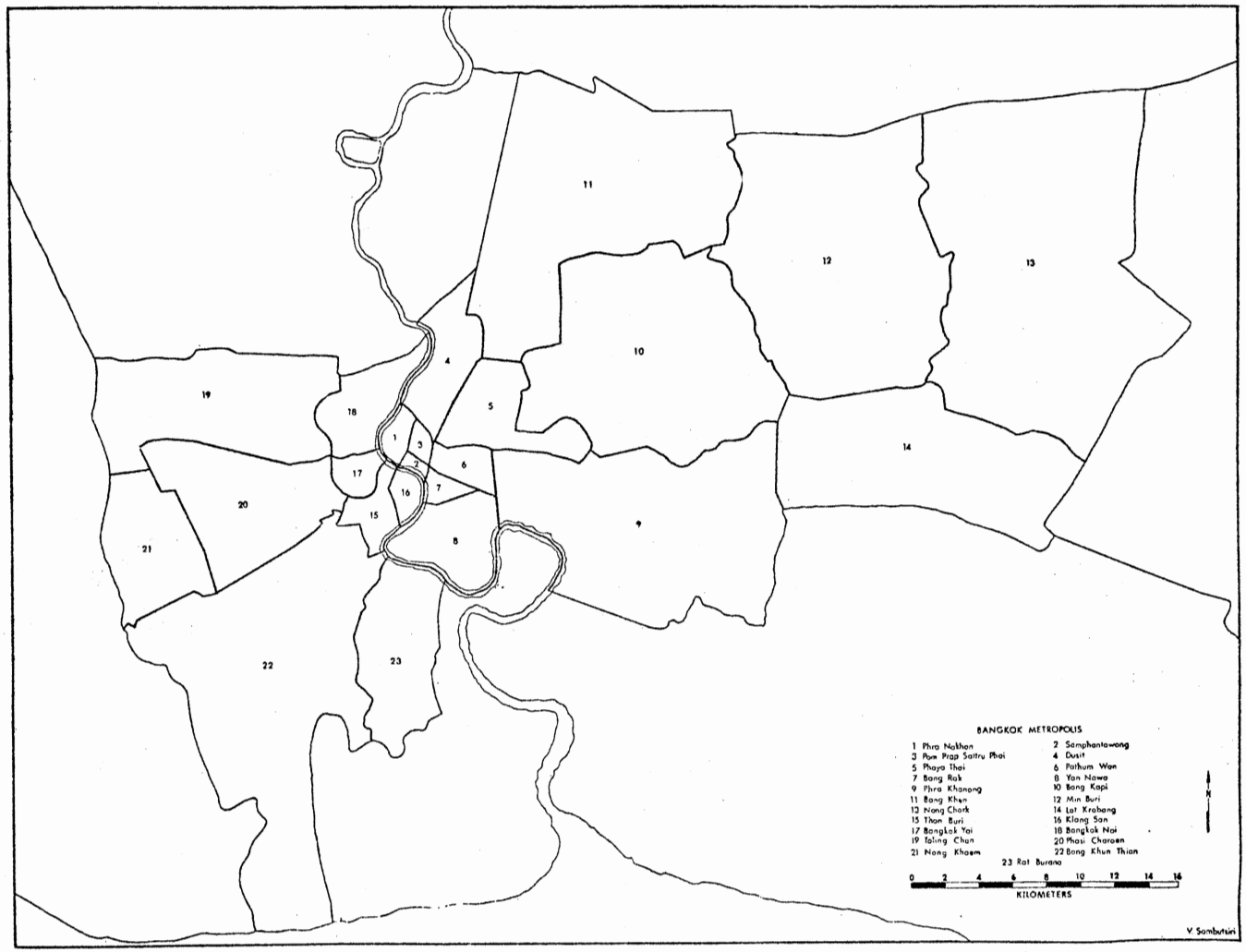


Figure 5. Bangkok Metropolis: Administrative Districts, 1970

TABLE VIII

COMPONENT OF POPULATION CHANGE BY DISTRICT 1968-1972

District	Population 1972	Population 1968	Change Number	Change Percent	Component of Change Birth	Component of Change Death	Net Migration Number	Net Migration Percent
Phraya Thai	433,775	338,114	95,661	28.29	114,345	13,938	-4,746	-1.09
Dusit	454,589	425,646	28,943	6.80	63,548	10,303	-24,302	-5.35
Pathum Wan	228,151	185,809	42,342	22.79	66,592	11,201	-13,049	-5.72
Yanawa	257,060	223,333	33,727	15.10	13,161	5,913	26,479	10.30
Pra Khanong	355,777	314,532	41,245	13.11	18,562	4,757	27,440	7.71
Pom Prap Sattrupai	227,254	172,321	54,933	31.88	64,448	5,292	-4,223	-1.86
Pra Nakhon	141,847	144,941	-3,094	-2.13	1,830	1,106	-3,818	-2.69
Bang Rak	121,338	120,076	1.262	1.05	13,867	3,989	-8,616	-7.10
Sam Phantawong	83,287	86,194	-2,907	-3.37	2,831	2,349	-3,389	-4.07
Bang Khen	191,858	156,210	35,648	22.82	14,125	3,981	25,504	13.29
Bang Kapi	90,780	57,564	33,648	57.70	4,761	1,203	29,658	32.67
Nong Chork	46,650	42,995	3,655	8.50	4,794	783	-365	-0.76
Min Buri	41,186	38,114	3,072	8.06	4,239	1,024	-143	-0.35
Lat Krabang	31,730	29,263	2,467	8.43	2,951	625	167	0.53
Thonburi	220,933	194,131	26,802	13.81	19,169	4,428	12,061	5.46
Klong San	140,074	127,758	12,316	9.64	5,060	2,123	9,379	6.70
Bangkok Yai	83,503	69,689	13,814	19.82	1,713	642	12,743	15.26
Bangkok Noi	274,217	217,182	57,053	26.26	70,556	10,597	-2,924	-1.07
Bang Khun Thien	105,188	85,815	19,373	22.58	6,647	1,734	14,460	13.75
Phasi Chareon	124,106	102,216	21,890	21.42	5,452	2,047	18,485	14.89
Taling Chan	50,198	45,540	4,658	10.23	2,789	920	2,789	5.56
Rat Burana	65,491	50,375	15,116	30.01	3,760	869	12,225	18.67
Nong Khaem	25,671	19,521	6,150	31.50	1,723	458	4,885	19.03

Source: Thailand National Statistical Office, Office of the Prime Minister, Statistical Year Book: 1967-1975, No. 28-31 (1975).

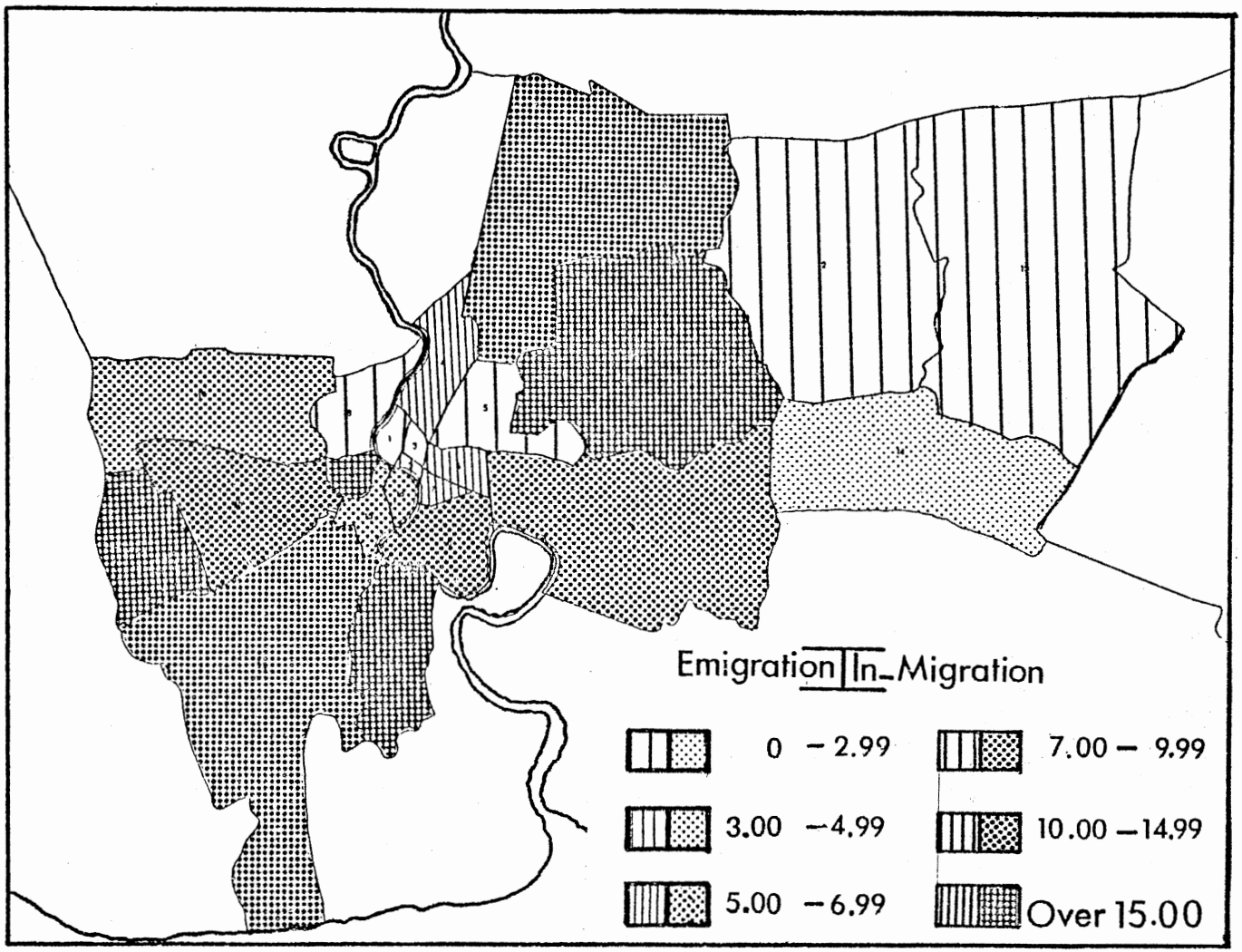


Figure 6. Net Migration by District in Bangkok, 1968-1972

of single and multi dwelling units in Bang Kapi and Phra Khnong during the past decades appear to be the causes for in-migration and the growth of population among these districts. The same phenomenon also happened on the Thonburi side, west of the Choa Phraya River. Thonburi and Klong San districts, the areas of government offices and commercial units, were the only two districts that experienced out-migration during that five year period. Rat Burana, Nong Kham and Bangkok Yai were faced with heavy in-migration due to the rise of residential and industrial sectors. The areas west of the Choa Phraya River Bank, once covered heavily with fruit orchards and marketing gardens, now is experiencing the impact of urban sprawl which spilled over from the east bank of the river, Bangkok. Residential and industrial development have transformed these rich arable lands into suburbia.

