



This is to certify that the

thesis entitled

Job Opportunities, Migration And Population Change in Michigan, 1975-1980

presented by

Chun-Hao Li

has been accepted towards fulfillment of the requirements for

<u>Master's</u> degree in <u>Sociology</u> and Urban Studies

Jrenc

Major professor

Date 04 26 93

MSU is an Affirmative Action/Equal Opportunity Institution

O-7639

LIBRARY Michigan State University

PLACE IN RETURN BOX to remove this checkout from your record. TO AVOID FINES return on or before date due.

DATE DUE	DATE DUE	DATE DUE

MSU Is An Affirmative Action/Equal Opportunity Institution c:\circ\datadus.pm3-p.1

JOB OPPORTUNITIES, MIGRATION AND POPULATION CHANGE IN MICHIGAN, 1975-1980

By

Chun-Hao Li

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Department of Sociology and Urban Studies

1993

Brendan P. Mullan, Advisor

ABSTRACT

JOB OPPORTUNITIES, MIGRATION AND POPULATION CHANGE IN MICHIGAN, 1975-1980

By

Chun-Hao Li

This study focuses on explaining migration within Michigan counties during the period of 1975-1980 from a macro-socio-economic perspective. This choice is predicated by a belief that such a structural approach conceptually captures the unique components of Michigan economy and society which had an impact on migration. Moreover, human migration in this study is proposed as a function of employment opportunities and population change.

Utilizing the tape files of *County to County Migration Flows* and the data from *County Business Pattern*, and multiple regression analysis, this study constructs a model for approaching human migration in certain labor markets. This study covers six labor markets. The empirical results show that: 1. for the entire state of Michigan, increasing employment opportunities in construction, manufacturing, retail trade, and services had strong influences on encouraging in-migration; 2. in urban counties, the influence of increasing employment opportunities encouraged in-migrants in a pattern

which was similar to that for the entire state; and 3. in rural counties, increasing manufacturing and retail trade employment opportunities had the most important influence on attracting in-migrants. Furthermore, breaking the entire state of Michigan into five regions, the data indicate that the northern nonmetropolitan counties were special; increasing employment opportunities in all types of labor markets had important influences on encouraging in-migrants. Especially, increasing job opportunities in the labor market of services had the strongest attraction to in-migrants.

ACKNOWLEDGMENTS

I would like to express appreciation to my adviser, Dr. Brendan Mullan, for his patience, enthusiastic support, encouragement and detailed instructions. Also, I would like to thank Dr. Rita Gallin and Dr. John Schweitzer for serving on my thesis committee. From them, I received confidence in finishing it.

I, further, wish to acknowledge my friend, Dr. Ching-Li Wang, who is a demographer in Michigan Department of Management and Budget, for providing the technical documentation of the tape files of *Census of Population, 1980: County to County Migration Flows*.

Finally, a special note of thanks goes to my parents, Jui-Hsiung Li and Yu-Pen Chen, my wife, Shu-Yao Hsu, and my brother and sister for all their love, care and support.

TABLE OF CONTENTS

•••

		Page
LIST OF TABLES	•	vii
LIST OF FIGURES	•	viii
Instruction	•	1
Migration Flows in Michigan in the 1970s	•	3
Migration Theories		7
Early Perspectives	•	8
Ravenstein's Laws of Migration	•	8
Lee's Push-Pull Obstacle Model	•	10
Stouffer's Intervening Opportunities	•	11
More Recent Perspectives	•	
Siaastad's and Todaro's Cost-Benefit Models	•	13
Stark's Family Risk Diversification and Relative	•	
Deprivation Models		17
Macro Approaches.		19
Lewis-Fei-Ranis Model		19
Massey's Geographic Unevenness of Economic		
Development		21
Frey's Regional Restructuring Perspective		22
Hypotheses	•	23
Data and Matheda		25
	•	25
	•	25
	•	27
Empirical Results	•	32
Out-migration and Natural Increase	•	34
Job Opportunities and Migration		37

Page

	Construc	tion l	Indu	stry	1.		•	•	•	•	•			•	•		38
	Manufac	turing	g .	•	•	•	•	•	•	•	•	•	•	•			41
	Transpor	tatior	i, C	om	mu	nica	atio	n a	nd	Oth	er l	Pub	lic				
	Utiliti	ies .	•	•	•	•	•	•	•	•	•		•	•		•	43
	Wholesa	le Tra	ade	•	•	•	•	•	•	•	•	•				•	46
	Retail Tr	ade.	•	•	•	•	•	•		•	•	•		•	•		48
	Services		•	•	•	•	•	•	•	•	•	•		•	•		51
Summ	nary.	•••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	54
Summary an	d Conclu	sion	•	•	•	•	٠	•	•	•	•	•		•	•	•	59
List of Refe	rences.			•	•	•	•	•	•	•	•	•	•	•	•		68