A similar thing was happening in these outer districts of Bangkok, Min Buri and Nong Chork, they were experiencing out-migration due to the development of residential and industrial areas. Later, people will probably start pouring into these districts as they did to Bang Khen, Bang Kapi and Phra Khanong.

From the censuses, the migration information can be identified from two sets of data: (1) persons who were living in a different province from that in which they were born, described as a lifetime migrants; and (2) persons living in a province different from that which they resided five years before the census, described as five year migrants. In 1970, the data on lifetime migrants indicates that 813,135 of the total population living in Bangkok Metropolis were born in a different province. About 296,189 people have moved into Bangkok during the period

of 1965-1970 (See Figure 7). It appears that a large flow of migration came from areas adjacent to Bangkok, and next they came from the Northeast section of the country. The information concerning the districts that migrants are likely to move into was not available at the time. The probability method was used here to identify the districts that the migrants most likely moved into, based on the components of population change by district (See Table XI). Bang Kapi appears to be the district that migrants most likely moved into for the reason stated before, urban sprawl. Dusit is the least attractive due to the limitation of housing availability. Lat Krabang, Min Buri and Nong Chork are in the transitional process of urban development. They will probably move toward a substantial increase of population in the immediate future.

TABLE IX

PROBABILITY OF ATTRACTION TO IN-MIGRANTS
IN BANGKOK BY DISTRICT

District	Probability	District	Probability
Bang Kapi	.151	Dusit	-.370
Phra Khanong	.140	Phatum Wan	-.199
Yanawa	.135	Bang Rak	-.131
Bang Khen	.130	Phaya Thai	-.072
Phasi Charoen	.094	Pom Prap Sattrupai	-.064
Bang Khon Thien	.074	Phra Nakhon	-.058
Bangkok Yai	.065	Samphantawong	-.051
Rat Burana	.062	Bangkok Noi	-.045
Thon Buri	.061	Nong Chork	-.005
Klong San	.048	Min Buri	-.002
Nong Khaem	.025		
Taling Chan	.014		
Lat Krabang	.00085		

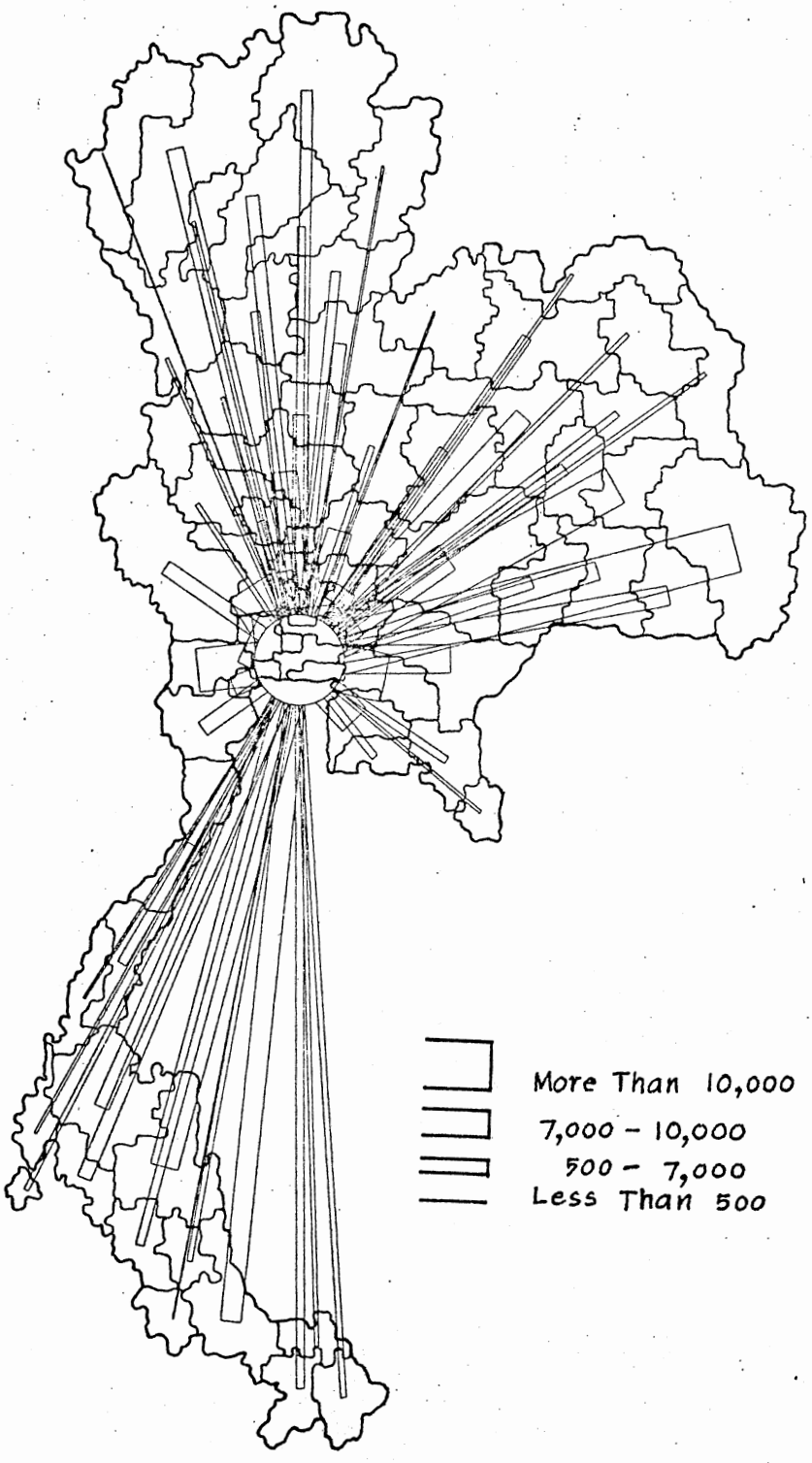


Figure 7. Flowmap of Migrants to Bangkok, 1970 Census

Migration is not a one-way process, and migration from highly urban areas to rural areas is an inherent part of the urbanization. Census data show that almost ten per cent of Bangkok's native-born population has moved to other parts of Thailand. The considerable portion of the out-migrants from Bangkok tend to favor the larger provincial centers more and the remote villages less (Ng, 1969). Many civil servants and most professionals went to these centers. Beside the career responsibility, family obligations are also the major reason for out-migration from Bangkok to other part of the country (Sternstein, 1974).

CHAPTER IV

RESULTS OF THE ANALYSIS

Gravity Model

In order to investigate the validity of the gravity hypothesis for migration in Thailand, the gravity model was generated for the volume and rate of migration to Bangkok. The predicted migration based on the gravity model both by volume and rate were obtained from the following equations:

MTBKKP = (3.16*TPOP70**.815)/DFBKK**.628

MTBKKRP = (2700.0/TPOP70**.17)/DFBKK**.636

where

MTBKKP = the predicted number of migrants to Bangkok from any given province,

MTBKKRP = the predicted rate of migration to Bangkok from any given province,

TPOP70 = the total population of the province in 1970,

DFBKK = the road distance from the given province to Bangkok.

A log transformation was employed in order to obtain the linear relationship. Four new variables were derived from the gravity model as follow:

MTBKKP = the predicted gravity migration volume,

MTBKKR = the non-gravity migration volume or residual migration,

MTBKKRP = the predicted gravity migration rate,

MTBKKRR = the residual (non-gravity) migration rate.

The non-gravity migration volume and rate were derived by subtracting the predicted gravity migration volume and rate from the actual migration statistics. The correlation between actual migration and the predicted migration from the gravity model was 0.76 which indicating that 58 per cent of the variation in migration volume was explained by the gravity model.

The four new migration variables were then correlated with 16 other variables which were hypothesized to have an effect on migration volume and rate. A list of the variables, their description and their acronym is found in Table X. The correlation matrix of 20 variables is shown on Table XI. This matrix has been separated into three categories; migration, socioeconomic and interaction variables. The relationship of the dependent variables (MTBKKP, MTBKKR, MTBKKRP, and MTBKKRR) with the independent variables is emphasized in the following discussion.

Socioeconomic Characteristics

Urban Environment: Two variables used in this analysis to measure the urban condition of hinterland provinces were (1) the percentage of population living in urban or municipal areas, and (2) the existence of large towns with population of 25,000 and more. These two variables show rather weak and insignificant relationships with migration to Bangkok. It was hypothesized that provinces with the availability of urban amenities will contribute smaller numbers of migrant to Bangkok compared to the provinces without them. As shown by the statistics, the data did not support the hypothesis. Therefore, the hypothesis

TABLE X

A LIST OF INDEPENDENT VARIABLES WITH COMPUTER CODE NAMES AND THEIR DESCRIPTIONS

Variable	Description
TPOP70	Total population in 1970.
PURB	Percentage of the population living in municipal areas.
PNONAG	Percentage of non-agriculture households.
LRGTWN	Existence of cities or towns with 25,000 inhabitants or over.
YOUTH	Percentage of population of age between 15 and 24 years of age.
SCHENR	Percentage of population enrolled public secondary schools.
PPR	Population to physician ratio.
PHBR	Population to hospital bed ratio.
DEATH	Death rate per thousand population.
CRIME	Criminal cases reported rate per thousand population.
EMPLOY	Percentage of population engaged in economic activities.
PPROF	Percentage of population engaged in professional, technical and related type of work.
PAUTO	Percentage of households having automobile.
DFBKK	Road distance from center of hinterland provinces to Bangkok in kilometers.
TTBKK	Number of trains scheduled leaving for Bangkok daily.
PTV	Percentage of households having television set.

TABLE XI

CORRELATION MATRIX

	MTBKKP	MTBKKR	MTBKKRP	MTBKKRR	TPOP70	PURB	LRGTWN	YOUTH	SCHENR	PPR
Migration Variables										
MTBKKP	1.00									
MTBKKR	0.06	1.00								
MTBKKRP	0.72	0.03	1.00							
MTBKKRR	-0.04	0.86	-0.07	1.00						
Socioeconomic Variables										
TPOP70	0.37	0.07	-0.27	-0.05	1.00					
PURB	0.03	0.04	0.28	0.09	-0.36	1.00				
LRGTWN	0.46	0.14	0.23	0.04	0.35	0.45	1.00			
YOUTH	0.26	-0.48	0.03	-0.51	0.27	0.04	0.12	1.00		
SCHENR	0.13	0.16	0.38	0.25	-0.33	0.63	0.33	-0.21	1.00	
PPR	-0.08	0.01	-0.27	0.28	0.28	-0.51	-0.31	0.15	-0.38	1.00
PHBR	0.06	0.00	-0.25	-0.09	0.44	-0.46	-0.14	0.21	-0.25	0.79
DEATH	-0.18	-0.07	-0.28	-0.05	0.05	-0.23	-0.30	0.00	-0.20	0.09
CRIME	0.12	0.11	0.30	0.22	-0.36	0.52	0.19	-0.08	0.48	-0.49
EMPLOY	-0.06	-0.04	-0.34	-0.15	0.39	-0.74	-0.36	0.13	-0.59	0.45
PPROF	0.22	0.09	0.54	0.13	-0.40	0.68	0.37	-0.09	0.74	-0.48
PAUTO	0.28	-0.16	0.41	-0.12	-0.31	0.53	0.28	0.22	0.52	-0.50
PNONAG	0.28	0.07	0.61	0.13	-0.45	0.78	0.35	-0.07	0.62	-0.59
Interaction Variables										
DFBKK	-0.63	-0.00	-0.66	0.00	-0.04	0.06	-0.01	-0.03	-0.05	0.05
TTBKK	0.31	0.46	-0.04	0.36	0.33	-0.02	0.44	-0.07	0.13	-0.02
PTV	0.83	-0.05	0.92	-0.11	-0.08	0.30	0.44	0.19	0.40	-0.29

TABLE XI (Continued)

	PHBR	DEATH	CRIME	EMPLOY	PPROF	PAUTO	PNONAG	DFBKK	TTBKK	PTV
Socioeconomic Variables										
PHBR	1.00									
DEATH	0.11	1.00								
CRIME	-0.46	-0.28	1.00							
EMPLOY	0.43	0.25	-0.28	1.00						
PPROF	-0.46	-0.17	0.37	-0.66	1.00					
PAUTO	-0.36	-0.29	0.70	-0.51	0.51	1.00				
PNONAG	-0.53	-0.25	0.65	0.81	0.74	0.68	1.00			
Interaction Variables										
DFBKK	0.08	0.07	-0.29	-0.17	-0.09	-0.30	-0.21	1.00		
TTBKK	0.09	-0.13	-0.01	0.07	-0.00	-0.12	-0.03	-0.08	1.00	
PTV	-0.18	-0.20	0.27	-0.36	0.53	0.50	0.59	-0.56	0.09	1.00

is rejected as a major factor influencing the migration to Bangkok. There is no difference whether or not the province has large urban areas, the migration occurs from both of those provinces.

Youth Population: The only variable chosen to measure the youth population is the percentage of population between 15 and 24 years of age. The variable YOUTH shows insignificant positive correlation with the gravity related migration variables both by volume and rate (MTBKKP and MTBKKRP). With the correlation coefficients of -0.48 and -0.51, the YOUTH variable shows negative correlation with the non-gravity migration variables (MTBKKR and MTBKKRR). These correlations reverse the hypothesized relationship, namely that the provinces with high percentage of youth would contribute a larger share of migrants to Bangkok. The two maps, percentage of youth and the map of negative residual migration present similar patterns (Figures 8 and 9). Areas that have high percentage of youth population relatively correspond with the areas that contribute less migrants to Bangkok than expected based on the gravity concept. The reason for this might be that even though the young population are the dynamic group, they tend to move around close to their home town.

Education: It was hypothesized that there will be a strong relation between the education level of the population and the volume of migration to Bangkok. The provinces with relatively high percentages of educated people will supply a larger proportion of migration to Bangkok. Out of 18 higher education institutions, 12 are located in Bangkok and its vicinity. A large number of high school graduates move into Bangkok to attend these higher institutions each year. After they graduate they are likely to stay permanently because of the employment