LIST OF TABLES

Table	F	Page
1.	Total Number of Population, Total Numbers of Natural Increase and Net Migration, and Crude Rates of Natural Increase and Net Migration in the State of Michigan, 1975-1980	33
2.	Relationship between Natural Increase Rate and Out-migration Rate in the State of Michigan, 1975-1980	36
3.	Migration Patterns in the Labor Market of Construction Industry	39
4.	Migration Patterns in the Labor Market of Manufacturing	42
5.	Migration Patterns in the Labor Market of Transportation, Communication and Other Public Utilities	44
6.	Migration Patterns in the Labor Market of Wholesale Trade	47
7.	Migration Patterns in the Labor Markets of Retail Trade	49
8.	Migration Patterns in the Labor Market of Services	52
9.	Matrix of Regions and Labor Markets in which Increasing Job Opportunities Strongly Encouraged In-migration	58

LIST OF FIGURES

Figur	e						P	age
1.	Michigan Counties by Five Groups.		•	•		•	•	32

CHAPTER I

INTRODUCTION

The general migration pattern in the United States before 1970 was one of movement toward urban areas. In the early nineteenth century, less than 10 per cent of the US. population lived in urban territories.¹ The proportions of urban inhabitants to the total population in the United States as a whole were 6.1 per cent in 1800 and 7.2 per cent in 1820. Research suggests that the tendency of rural residents moving toward urban centers was established as early as 1850 (Rathge, et al., 1981).

Due to the rapid concentration of population, by the turn of this century, about 30,160,000 people (39.7 per cent) resided in urban centers. The proportion of the population classified as urban jumped to 51.2 per cent in 1920; for the first time in American history the urban population exceeded the rural population. Further, by 1970, about 73.2 per cent of the population in the United States lived in urban areas. In the period 1920-1970, the total urban population increased by around 96 million (about 54,158,000 in 1920, and 148,821,000 in 1970). This is a striking rate of demographic centralization. Furthermore, as Rathge et al. (1981) point out, a prolonged migration of rural residents, especially young adults, to urban centers had

¹ calculated from Series A 57-72. Population in Urban and Rural Territory, by Size of Place: 1790-1970. in *Historical Statistics of the United States: Colonial Times to 1970*.

resulted in a concentration of nearly three fourths of the nation's population in scarcely 1.5 per cent of the national land area.

In general, until the 1970s, metropolitan areas held a strong population growth advantage over nonmetropolitan areas during every decade in the twentieth century, excluding the 1930s when due to the economic depression, metropolitan growth tapered off (Frey, 1990). However, the 1970s was a very unusual period. Metropolitan and nonmetropolitan growth patterns in that period changed direction completely. The reversal of migration trends in the 1970s is as remarkable as the increased population growth in nonmetropolitan territory. The shifts in the 1970s are signs of deconcentration of national population. Approximately 80 per cent of the nonmetropolitan counties gained population in the 1970s (Frey, 1990).

Scholars have separated the United States as a whole into 26 economic subregions to demonstrate the net migration trend. Beale and Fuguitt point out that the most dramatic change in nonmetropolitan population growth was from net out-migration to net in-migration for 23 out of the 26 economic subregions of the United States in 1970-1974.² Richter finds that:³

1. in 1970-1974 the net migration rates in the Central Corn Belt, the Mississippi Delta, and the Northern Great Plains declined;

² see Figure 8.3. -- Nonmetropolitan annual net migration rates, subregions of the United States, 1950-1960, 1960-1970, 1970-1974 in C. L. Beale, and G. V. Fuguitt. 1978. "The New Pattern of Nonmetropolitan Population Change." pp. 157-77 in Karl E. Taeuber, Larry L. Bumpass, and James A. Sweet (eds.), *Social Demography*. New York: Academic Press.

³ see Table 4. -- Annual net migration rates for nonmetropolitan countries by region. in Richter, Kerry. 1985. "Nonmetropolitan Growth in the Late 1970s: the End of the Turnaround?" *Demography* 22:2. pp. 245-263.

- 2. in 1974-1977 the Mississippi Delta was the only subregion with the declined net migration rate; and
- in 1977-1980 the net migration rates in the Mohawk Valley and New York-Pennsylvania Border, the Central Belt, the Old Coastal Plain Cotton Belt, and the Mississippi Delta decreased.

Before 1970 the increasing concentration of national population in and around large urban centers always had been a major dimension of population redistribution in the United States. Most of those concerned with population trends had once assumed that this process would continue indefinitely. Yet in the 1970s, many major metropolitan areas experienced negative population growth and there was a largely unpredicted demographic revival for most rural and small town areas. This trend reversal attracted the attention of a great number of sociologists, ecologists, economists, and political scientists, who developed theories for explaining these two population redistribution reversals -- nonmetropolitan turnaround, and metropolitan growth slowdown.

Migration Flows in Michigan in the 1970s

The general population redistribution patterns in Michigan in the 1970s were similar to those occurred throughout the United States in the same period. Research conducted by Rathge, Wang, and Beagle shows Michigan's population change during the period from April 1, 1970 and April 1, 1980 (Rathge, et al., 1981). The state's 83 counties were classified into five groups based upon relative urbanity and geographic location. The first two groups consist of those counties within the Standard Metropolitan Statistical Areas of Michigan. Group I is the metropolitan counties that contain a central city or cities of a SMSA. The counties in group II -- Fringe Metropolitan -- are those within an SMSA, but they do not contain a central city. There are 11 counties in the first group and 14 in the second group. These 25 counties are all located in the southern part of the lower peninsula and account for 83 per cent of total population in Michigan in 1970 (Rathge, et al., 1981).