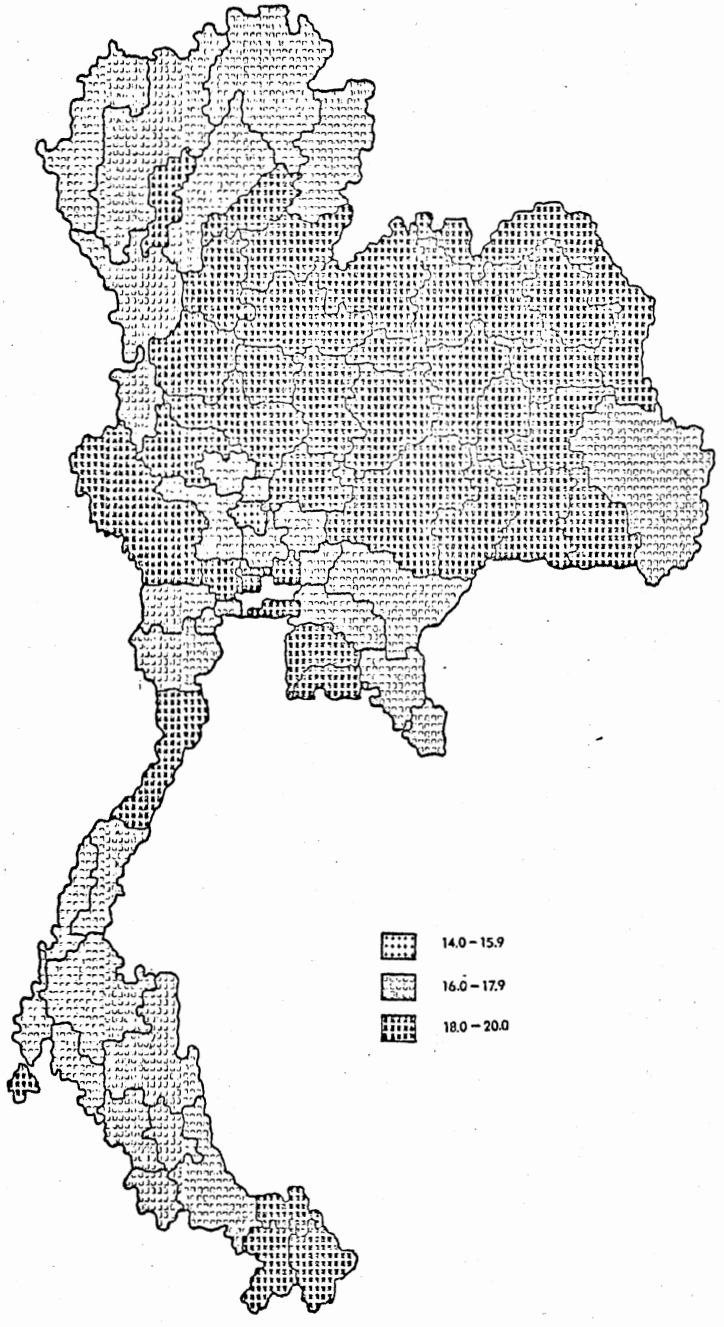


Figure 8. Percentage of Young Population Age Between 15-24 by Province in 1970

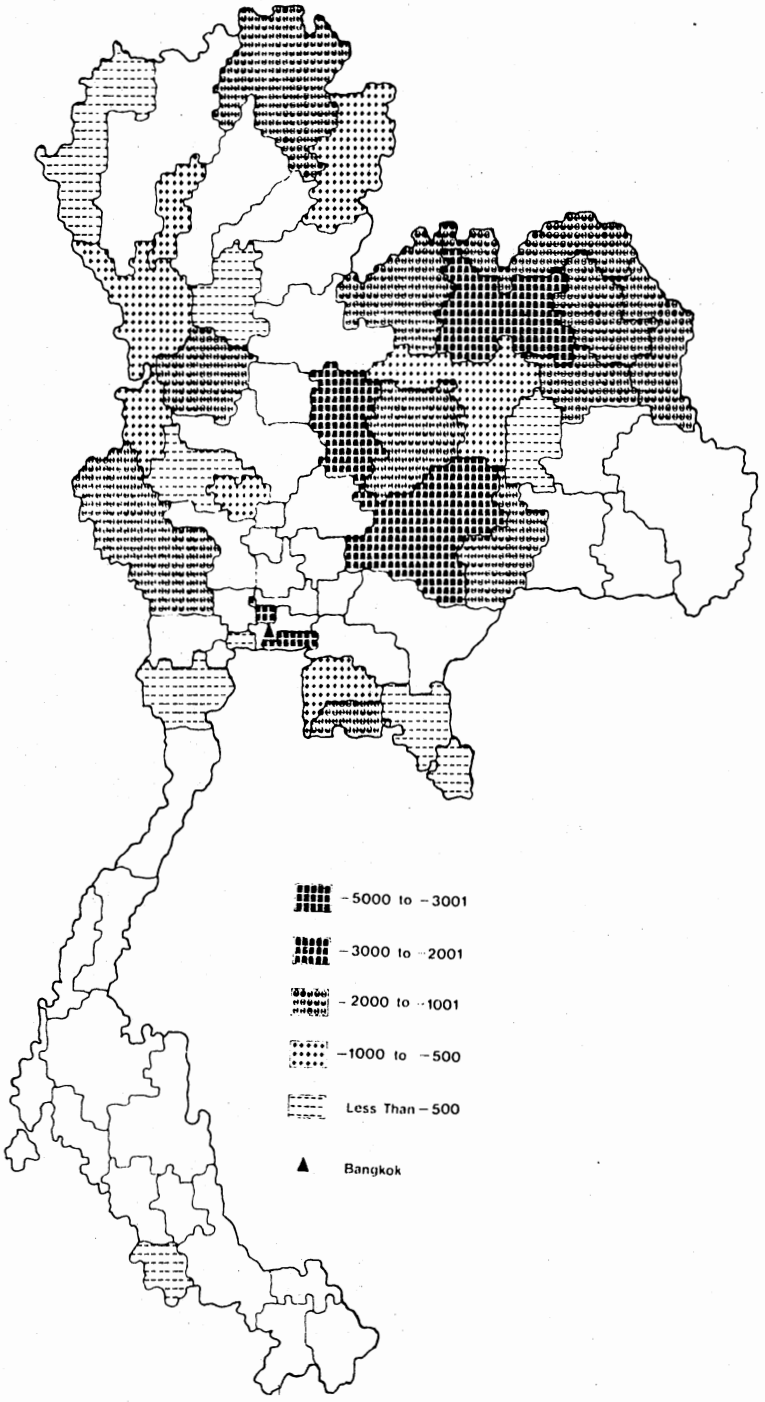


Figure 9. Provinces Contributed Less Migrants to Bangkok Than Expected Based on the Gravity Model During the Period of 1965-1970

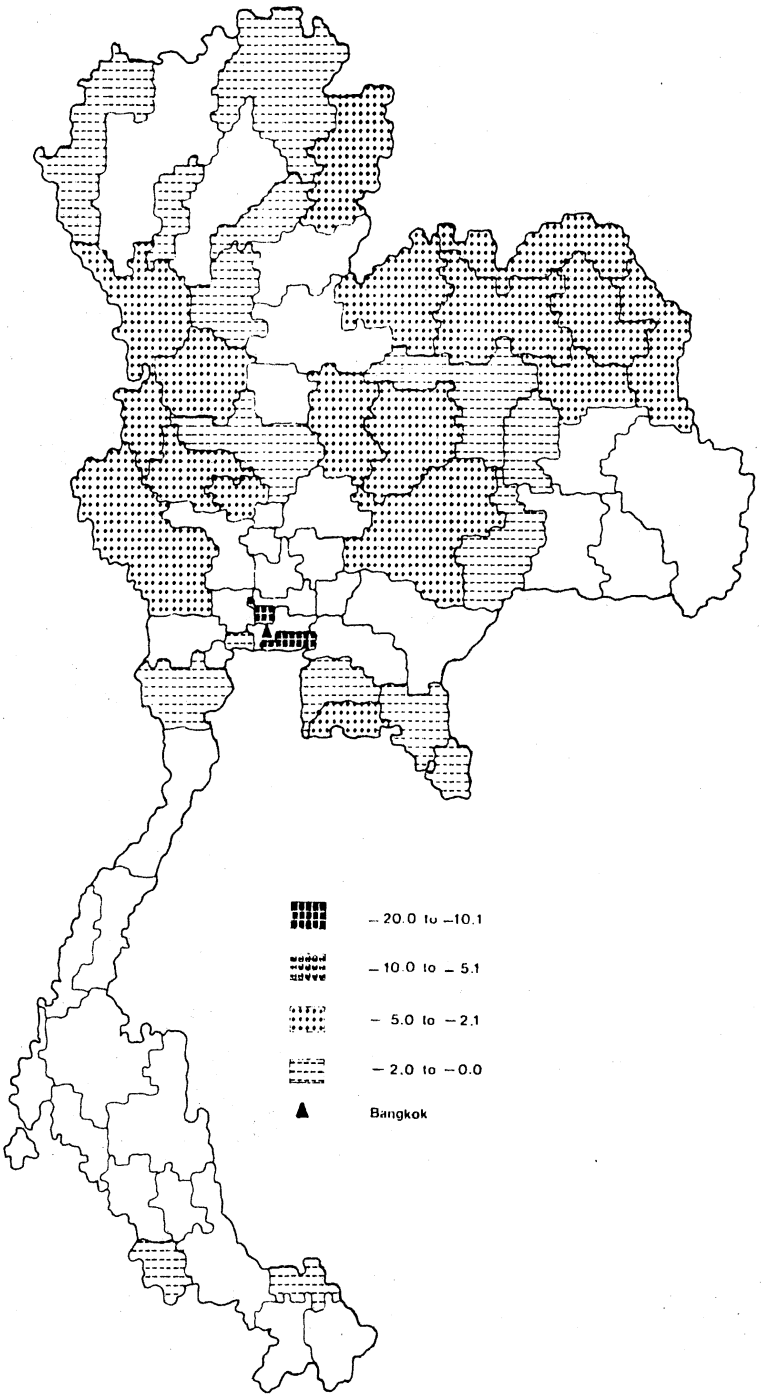


Figure 10. Provinces with Lower Migration Rate Than Expected Based on the Gravity Model During the Period of 1965-1970

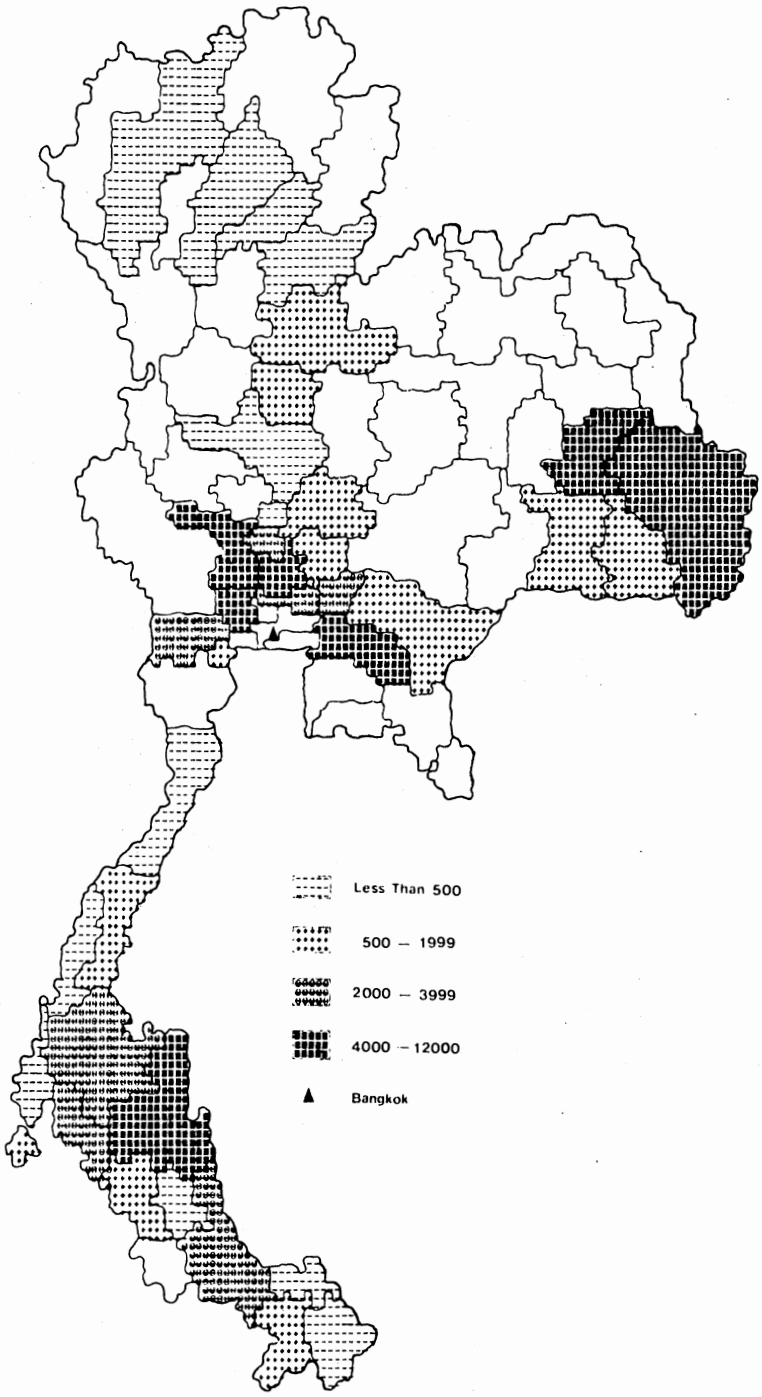


Figure 11. Provinces with Excess Migration to Bangkok Based on the Gravity Model During the Period of 1965-1970

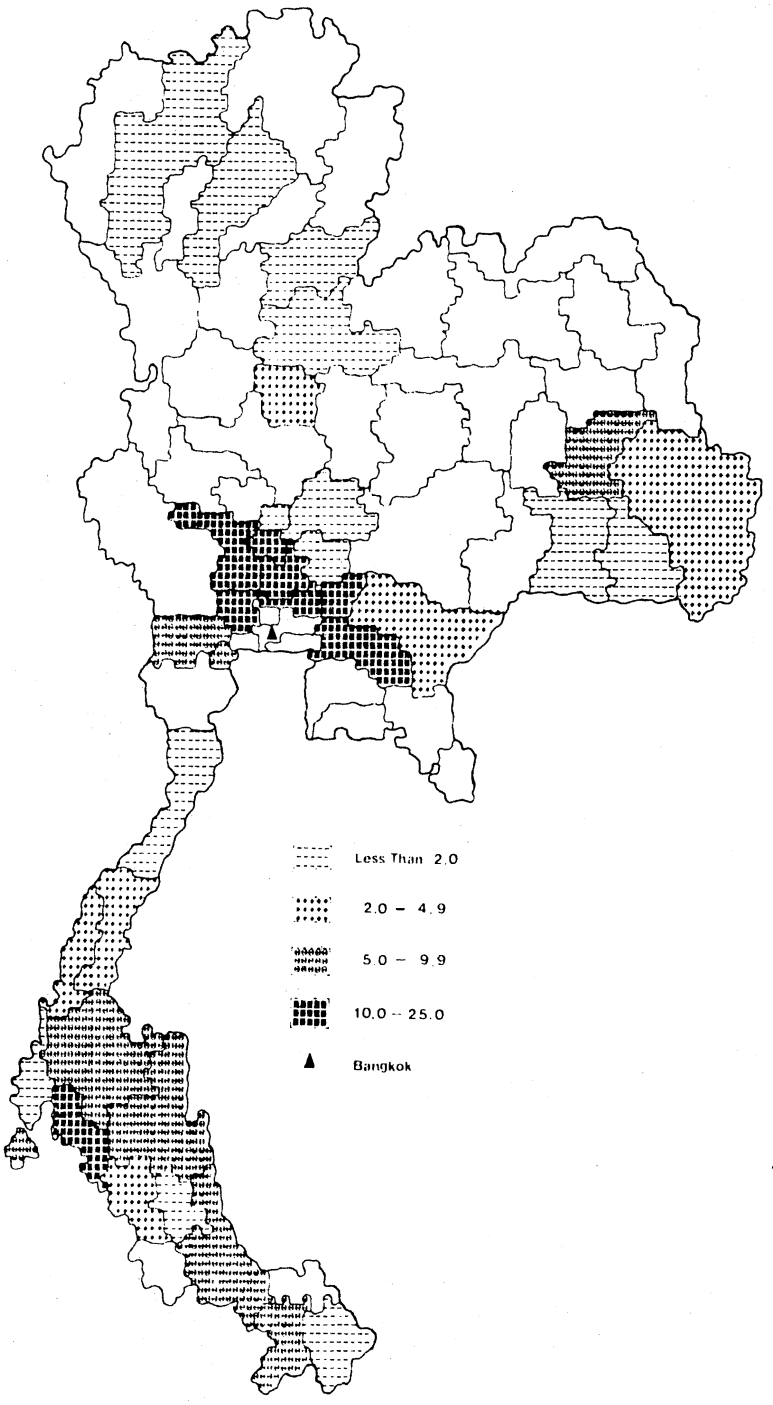


Figure 12. Provinces with Higher Migration Rate Than Expected Based on the Gravity Model During the Period of 1965-1970

opportunities available in Bangkok. The correlation coefficient showed that there is a positive relationship between education and the migration variables but it is rather weak relationship. It indicates that education may not be a major factor in the movement of the people to Bangkok.

Public Service and Security: It was hypothesized that inadequate public services and insecurity will push people in moving to more peaceful places with better services. Public health services and crime related data were used to measure the public service and security condition. The ratio of population to the number of medical doctors and surgeons in practice in the province (PPR), the ratio of population to the number of beds in the hospitals (PHBR), the death rate per thousand of people (DEATH), and the criminal cases reported (CRIME) all show insignificant relationship with migration to Bangkok. The hypothesis of that they are factors in influencing migration to Bangkok is rejected.

Economic Variables: The variables referred to as economic condition variables include the percentage of population engaged in economic activities (EMPLOY), the percentage of population employed in professional, technical and related types of work (PPROF), and the percentage of households owning automobiles (PAUTO). It is assumed that the lower the provinces in economic status the higher the migration to Bangkok will be. The EMPLOY variable was used as the indication of the employment opportunities. The percentage of population employed in professional, technical and related types of work measure the ability of the provinces to support these high skilled type jobs. Due to the high price, automobiles are considered to be a luxurious property for the Thais (the Thai government set the tax for 220 per cent on the base

price and shipment cost, at present, the tax for imported automobile is up to 400 per cent). Only the elite and high-income people can afford them. The percentage of the households that own automobiles should indicate the economic condition of the province. The EMPLOY variable showed a very weak negative relationship with migration variables. The correlation coefficient indicates that there is no difference whether or not the employment opportunity of the province is high, people still migrate to Bangkok. The percentage of population employed in professional related type work (PPROF) and percentage of households having automobile (PAUTO) are positively correlated to the gravity related migration variable (MTBKKRP). This indicates that to some extent migrants to Bangkok are likely to be those from provinces with high number of people employed in the professional types of work and large number of automobiles. Otherwise, the economic variables show rather weak relationship with migration to Bangkok, especially with the non-gravity migration. The hypothesis is not supported by the data and the economic variables are not statistically important in explaining migration to Bangkok.

Interaction Variables

The trains are heavily used as major transportation in Thailand. The low cost of using trains compared to other means of transport is because the train operation is monopolized by the central government. People are able to afford to use trains as their major means of transport around the country. The number of trains scheduled daily to Bangkok is an indication of the degree of interaction between the hinterland provinces and the city. It is hypothesized that the number

of trains scheduled to Bangkok daily will associate closely with the migration to Bangkok. It is important to note that this measure of transportation connectivity is not correlated with the other interaction variable distance from Bangkok.

Another variable used in measuring the interaction between hinterland provinces and Bangkok is the percentage of households having television, since most or all the programs are transmitted from major networks in Bangkok. It is assumed that the higher the percentage of households having television which provide them with extensive information about life and opportunities in Bangkok, the greater migration to Bangkok will be. From Table XI, the gravity migration both by volume and rate correlate highly with the variable PTV (with the r of 0.83 for MTBKKP and 0.92 for MTBKKRP). It indicates that most of the provinces that have high percentage of television are those in close proximity with Bangkok, or those with large population, or both. This supports the theory that the migrants like to have information about places of destination before the migration occurs. The PTV also correlates positively with LRGTWN, PURB, PPROF, PAUTO and PNONAG and it is negatively correlated with DFBKK, indicating that households that have television mostly are those in provinces that are close in distance to Bangkok and which are more urbanized. Those households that can afford television also are likely to be those that can afford automobiles. It should be noted that besides the correlation with urban areas, PTV also relates significantly to those places that are able to support the professionals and technical workers. As stated before these provinces with large numbers of professionals and technical workers are significantly related to the gravity migration variable.

this raises the question of whether the people who migrate to Bangkok are likely to be those skilled and professional workers who can afford a television for information about Bangkok and who use the automobile as a means of transportation to Bangkok.

Factor Analysis

In order to clarify the relationship between variables, a factor analysis was applied. Three factors were retained. Although these three factors together accounted for only 63 per cent of the variability in the basic data matrix, the communalities indicated they account for 94 per cent of the variation in volume of gravity-related migration (MTBKKP), 83 per cent of the residual migration volume (MTBKKR), and 73 per cent and 80 per cent respectively, of the variation in the migration rate variables (MTBKKRP and MTBKKRR). Factor loadings for the three rotated factors are displayed in Table XII. The numerical values in the table are essentially correlation coefficients and are measures of the strength of the relationship between the original variables and the three factors. All weaker relationships (loading less than ±0.40) have been omitted so that the stronger relations are more readily apparent. The range of possible values for these measures is from -1.00 to +1.00. A factor loading of zero (0.00) indicates a complete lack of measured relationship between the variable and the factor. As shown on Table XII, variable 9 (PNONAG) has a high positive loading (0.87) on Factor I; and variable 13 (EMPLOY) has moderately high negative loading of -0.82 on the same Factor I.

High values for the loading (both positive and negative) are important in factor interpretation. Using these loadings, the three

TABLE XII

FACTOR LOADING
(±0.40 and Larger)

Variable	Factor I	Factor II	Factor III
1. MTBKKP		0.96	
2. MTBKKR			0.91
3. MTBKKRP	0.40	0.74	
4. MTBKKRR			0.87
5. DFBKK		-0.66	
6. TTBKK			0.65
7. PTV		0.85	
8. PURB	0.82		
9. PNONAG	0.87		
10. LRGTWN		0.55	
11. TPOP70	-0.65		-0.56
12. YOUTH			
13. EMPLOY	-0.82		
14. SCHENR	0.69		
15. PPROF	0.77		
16. PPR	-0.70		
17. PHBR	-0.70		
18. DEATH			
19. CRIME	0.69		
20. PAUTO	0.68		
Eigenvalues	6.05	3.79	2.65
Percentage of Total Variance	30.25	17.45	13.25

factors were interpretated and named to give the factors substantive, conceptual meaning based on accepted migration terminology. In this way the factors are associated with meaningful concepts for which they may be considered as composite or derived variables. The factors were identified and labeled as follows:

Factor I: Urban Environment,

Factor II: Gravity-Related Migration,

Factor III: Non-Gravity Related Migration.

Factor I Urban Environment: In terms of its capacity for summarizing the variability of the data of this study, the urban condition of hinterland provinces is the most important factor as it accounted for 30.25 per cent of the variation in the data set. Conditions were considered as indicative of the existence of urban environment among the hinterland provinces such as urban and non-agricultural population (PURB and PNONAG), school enrollment (SCHENR), employment opportunities (EMPLOY), concentration of professions (PPROF), inefficiency in public health services (PPR and PHBR), high crime (CRIME), and significant number of households having automobile (PAUTO). All these variables have very high loadings on Factor I as may be seen in Table XII. However, only one migration variable (MTBKKRP) shows up on this urban factor, and even it loads more heavily on Factor II. This indicates that statistically, except for the weak relationship to gravity predicted migration rates, the urban environment factor is basically unrelated to migration.

Factor II Gravity-Related Migration: Among the variables, MTBKKP, MTBKKRP, and PTV load most heavily on Factor II. Factor II alone explains 17.45 per cent of the total variance in the data set.