The remaining 58 counties in Michigan are outside of SMSA boundaries. These counties are classified into three categories according to their geographic locations. Group III, and group IV are called "Nonmetropolitan Southern" and "Nonmetropolitan Northern", respectively. These groups are created by dividing Michigan's lower peninsula into two parts formed by the following counties: Bay, Midland, Isabella, Mecosta, Newaygo, and Oceana. Nonmetropolitan South -- group III are south of and inclusive of these counties, but exclude the counties in the first two groups. The fourth group contain the rest of counties in the lower peninsula. Group V -- Upper Peninsula -- is composed of the 15 counties in the upper peninsula of Michigan.

Analysis shows that population growth in Michigan had been slower during the 1970s than in previous decades. Overall, Rathge et al. conclude that primarily the negative urban population growth resulted from population loss in metropolitan areas. As they state,

[d]uring the period between April 1, 1970 and April 1, 1980, counties having central cities (Group 1-Metro) experienced a substantial net loss of population through out-migration. According to a recent analysis on 1980 preliminary Census counts by Wang and Rosen, among all the 12 metropolitan counties (including Monroe county which is part of the Toledo SMSA), only the Detroit SMSA lost population in the past ten years. All of the other SMSA's experienced some degree of population growth. Because the major cities within SMSA's have generally experienced population declines, growth is

4

primarily due to increasing population in suburban areas of the major SMSA cities. Although suburban counties (Group 2-Fringe) within the SMSA's gained people through in-migration, their gains still could not compensate the loss in the central cities. Thus, Michigan's metropolitan areas as a whole still experienced a substantial net outmigration and population loss. Evidently, some of the outmigrants from SMSA's moved to the nonmetropolitan sector of Michigan. Nonmetropolitan areas grew by the population of 239,000 between the two censuses. A moderate growth took place in the Southern Lower Peninsula nonmetropolitan areas (Group 3-Nonmetro Southern). Rapid population growth, however, did appear in the nonmetropolitan counties in Michigan's Northern Lower Peninsula (Group 4-Nonmetro Less than 40 per cent of the growth in Southern Northern). Nonmetropolitan areas was due to inmigration, while more than 80 per cent of the population growth in the Northern Lower Peninsula was due to inmigration. Michigan's U.P. counties also gained population at a very modest rate but the area reversed the long history of out-migration (Rathge, et al., 1981:30-33).

In summary, the nationwide phenomenon -- nonmetropolitan turnaround -- had been significant in the state of Michigan in the 1970s. Metropolitan areas, especially the older industrial urban centers, had experienced population loss through out-migration. Although the fringe areas and nonmetropolitan areas gained a substantial number of people through in-migration, the loss in Metropolitan counties had not been offset by the increase in these areas.

This thesis will examine the characteristics and content of this population redistribution between 1975 and 1980 in Michigan. The thesis begins with a detailed background discussion of the competing theories which attempt to explain why people move, and includes several hypotheses postulating cause and effect between population movement and regional socio-economic structure. Chapter three describes the data source and analysis methods which are used for testing the research hypotheses and for examining the relationship between migration patterns and changes of employment opportunities in certain labor markets. Chapter four discusses the empirical results, based on the analysis proposed in chapter three. The thesis concludes with a summary and some recommendations for future research.

CHAPTER II

MIGRATION THEORIES

Migration theories deal mainly with the following questions: Who dominates the migration flows? Where do people migrate to? Where do people migrate from? Why do people migrate? What are the causes and consequences of migration for the origin areas and the destination areas? Due to the different purposes and subjects of studies, scholars choose different perspectives, such as the micro or the macro approach, and different measurement units, such as individual, family, or community.

Generally, migration could be considered as a function of the interaction of structural effects with individual characteristics or sociopsychological attributes (Wang, 1977). As a consequence, migration has to be fulfilled by individual actions that are conditioned by the structural factors. Theoretically, action occurs in order to maximize gratification and to minimize deprivation. Therefore, when communities cannot meet individual needs and it is perceived that those needs can be satisfied in other residences, there would be a tendency for the potential migrant to move.

In this section, several migration theories are introduced. First, early perspectives contains: 1. Ravenstein's laws of migration; 2. Lee's push-pull obstacle model; and 3. Stouffer's intervening opportunity. Second, more recent micro-analytic perspectives describe: 1. Sjaastad's and Todaro's costbenefit models; and 2. Stark's family risk diversification model and relative deprivation theory. Finally, the macro approaches described include LewisFei-Ranis model; 2. Massey's geographic unevenness of economic development; and 3. Frey's regional redistribution.

Early Perspectives

Concerning earlier migration theories, two of Ravenstein's papers titled "The Laws of Migration" published in 1885 and 1889 are the most important. Ravenstein generates a framework of migration which Lee (1966) believes has remained the most significant theoretical contribution based on the assumption of factors of push and pull. Following Ravenstein, Lee generates the push-pull obstacle model which is considered as a costbenefit model that deals with the interaction among the push and the pull factors of the origin and the destination, the intervening obstacles between the origin and the destination, and the personal factors. Some researchers argue that the push-pull model is not suited for analysis of the determinants of migration because the distance components in "push" and "pull" are not isolated. Stouffer argues that there is no certain relationship between migration and distance. Only when the "distance" is regarded in socioeconomic terms, could it be the determinant of migration.

Ravenstein's laws of migration

Ravenstein provides some principles to explain the mechanisms of migration process. He also lists a number of "laws" which have remained key elements in a theory that attempted to explain migration by the establishment of flows conditioned by a number of variables. First of all, he believed that migration is gradual and by stages.

[T]here takes place consequently a universal shifting or displacement of population, which produces "currents of migration," setting in the direction of the great centers of commerce and industry which absorb the migrants (Ravenstein, 1889:198).

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 (Ravenstein, 1889:198).

Second, "migrants only proceed a short distance and as distance from the origin increase, the number of migrants will grow less, whereas migrants proceeding long distances generally go by preference to one of the great centers of commerce and absorption" (Ravenstein, 1889:199). Third, the natives of rural areas are more migratory than those of towns. Fourth, "each main current of migration produces a compensating counter-current" (Ravenstein, 1889:199). Fifth, females predominate among short-journey migrants. Sixth, migration is increasing.

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 a development of manufactures and commerce have led to an increase of migration (Ravenstein, 1885:288).

From his laws, Ravenstein shows that although some migration was directly to large urban centers of attraction there was also a movement by stages setting in the direction of the center of attraction; he further documents the existence of a counter-stream or counter-flow in any migration situation. Along with this counter flow proposition, the most important findings are that the development of technology and commerce leads to an increase in migration.

Lee's push-pull obstacle model

Such scholars as Jackson and Lee believe the Ravenstein's laws of migration have remained the most significant theoretical contribution based on the assumption of factors of push and pull. Following Ravenstein, Lee generates "probably the most appealing and most concise 'general', non-rigorous framework for analyzing the internal migration process" (Todaro, 1976:15). The so-called "push-pull obstacle model" focuses on the interaction of four dimensions which enter the decision to migrate and the migration process: factors associated with the area of origin, those associated with the area of destination, intervening obstacles, and personal factors (Lee, 1966).

According to Lee (1966), every origin and destination area is assumed to have three types of forces. First of all, positive forces, the pull factors, hold people within the area or attract others to it. Second, negative forces, the push factors, repel people from the area. Third, zero forces, which on balance exert neither an attractive nor a repellent force and towards which people are therefore essentially indifferent. Factors affect people in different ways. In other words, the effect of each of these forces are varied with the personality as well as the other individual traits of different people. Even though, forces could be defined differently in terms of positive, negative, or zero at both the origin and destination for different people, according to Lee, "there exist general sets of factors towards which most people tend to react in the same way (e.g., high wages, more job opportunities, better amenities)" (Todaro, 1976:17).

In this model, although migration phenomenon can partially explained by the combination of the positive and the negative factors, there are weaknesses. Furthermore, Lee introduce the "intervening obstacles" which are some influential factors between the origin and the destination. They include distance, physical conditions, cost of transporting household goods, and so on. Like the push and the pull forces, intervening obstacles exert different influences on different potential migrants. For some people these are relatively unimportant and the difficulty of surmounting the intervening obstacles is consequently minimal; for other potential migrants making the same move, the impedimenta, which must include children and other dependents may increase the difficulties posed by intervening obstacles.

Summing up, Lee's model can be considered as a cost-benefit model that proposes that migration is the result of pushes and pulls, or attractions and repulsion at both origin and destination, which balance in the context of the relative effort or cost of overcoming the obstacles that lie between the individual and potential alternative sites. The presumption is that the individual will try to minimize these costs whatever they are, and however they are measured.

Stouffer's intervening opportunities

Although the concepts of "push" and "pull" are used frequently, it is impossible to analyze the determinants of migration if the distance components in "push" and "pull" are not conceptually and empirically isolated. Stouffer (1940) asks a critical question: "if we say that Chicago has more 'pull' on people from Iowa than does New York and that New York has more 'pull' on people from Massachusetts than does Chicago, it is clear that we must deal with the distance factor in any analysis of the attraction of the two cities" (Stouffer, 1940:846).

According to Stouffer, linear distance is not an important determinant of migration patterns; there is no necessary relationship between migration and distance. Instead, he argues that "distance" should be regarded in socioeconomic rather than geometric terms. In 1940 he introduced the hypothesis of "intervening opportunities" proposing that "the number of persons going a given distance is directly proportional to the number of opportunities at that distance and inversely proportional to the number of intervening opportunities" (Stouffer, 1940:846). In other words, the number of people out-migrating to a given distance from an area is not a function of distance but rather a function of the spatial distribution of opportunities.

Jones (1990) argues that the early intervening opportunity model has two conceptual and technical problems.

Circularity is present when migration from the particular origin under study ... comprises part of the measured opportunities in surrounding bands. ... Another problem is that in-migration represents only opportunities or vacancies filled, so that in areas of economic buoyancy and employment expansion it will invariably underestimate opportunities available (Jones, 1990:193).