The loadings on Factor II indicates that the distribution of television sets is consistent with the gravity theory. Loadings for variables DFBKK and LRGTWN suggest that provinces close to Bangkok, and those with larger population, as well as those having a high percentage of households with television, contribute a large share of migration to Bangkok.

Factor III Non-Gravity Related Migration: The loadings on Factor III show that transportation is the only factor among selected socio-economic variables used in this study that helps account for the non-gravity migration. The variable trains to Bangkok (TTBKK) has a factor loading of 0.65. This supports the point that connectivity Bangkok is an additional stimulus to migration. The YOUTH variable has a negative loading on Factor III which indicates that the provinces that contribute more migration to Bangkok than they were expected to based on the gravity concept are those having a smaller proportion of young population. In other words, young population does not associate with migration to Bangkok. Thus it seems that the selected socioeconomic variables in this study are not relevant to the migration to Bangkok, and other factors that influence the migration to Bangkok should be explored.

At this point, an attempt will be made to identify other possible factors that might help explain the migration to Bangkok. Figures 9, 10, 11, and 12, present the maps of geographic distribution of provinces that contribute excess and less migration than expected based on gravity model. It is noted that there is little difference whether or not the dependent variable is the volume of migration or the rate of migration.

The major area of excess migration to Bangkok is the Southern region. Actually, all of the provinces in the South contribute more migrants than expected based on the gravity concept. As discussed earlier, the number of trains scheduled leaving for Bangkok daily (TTBKK) is the only variable that appears to relate to the non-gravity migration. The rest of socioeconomic characteristic variables had very little, if any, influence on the non-gravity migration. Figure 13 shows the map of Thailand with the railway network. From this map, it is obvious that most of the provinces in the Southern region have a close access to the major train stations compared to the North and Northeastern region.

Four provinces in the Northeast region, Roiet, Surin, Sisaket and Ubon Ratchathani also contribute larger share of migrants to Bangkok than expected. The unrest due to the war in the neighbor countries, Vietnam and Cambodia, and the insurgent activities which occurred heavily in the Northeast region probably are the reasons behind the movement of people out of this area. With the direct rail network and new development of roads and major highways in the Northeast region, it is possible that movement of people is greater than expected. The overwhelming attractiveness of the primate city is also believed to overcome any other factors in leading to Bangkok.

Figure 10 shows the distribution of provinces that contribute fewer migrants than expected based on the gravity concept. The North and part of the Northeast region contribute fewer migrants. Physical features of the areas and their locations seem to be the possible factors accounting for the smaller number of migrants. Thick forest covered mountains in the north and northwest of country forms a

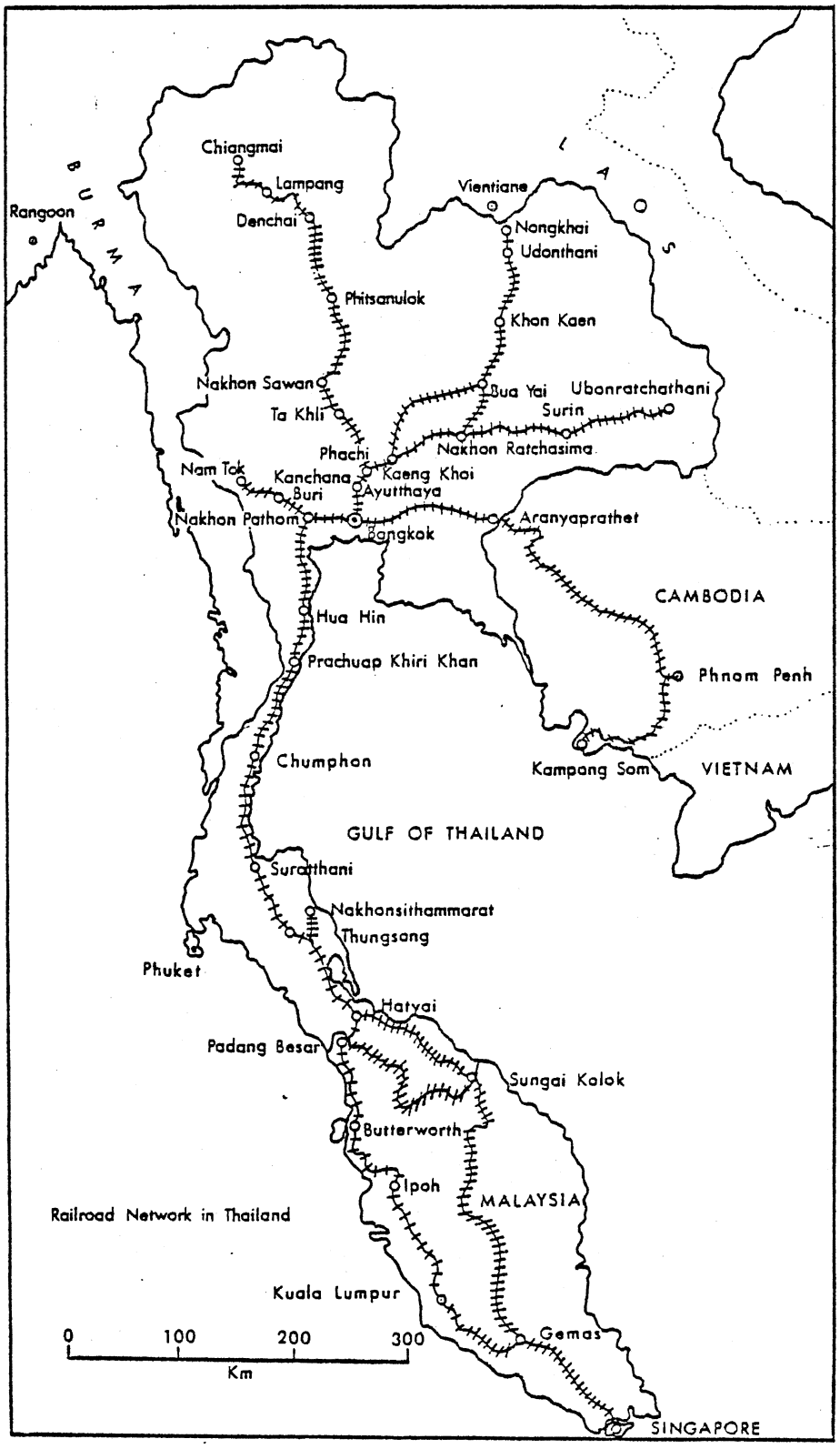


Figure 13. Railroad Network in Thailand

barrier to interaction which could result in less migration from these areas to Bangkok. Also other forms of distance measurement which have not been used in this study such as transportation cost, time of travel and mode of transportation might help to explain the extenuated migration among these areas.

As discussed earlier in Chapter III, there exists within the country of Thailand areas where dialects and lifestyles are different from those neighboring areas. On this basis, it is possible to note that differences in culture tend to inhibit people from moving to the areas where similar cultures are not prevalent.

Summary

A review of the relationship between the migration variables (gravity-related and non-gravity migration) and the 16 independent variables offers some insight into the existing migration patterns to Bangkok. The hypothesis being that along with the gravity concept, other factors would intervene in the migration to Bangkok and such factors are the socioeconomical characteristics of the source of migrants. The study however revealed that while the gravity models hold true, only two among 16 selected socioeconomic and interaction variables help explain or stimulate migration to Bangkok.

When the relationship between each individual independent variable and the dependent variables was investigated, the percentage of households having television (PTV) proved to the most highly correlated with gravity-related migration. The number of trains scheduled to Bangkok daily (TTBKK) emerged as a significant influence on non-gravity predicted migration.

Further examination of all the dependent and independent variables by factor analysis revealed results that were similar to those derived from the correlation analysis with one exception that the relationship between the variable train to Bangkok (TTBKK) and the non-gravity migration increase somewhat. Also, Factor I which contains the variables concerning urban conditions seems to be the most important factor in explaining the variation in the data set even though they are not directly related to migration to Bangkok.

Overall, the analysis of the study showed that the gravity concept does hold true in explaining migration pattern to Bangkok, and the selected socioeconomic variables were not very useful. Physical features, geographic location, various transportation measures, cultural factors, and the overpowering attractiveness of the primate city would possibly explain the migration to Bangkok.

CHAPTER V

DISCUSSION OF RESULTS

Sources of Migrant to Bangkok

This study was developed with the supposition that the socioeconomic characteristics of the hinterland provinces would be the major factors in explaining the non-gravity migration. The socioeconomic characteristics considered are urban amenities, economic opportunities, public services and security. Insufficiency of these socioeconomic characteristics would lead to the movement of people to the place where better living conditions can be provided. The distance also was assumed as a less important factor in influencing the migration to Bangkok. These suppositions seemed reasonable because naturally people are likely to move away from the difficulties no matter how far the distance. A good example would be the movement of the European to America. It was, therefore, expected that large streams of migrants to Bangkok would come from those far away provinces which are low in socioeconomic status. The findings revealed a tendency quite different from the expectation and it lead to the following discussion.

The results of the study revealed 58 per cent of migration to Bangkok was explained by the gravity model. When the relationship between selected socioeconomic variables and the rest of 42 per cent or the non-gravity migration was investigated, the study showed rather

weak and insignificant relationship and that the selected socioeconomic variables were not very useful.