Therefore, in 1960 Stouffer modified the "intervening opportunity" model. He has recognized that the occupied opportunities in the destination by people from the origin through migration is inversely proportional not only to the opportunities intervening between the destination and the origin, but also to the number of competing migrants from elsewhere (Jones, 1990). In the new model, he introduces competing migrants who could move from anywhere.

More Recent Perspectives

According to Lee, migration is a function of pushes and pulls at both origin and destination, intervening obstacles between the origin and the destination, and the personal factors. The migration decision of potential migrants is based on the balance of these four sets of factors. Lee's model presumes that potential migrants will decide to move or to stay according to the general roles of minimizing their costs and maximizing the returns. Three more recent perspectives on individual migration theories are those put forward by Sjaastad (1962), Todaro (1969, 1976, and 1980), and Stark Sjaastad's and Todaro's individual cost-benefit model views (1984). migration as the outcome of a rational evaluation of the costs and benefits of movement. By contrast, Stark uses household units to propose the family risk diversification model which considers migration as a way of allocating the family workers to different productive pursuits to minimize household risk and to maximize household earnings. Also, Stark suggests the relative deprivation model implying that "household well-being and satisfaction arise not only from improvements in absolute economic status but also through comparison with other households in the reference community" (Massey, 1990:13). Therefore, migration is considered as a way to deal with relative deprivation when migrant incomes outside the community are high.

Sjaastad's and Todaro's cost-benefit models

Traditionally, economists see migration as a response to spatial earnings differentials; migration is a search for opportunities in higherpaying occupations (Sjaastad, 1962). According to this individual perspective, the decision to migrate is an investment decision which involves an individual's expected increasing the productivity of human resources in terms of costs and returns over time (Sjaastad, 1962). The private costs are divided into money and non-money costs. The former include the expenses incurred by migrants in the course of moving; such as costs of transportation, and of disposal of movable and immovable property necessitated by a shift in residence. The non-money costs include opportunity costs -- the earnings foregone while traveling, searching for, and learning a new job, and a psychic cost that is difficult to quantify. The returns can also be broken down into money and non-money components. Non-money returns include changes in "psychic benefits" as a result of locational preferences.

Although Sjaastad (1962) takes into account money as well as nonmoney costs and benefits, in calculating net returns to migration he includes only money costs and non-psychic benefits. This assumes that in deciding to move, migrants tend to maximize their net real incomes and they have at least a rough idea of what their income streams would be in the present place of residence as well as in the destination area and of the costs involved in migration. Therefore, money costs and returns to migration have been consistently viewed in a real resource sense. However, he concludes that "migration cannot be viewed in isolation; complementary investments in the human agent are probably as important or more important than the migration process itself" (Sjaastad, 1962:92-3).

Todaro suggests that migration is stimulated by rational economic considerations of relative benefits and costs (Todaro, 1980). The decision to migrate is functionally related to two main variables: the urban-rural expected income difference, and the probability of obtaining an urban job (Todaro, 1969; Todaro, 1976). Todaro (1969 and 1976) believes that migrants as decision-makers consider the various labor market opportunities available to them as between the rural and urban sectors, and choose the one which maximizes their "expected" gains from migration. However, the probability of obtaining an urban job acts as the most important factor determining whether potential migrants move to urban areas from rural areas. Although the prevailing real wage in urban areas is significantly higher than expected rural income, the fact that the "probability" of obtaining a modern sector job is very low must certainly influence the prospective migrant's choice as to whether or not he or she should leave rural areas. In other words, potential migrants have to balance the risks and probabilities of being employed and unemployed in urban areas for a given period of time against the high urban wage.

Generally, Todaro's theory can be illustrated by an equation which Massey (1990) describes as "a time horizon from t = 0 to n, [over which] a migrant compares the costs and returns of migrating versus staying" (Massey, 1990:5):

$$ER(0) = \int_{t=0}^{n} \left[P_1(t) * P_2(t) * Y_d(t) - P_3(t) * Y_0(t) \right] * e^{-rt} * dt - C(0)$$
(1)⁴

The ER(0) is the expected net return before the planned departure at time 0. The decision of migration is based on the ER(0). If ER(0) is positive, the potential migrants would choose to move; if it is negative, the potential migrants would choose to stay; and if it is zero, the potential migrants are indifferent between migrating and staying.

4 The simpler equation by Todaro (1976) is

$$V(0) = \int_{t=0}^{n} [P(t) * Y_{u}(t) - Y_{r}(t)] * e^{-it} * dt - C(0)$$

where

V(0) is the discounted present value of the expected net urban-rural income stream over the migrant's time horizon;

P(t) is the probability that a migrant will have secured an urban job at the average income level in period t;

 $Y_u(t)$ and $Y_r(t)$ represent the average real incomes of individuals employed in the urban and the rural economy;

n is the number of time periods in the migrant's planning horizon; and

i stands for the discount rate reflecting the migrant's degree of time preference.