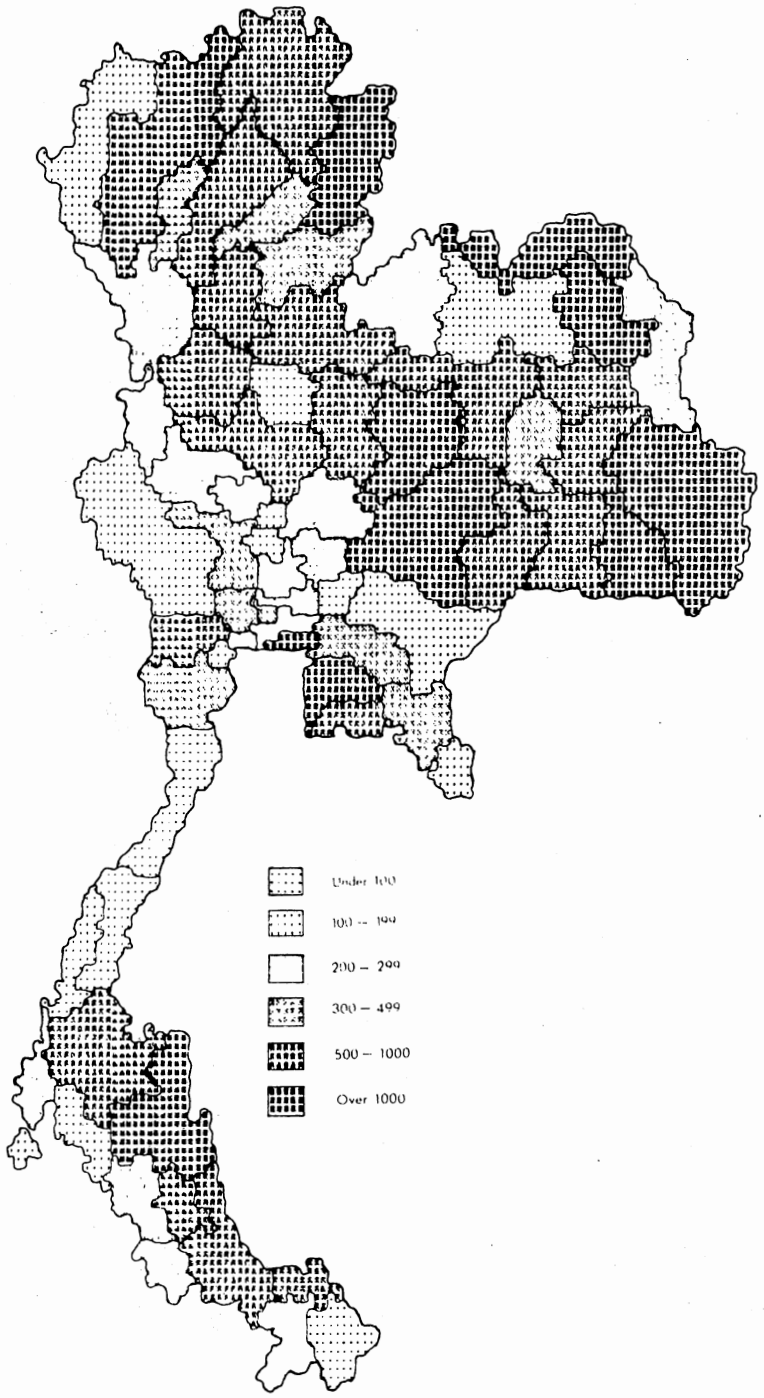
The provinces contributed larger number of excess migrants to Bangkok than expected to based on the gravity concept mostly are those in the Southern region, part of Northeastern and those in close proximity to Bangkok. As discussed in Chapter III, the Southern region is considered as one of the well-to-do regions while the Northeast has been the poorest. It appears that there is no difference whether the socioeconomic condition of the provinces would be, migration to Bangkok eventuate. Other factors were proposed as the possible factors accounting for the non-gravity migration, these are: physical aspects, geographical location, cultural factors and the attractiveness of the primate city. This brings to question of whether or not the plans in generating regional growth centers carrying by the Thailand government will be able to reverse the trend of migration to Bangkok.

Population Redistribution

Unequal distribution of urbanization and economic opportunities have been recognized by the Thai government as the two most important factors drawing rural migrants to move cityward, especially from hinterland provinces to the primate city of Bangkok. This results in the development of plans for decentralized urbanization in order to promote economic decentralization and reverse the trend of migration from the hinterland provinces to Bangkok. Leading urban centers outside Bangkok Metropolitan area were selected for development as the regional growth centers. These cities are Nakhon Ratchasima, Udon Thani, Ubon Ratchathani and Khon Kaen in the Northeast. Chaingmai,

Lamphun and Nakhon Sawan in the North and Songkhla-Hadyai and Phuket in the South are all included in the plans (See Figure 3). Based on the geographic location and its rapid growth in terms of economic activity and population, these proposed centers seem to be appropriate at the time. It seems that the plan for decentralized urbanization which was implemented in 1977 should have the potential of success, if not for the purposes of reversal the trend of migration to Bangkok but for the development of the country as a whole. It may be too early to assess the plan but if the plan is properly implemented, it can contribute a great deal in decreasing the unequal distribution of modernization and standardization. There is a definite need to coordinate more closely industrialization and urbanization planning. Naturally, the provinsion of upgraded facilities and public services in each of these proposed centers without the installation of basic growth industries would be such a great risk. Industrial decentralization is not so much an instrument to check migration flow to Bangkok Metropolitan area, but rather a positive instrument to introduce new industries into a less developed region within Thailand.

Thailand began planned industrial development during the 1960's. The share of manufacturing in the Gross Domestic Product is small. Most of the industrial establishments in the country are small-scale and cottage industries. The majority of these are processing industries such as rice mills, saw mills, sugar mills and weaving mills. There are a few large industries engaged in the manufacturing of cement, sugar, cigarettes, gunny bags, detergent and soap. Figure 14 shows the distribution of the industrial establishment in Thailand



Source: Thailand, National Statistical Office. Census of Industry. 1974.

Figure 14. Geographic Distribution of Factory in Thailand, 1972, (Bangkok is Excluded)

as of 1972 with the exclusion of Bangkok. It seems that the distribution of these establishments both on small and large scales are more scattered over the country than the period before the national economic development plan was implemented (Unakul, 1972). Several provinces in the North are known for their silk, teak carving, and lacquerwares. In the Northeast, there are such industries as sugar, gunny bags and silk. Niellowares and rubber processing industries are found in the South. Provinces along the eastern coast are mainly engaged in the production of tapioca flours, sugar, and shaving boards. Most of these small scale industries which use much family labor account for over 80 per cent of the total number of industrial establishments in the country.

To implement the decentralized economy and urbanization, more larger scale industries are needed in order to increase the employment base for those proposed regional urban centers. Without the industries that can employ large numbers of people, government investment and allocation in promoting urban infrastructures in these centers would be wasted. At present, the central government greatly encourages private industrial investment on the regional level, but not very much progress has been made because of the lack of experts, research, and serveys of possible and potential resource areas. Regional planning always operates under serious constraints of data availability, professional skills, time, and funds. At present, there are fewer than 20 persons in Thailand with appropriate training in regional and urban planning. It seems that regional scientist advisers from the more advanced countries are very much in need to undertake the planning during the initial period.

CHAPTER VI

SUMMARY, CONCLUSIONS AND FURTHER RESEARCH

Summary

The purpose of this chapter is to present a summary of the study problem and its setting, the design and conduct of the study and the major findings. Conclusions and suggestions for further research in migration studies on Thailand also are presented based upon the analysis and synthesis of the data collected.

On the basis of previous research and study results, it was hypothesized that the socioeconomic characteristics of the hinterland provinces to some extent influenced the migration to Bangkok and that the provinces with lower status would contribute a larger share of migration to Bangkok than the higher status provinces. It also was hypothesized that due to the overwhelming attractiveness of the primate city, people tend to move further than usual to go to Bangkok.

The data used in this study were compiled from the population censuses of 1960 and 1970, unpublished registration statistics of Bangkok Metropolis and from statistical year books of Thailand. The dependent variables in this thesis were migration both by volume and rate from each of 69 hinterland provinces during the five year period 1965 to 1970. Sixteen socioeconomic characteristics for each of the hinterland provinces were used as independent variables.

To determine the relative importance of the independent variables in relation to the dependent variables, the SAS (Statistical Analysis System) computer program versions of correlation analysis and factor analysis were used. Both conventional and computer mapping were used to display the data and the results of the analysis. The computer mapping techniques used were CHORMAP and FLOWMAP.

The results of the analysis show that of the total variation in the data set, 58 per cent was accounted for by the gravity model. To some extent, well establishment of communication and transportation system stimulate the migration to Bangkok. The selected socioeconomic variables proved to have insignificant relationships with the migration to Bangkok. Factor analysis shows similar results. This brings to the conclusion that other factors should be explored such as physical fearures and geographic location of the provinces, cultural aspects and the attractiveness of the primate city. The plans for the development of regional growth centers which conducted by the Thai government seem to be appropriate in reducing the overwhelming attractiveness of Bangkok which appears to be one of the factors associated with non-gravity migration.

Conclusion

From the findings of this study, the following conclusions may be reached:

1. Greater intensity of population mobility is expected if transportation and information become better developed.

2. Migration to Bangkok was influenced more by the pull factors

which are the attractiveness of the primate city, than the push factors, socioeconomic characteristics of the hinterland provinces.

3. Distance decay theory is found to be true with the data of migration to Bangkok. Large streams of migration came from the provinces in close proximity to Bangkok. However, with better communication and transportation, the migration process to Bangkok over a long distance is eased.

Suggestion for Future Work

Internal migration in Thailand, specifically, migration to Bangkok have been studied in one form or another during the past three decades. These studies have concentrated mostly on the factors influencing the movement of people in Thailand. Little has been done to follow up the consequences of the migration both at the origins and destinations. This thesis has attempted to identify the probability of where the in-migrants might move to within the area of Bangkok Metropolis. Further research in the following areas would be appropriate:

1. The impact of out-migration on the origin in terms of the population growth, economic and social organization, after the migrants are withdrawn from it.

2. The development of regional urban centers throughout the country was part of the plan to decentralized urbanization, to promote economic decentralization and to reverse the trend of migration to Bangkok. Changes in migration to and from each of the formulated regional growth centers using the upcoming census (1980) in order to evaluate the plan these should be studied.

3. The role of the housing market in relation to migration has been applied to several case studies in the western countries. Due to the increase in the commercial housing industry in Thailand, the impact of the housing market upon the interregional migration in Thailand would also be an interesting topic of study.