According to the equation, the expected net return (ER(0)) is a function of seven basic elements that can be organized as two parts: the expected gain to be achieved from moving, and the expected return for staying in the origin. In detail, $P_1(t)$ represents the probability of avoiding deportation from the area of destination at different points in the migrant's stay; for internal migrants and legal international migrants it is always 1.0, but for undocumented international migrants it may be substantially less than 1.0 (Massey, 1990). $P_2(t)$ is the probability of being employed at time t, and $Y_d(t)$ is the income that a migrant can expect to earn in the destination at different points in period 0 to t. The product of $P_1(t)$, $P_2(t)$, and $Y_d(t)$ provides the expected return from migration.

In the second part -- the expected gain from staying in the original community, $P_3(t)$ is the probability of being employed in the home community at time t, and $Y_0(t)$ stands for the income within the community of origin at different points in period 0 to t. Similar to the product of $P_1(t)$, $P_2(t)$, and $Y_d(t)$, the product of $P_3(t)$ and $Y_0(t)$ gives the gross expected gain from choosing to stay the original community.

The result of the interaction of seven elements in the equation, shows that the net return is the difference between the income that would be earned at home community and that expected from migration. Then summing up the difference over the time horizon (0 to t) and discounting it by a factor r, which reflects the greater utility of income in the present than the future. Finally, the expected net return is that the result computed above subtracts the costs of migration, C(0).

In summary, migration for Todaro is stimulated primarily by rational economic considerations of relative benefits and costs. Importantly, benefits and costs are not only financial, but also psychological (Todaro, 1976). In addition, the decision to migrate depends on the "expected" rather than "actual" urban-rural real wage differentials where the expected differential is determined by the interaction of two variables, the actual urban-rural wage differential and the probability of successfully obtaining employment in the urban modern sector (Todaro, 1976).

Stark's family risk diversification and relative deprivation models

Based on the family perspective, migration which allocates the household's workers to different productive pursuits is considered as a family strategy of risk diversification (Stark, 1984; Stark and Bloom, 1985). The family strategy of risk diversification implies two functions: to minimize household risk and to maximize household earnings. However, the implications of Stark's family-based risk diversification model are quite different from those of Todaro's individual income-maximization model. First, the family-based risk model does not require an earnings differential between sending and receiving areas. Second, the risk diversification model implies that migration arises from a lack of access to capital markets in sending areas as well as from a scarcity of well-paying and productive employment. If families had some way to hedge against risk by purchasing insurance, borrowing money, or selling futures, the motivation to migration might be reduced, but these capital markets are generally lacking in developing countries or are available only at exorbitant cost from moneylenders.

Additionally, Stark (1984) proposes the relative deprivation approach which suggests two concepts.

(a) [G]iven a person's own (current) income, his satisfaction or deprivation is some function of income statistics other than this

income (e.g., a statistic based on the incomes of some [not necessarily all] other persons) and (b) that rural-to-urban migration is undertaken in order to improve a person's position in terms of the latter statistic (Stark, 1984:475).

Stark believes that relative deprivation is an important factor motivating the locational decision of potential migrants. In details, people, generally, are engaged in interpersonal income comparisons which are internalized, thus generating psychic costs or benefits, frustration or elations, relative deprivation or satisfaction. The psychic relative deprivation and satisfaction motivate locational decisions of potential migrants. In this approach, migration is a way of overcoming relative deprivation when opportunities for income within the community are limited, when the incomes outside the community are higher, and when network connections put migrant employment within easy and reliable reach (Massey, 1990). Also, population migration will not cease; when the community average income still rises, then someone else feels deprived, dissatisfied, and decides to migrate.

In summary, scholars, such as Lee, Todaro, Sjaastad, believe that migration is stimulated by rational economic considerations of relative benefits and costs. In other words, they treat the decision to migrate as an investment decision which involves an individual's expected increasing the productivity of human resources in terms of costs and returns over time. By contrast, Stark considers that migration is a function of psychic relative deprivation and dissatisfaction. Also, migration which allocates the household's workers to different productive pursuits is a family strategy of risk diversification which implies two functions: to minimize household risk, and to maximize household earnings.

Macro Approaches

Micro theorists have been strongly criticized by structuralists, who argue that the profound transformation and interaction of social and economic institutions mobilize labor for reasons beyond individual utility maximization (Massey, 1990). Structuralists believe that individual and structural elements are simultaneously involved in human migration. Decisions of migration are inevitably made by actors who weigh the costs and benefits of movement, but these decisions are always made within the specific social and economic environment that is determined by larger structural relations in the political economy. The immediate socioeconomic context not only helps to determine parameters such as the probability of employment and the costs of migration, but also affects the way the costbenefit calculations are framed and conceptualized. Consequently, although it may be true that rational decisions are made for maximizing expected returns, these decisions are always constrained by specific local structural conditions.

The combined model of Lewis (1954) and Fei and Ranis (1961) proposes that migration is an equilibrating mechanism which transfers labor from the labor surplus sector to the labor shortage sector. Massey (1988) suggests that migration is the result of geographic unevenness of economic development. Similarly, Frey's (1987 and 1990) regional redistribution perspective insists that migration is due to the discontinuities in economic development across time and space.

Lewis-Fei-Ranis model

According to the structural perspective, Lewis, Fei, and Ranis generally consider migration as an equilibrating mechanism that brings about

wage equality in the two sectors by way of shifting human resources from locations where their social marginal products are often assumed to be zero toward places where these marginal products are not only positive, but also rapidly growing as a result of capital accumulation and technological progress (Lewis, 1954; Ranis and Fei, 1961).

The model is based on a concept of dual economy consisting of a rural subsistence sector characterized by zero or very low productivity surplus labor, and an urban industrial sector characterized by full employment where capitalists reinvest the full amount of their profits. In the rural subsistence sector, the marginal productivity of labor is zero, or very low, and workers are paid wages which equal their cost of subsistence. In the urban modern sector, wages are maintained at levels much higher than the average In this dual economy, migration from the rural agricultural wage. subsistence sector to the urban industrial sector increases industrial production as well as the capitalist profits. Since the capitalist profits are fully reinvested in the industrial sector, it further leads to the more demand for labor from the rural subsistence sector. Therefore, it might continue indefinitely if the growth rate of population in the rural sector is higher or equal to the rate of labor out-migration. However, it would end eventually if the rate of expansion of demand for labor outstrips the growth rate of population in the rural rates.

In sum, the primary focus of the model is both on the process of labor transfer and on the growth of employment in the modern sector. Both labor and urban employment growth are brought about by output expansion in the modern sector. The speed with which they occur is given by the rate of industrial capital accumulation in the modern sector. Such investment is made possible by the excess of modern sector profits over wages on the assumption that "capitalists" reinvest all of their profits. Finally, the level of wages in the urban industrial sector is assumed to be constant and determined as a fixed premium over a constant subsistence level of wages in the traditional agricultural sector.

Massey's geographic unevenness of economic development

In fact, available evidence suggests that a large share of moves are not volitional but are structurally imposed by conditions beyond the individual's control, most commonly economic dislocations (Speare, Goldstein, and Frey, 1975). Massey argues that the geographic unevenness of economic development actually causes migration (Massey, 1988). On the one hand, since capital cannot be spread equally and thus is concentrated on certain urban areas, geographic differences in the marginal productivity of labor are reflected in rural-urban wage differentials. These provide strong stimulations for rural-to-urban movement that causes in economic development and urbanization.

On the other hand, migration could be likely explained by discontinuities in economic development across time and space, which produce cyclical constrictions of opportunity in developing urban economies paired with expansions of opportunity in growing economies outside. Meanwhile, this structural propensity for population movement is actualized by an increasing access to reliable and affordable systems of transportation and communications. Additionally, the degree of economic articulation between the origin and destination also determines population redistribution, since increasing economic integration naturally leads to the movement of capital, information, and goods, and then people.

Frey's regional restructuring perspective

Similar to Massey's "discontinuities in economic development across time and space", Frey proposes the "regional restructuring" perspective in which the population redistribution reflects a spatial representation of shifts in the organization of production and in the function that the affected areas perform within the new organization (Frey, 1987; Frey, 1990). In other words, the nonmetropolitan turnaround and the metropolitan growth slowdown in the 1970s were not only explained as the result of the economic dislocations, but also viewed as a new geographic growth. The growing areas of the nation will be those that successfully redirect their economies toward advanced service delivery, high-tech research and development, and recreation and leisure-time activities.

Frey categories metropolitan areas into two groups: command and control centers consisting of diversified service centers and specialized service centers, and subordinate centers consisting of production centers and consumer-oriented centers (Frey, 1987). However, not all large metropolitan areas are expected to become transformed into advanced service centers. Metropolitan areas that cannot successfully make the transformation from industrial production to post-industrial services will continue to decline (Frey, 1987; Frey, 1990). Perhaps the roles or positions of these declining metropolitan areas would be taken over by the rapidly growing areas in the future. Therefore, this perspective provides the explanation that while many Northern metropolitan areas classified as command and control centers experienced significant declines or growth slowdown during the 1970s, because of a transitional disinvestment in old-line manufacturing activities.

Therefore, the regional restructuring perspective actually provides two explanations for the metropolitan population decline in the 1970s. These declining metropolitan areas in the 1970s were because, first they could not successfully transform from industrial production to post-industrial services, and second they relatively disinvested in old-line manufacturing activities (Frey, 1987; Frey, 1990).

In summary, structuralists believe that migration is rooted by social and economic transformation: economic development produces a pool of dislocated workers who respond to the rewards of greater productivity elsewhere, which lie in developing urban economies. Additionally, cyclical economic growth in urban sectors, combined with inter-regional differences in wages and cost reducing of transportation and communication, encourage emigration into the structure of economic development. Emigration assumes greater or lesser importance depending on the degree of economic connection between sending and receiving areas. As economic integration of inter-region grows, an inverse association between business cycles develops, networks of transportation and communication interlinks, and labor recruitment becomes more frequent, bring about large-scale movements of labor between areas (Frey, 1987; Frey, 1990). In the United States in the 1970s, structural change in economy played the extremely important role in the explanation of internal migration.