Each of these avenues of research could contribute useful information to the Thai government concerning the plan to reverse the migration flows in order to generate population redistribution in a manner that would serve the interests of economic and social development for the country.

A SELECTED BIBLIOGRAPHY

Abler, Ronald, John S. Adams and Peter Gould. Spatial Organization: The Geographer's View of the World. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1971.

Barr, Anthony J., James H. Goodnight, John P. Sall, and James T. Helwig. A User's Guide to SAS. Raleigh, N.C.: Sparks Press, 1976.

Beijer, G. Rural Migrants in Urban Settings. The Hague: Martinus Nijhoff, 1963.

Berry, B. J. L. "City-Sized Distribution and Economic Development." Economic Development and Cultural Change, 9 (1961), pp. 673-687.

Bogue, D. J., and W. S. Thompson. "Migration and Distance." American Sociological Review, 14 (1949), pp. 236-244.

Bowles, Gladys K. "Migration Patterns of the Rural Farm Population, Thirteen Economic Regions of the United States, 1940-1950." Rural Sociology, 22 (1957), pp. 1-11.

Bright, M. L., and D. S. Thomas. "Interstate Migration and Intervening Opportunities." American Sociological Review, 6 (1941), pp. 773-783.

Brown, L. A., and D. B. Longbrake. "Migration Flows in Intra-Urban Space: Place Utility Considerations." Annals of the Association of American Geographers, 60 (1970), pp. 368-384.

Caldwell, J. C. "The Demographic Structure." in T. H. Silcock (ed.) Thailand: Social and Economic Studies in Development. Canberra: Australia University Press, 1967.

Clarke, John I. Population Geography and the Developing Countries. Elmsfort, N.Y.: Pergamon Press, 1971.

Darling, Frank and Ann Darling. Thailand: The Modern Kingdom. San Francisco: Asia Pacific Press, 1971.

Dixon, C. J. "Problems of Development Planning in N. E. Thailand." Journal of Southeast Asian Studies, 7-8 (1967-1977), pp. 210-223.

Dodd, S. C. "The Interactance Hypothesis: A Gravity Model Fitting Physical Masses and Human Groups." American Sociological Review, 15 (1950), pp. 245-256.

Fielding, A. J. "Internal Migration and Regional Economic Growth: A Case Study of France." Urban Studies, 3 (1966), pp. 201.

Gist, Noel P., C. T. Philblad, and Cecil L. Gregory. "Selective Aspects of Rural Migration." Rural Sociology, 6 (1941), pp. 3-15.

Goldstein, S., and K. Mayer. "Migration and the Journey to Work." Social Forces, 42 (1964), pp. 481.

Goldstein, S. "Urban Growth in Thailand, 1947-1967." Journal of Social Sciences, 6 (1969), pp. 100-118.

Goldstein, S. "Urbanization in Thailand, 1947-1967." Demography, 8:2 (1971), pp. 205-223.

Goldstein, S. "The Demography of Bangkok: The Case of a Primate City." in Wriggins and Guyot (eds.), Population, Politics and the Future of Southern Asia. Columbia, N.Y.: Columbia University Press, 1973.

Goldstein, S. and Alice Goldstein. "Thailand's Urban Population Reconsidered." Demography, 15:3 (1978), pp. 239-257.

Hauser, Philip M. (ed.) Urbanization in Asia and the Far East. Calcutta: UNESCO, 1957.

Heide, H. ter. "Migration Models and Their Significance for Population Forecasts." Milbank Memorial Fund Quarterly, 41 (1963), p. 51.

Ingram, J. C. Economic Change in Thailand Since 1850. Stanford: Stanford University Press, 1955.

Isabell, E. C. "Internal Migration in Sweden and Intervening Opportunities." American Sociological Review, 9 (1944), pp. 627-639.

Jefferson, M. "The Law of the Primate City." Geographical Review, 29 (1939), pp. 226-232.

Lee, E. S. "A Theory of Migration." Demography, 3 (1966), pp. 47-57.

Linsky, A. S. "Some Generalizations Concerning Primate Cities." Annals of the Association of American Geographers, 55 (1965), pp. 506-513.

Lowry, J. S. Migration and Metropolitan Growth: Two Analytical Models. San Francisco: Chandler Publishing, 1966.

MacDonald, J. S. and L. D. MacDonald. "Chain Migration, Ethnic Neighborhood Formation and Social Networks." Milbank Memorial Fund Quarterly, 42 (1964), pp. 82-87.

Mangalam, J. J. Human Migration. Lexington: University of Kentucky Press, 1968.

Mauldin, W. P. "Selective Migration From Small Towns." American Sociological Review, 5 (1940), pp. 748-758.

McGee, T. G. The Southeast Asian City. London: G. Bell and Sons, Ltd., 1968.

Nakahara, J., and R. A. Witton. Development and Conflict in Thailand. Ithaca, N.Y.: Cornell University Press, 1971.

Ng, C. Y. R. "Recent Internal Population Movement in Thailand." Annals of the Association of American Geographers, 59 (1969), pp. 701-730.

Norris, R. E. "Migration as Spatial Interaction." Journal of Geography, 71 (1972), pp. 294-301.

Pakkasem, P. "Urban Development." Thailand Official Year Book. Thailand Government Printing Office, 1973.

Petersen, W. "A General Typology of Migration." American Sociological Review, 23 (1958), pp. 256-266.

Ravenstein, E. G. "The Laws of Migration." Journal of the Royal Statistical Society, 48 (1885), pp. 167-235.

Ravenstein, E. G. "The Laws of Migration." Journal of the Royal Statistical Society, 52 (1889), pp. 240-301.

Robinson, W. C. A Note on the Definition and Measurement of the Urban Population of Thailand for Planning Purposes. Mimeo. Bangkok: Population and Manpower Planning Division, National Economic and Social Development Board, 1976.

Rose, A. M. "Distance of Migration and Socio-Economic Status of Migrants." American Sociological Review, 23 (1968), pp. 420-423.

Roseman, Curtis C. "Migration as a Spatial and Temporal Process." Annals of the Association of American Geographers, 61 (1971), pp. 589-598.

Rossi, Peter. Why Families Move. Glencoe, Illinois: The Free Press, 1955.

Safa, Helen I., and Brian M. DuToit. (eds.) Migration and Development. The Hague: Mouton Publishing, 1975.

Silcock, T. H. "The Rice Premium and Agricultural Diversification." in T. H. Silcock (ed.), Thailand: Social and Economic Studies in Development. Canberra: Australian National University Press, 1967.

Skinner, W. G. Chinese Society in Thailand. Ithaca, N.Y.: Cornell University Press, 1957.

Smith, David M. Patterns in Human Geography: An Introduction to Numerical Methods. New York: Crane Rusak & Company, Inc., 1975.

Sternstein, L. "A Critique of Thai Population Data." Pacific Viewpoint, 6 (1965), pp. 15-35.

Sternstein, L. "A First Study of Migration in the Greater Bangkok Metropolitan Area." Pacific Viewpoint, 12 (1971), pp. 53.

Sternstein, L. Greater Bangkok Metropolitan Area: Population Growth and Movement 1956-1960. Bangkok: Institute of Population Studies, Chulalongkorn University, Report No. 3, 1971.

Sternstein, L. "Migration To and From Bangkok." Annals of the Association of the American Geographers, 48 (1974), pp. 38-147.

Sternstein, L. "Chain Migration to Primate City: Case of Bangkok." Journal of Tropical Geography, 41 (1975), pp. 70-74.

Sternstein, L. "Migration and Development in Thailand." Geographical Review, 66:4 (1976), pp. 401-419.

Sternstein, L. "Internal Migration and Regional Development: Khon Kaen Development Center of Northeast Thailand." Journal of Southeast Asia Studies, 8:1 (1977), pp. 106-116.

Stewart, Charles T. Jr. "Migration as a Function of Population and Distance." American Sociological Review, 25 (1960), pp. 347-356.

Stouffer, S. A. "Intervening Opportunities: A Theory Relating Mobility and Distance." American Sociological Review, 5 (1940), pp. 845-867.

Strodbeck, F. "Equal Opportunity Intervals: A Contribution to the Method of Intervening Opportunity Analysis." American Sociological Review, 14 (1949), pp. 490-497.

Thailand, Department of Vocational Education. The Need of Occupation-Trained Manpower. Thailand Government Printing Office, Report No. 1, 1978.

Thailand, National Statistical Office, Office of the Prime Minister. Census of Industry. Thailand Government Printing Office, 1974.

Thailand, National Statistical Office, Office of the Prime Minister. Population and Housing Census: 1960. Thailand Government Printing Office, 1960.

Thailand, National Statistical Office, Office of the Prime Minister. Population and Housing Census: 1970. Thailand Government Printing Office, 1970.

Thailand, National Statistical Office, Office of the Prime Minister. Statistical Year Book: 1967-1975, No. 28-31. Thailand Government Printing Office, 1975.

Thailand, National Statistical Office, Office of the Prime Minister. The Survey of Migration in Bangkok Metropolis, 1975. Thailand Government Printing Office, 1977.

Traver, James D. "Predicting Migration." Social Forces, 39 (1961), pp. 207-213.

Traver, James D. "Interstate Migration Differentials." American Sociological Review, 28 (1963), pp. 448-451.

Traver, James D., and William R. Gurley. "The Relationship of Selected Variables with County Net Migration Rates in the United States, 1950-1960." Rural Sociology, 30 (1965), pp. 3-13.

Unakul, S. Finance Policies and Economic Development in Thailand. Bangkok: Ramintara Printing Co., 1972.

Wolpert, J. "The Decision Process in Spatial Context." Annals of the Association of American Geographers, 54 (1964), pp. 537-558.

Wolpert, J. "Behavioral Aspects of the Decision to Migrate." Papers of the Regional Science Association, 15 (1965), pp. 159-169.

Zipf, G. K. "The $P_1 P_2 / D$ Hypothesis: On the Inter-City Movement of Persons." American Sociological Review, 11 (1946), pp. 677-686.

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