Hypotheses

This thesis chooses to focus explaining migration within Michigan between 1975 and 1980 from a macro-socio-economic perspective. This choice is predicated by a belief that such a structural approach conceptually captures the unique components of Michigan economy and society which had an impact on migration during the 1970s. Following the theoretical perspective put forward by Lewis-Fei-Ranis, Massey, and Frey I suggest several hypotheses linking Michigan's structural economic development with migration inflows and outflows. These hypotheses also draw heavily upon the theoretical work delineating the existence of a dual economy in many societies. Essentially, migratory flows are seen to be structurally conditioned by the employment components evident in a rural subsistence economy and an urban production economic respectively.

Specifically, I hypothesize that:

- 1. Within Michigan between 1975 and 1980 out-migration from rural areas was higher for those rural areas where the rate of population growth was highest.
- 2. Counties experienced greater out-migration from the older manufacturing based industries and occupations than from service-oriented industries and occupations.
- 3. Counties experienced greater in-migration of workers in service, delivery, tourism and high technology industries and occupations.

CHAPTER III

DATA AND METHODS

Data Sources

The data used in this analysis are from two sources. First, data are taken from the tapes of *Census of Population, 1980: County to County Migration Flows* by the Bureau of the Census, United States Department of Commerce. These special summary tape files provide data for migration flows into and out of each county, as well as for intra-county migrants and non-movers. The data for each migration flow consist of a geographic record and twenty tables. The geographic record contains information on migration inflows and outflows by states and counties.

According to any change of residence between 1975 and 1980, people are classified into the following categories: 1. same house; 2. different house, but same county; 3. different county, but same state; and 4. different state. People in the group, same house, are non-movers who are coded as 0 for migrant type in the tape files. Those who in the group -- different house, but same county -- are intra-county migrants who are coded 1. People in groups 3 and 4 can be identified as two categories, in-migrants and outmigrants. For example, a person may have lived in Ingham county, Michigan in 1980, and lived in Wayne county, Michigan in 1975. By comparing his/her residences in 1975 and in 1980, for Ingham county, this person is an *in-migrant* who is coded as 2, and for Wayne county, he/she is an *out-migrant* who is coded as 3.
The data in tape files are cumulated, based on the characteristics of respondents. Two tables were used: M-1 and M-13. In the table, M-1. Race and Spanish Origin by Sex and Age, there are 216 categories. Data in M-1, based on race, gender, and age, show how many people are non-movers, how many people are intra-county migrants in each county and state, how many people are in-migrants from each county and state, and how many people are out-migrants to each county and state. In the table, M-13. Sex by Industry Group, Employment Status and Age, there are 156 categories. For this study, I selected data from Michigan only, and aggregated them into 83 records representing 83 counties of the State of Michigan. Irrespective of the county and state where people migrate from or migrate to, data were aggregated and the count indicates how many people move in and move from each county in Michigan.

The second data source is *County Business Patterns, Michigan, 1975* and 1980. The data in *County Business Patterns* were collected by the Bureau of the Census Annual Organization Survey. It provides information on establishments, payroll, and employment by industry classification and county location. The data used in this study consist of six variables:

- 1. contract construction;
- 2. manufacturing;
- 3. transportation and other public utilities;
- 4. wholesale trade;
- 5. retail trade; and
- 6. services.

The six variables represent six types of industries. The published data indicate how many employees worked in these six types of industries. The data used in this study are those in 1975 and in 1980. Comparing the total

number of employees in six types of industries, the change in employees between 1975 and 1980 can be calculated. Therefore, these six variables are used to identify changes of job opportunities in six types of industries. Further, each type of industry is considered as one labor market in this study. The increase or decrease of employees in each industry is therefore used as the change of job opportunities in each labor market. However, the discussion about agriculture and mining is omitted in this study, because of incomplete data in these two labor markets.

Descriptive Analysis

Classical economists believed that individuals were more likely to migrate from places with less job opportunities to places with more job opportunities. Therefore, differences in job opportunities between different locations should be a primary determining factor of migration. However, migration might not be directly explained by the total number of increasing or decreasing job opportunities, unless the job opportunities are considered separately in terms of different labor markets. Labor markets are distinguished. The numbers of migrants in different labor markets vary with the increase or decrease of job opportunities in different labor markets.

In addition, no one can fit in every labor market. Individuals are more likely to be in a particular labor market, because of their personal education, experience, and background. In this study, individuals are assumed to "fit" into one labor market; they do not move between labor markets. In other words, when people migrate to find a job at another location, those working in manufacturing before the move would only seek manufacturing jobs; and those working in the construction industry would only look for jobs related to the construction industry. Consequently, the relationship between migration and job opportunities can be presented as:

$$I_m = a_{im} + b_{1im} \cdot \Delta J_m \tag{2}$$

$$O_m = a_{om} + b_{1om} \cdot \Delta J_m \tag{3}$$

where,

 a_{im} and a_{om} are the constant values, as no change of job opportunities in labor market m;

 I_m represents the total number of in-migrants in labor market m; O_m represents the total number of out-migrants in labor market m; and ΔJ_m represents the change number of job opportunities in labor market m.

These above two equations say that as job opportunities increase in a particular labor market, job seekers who meet the requirements of the particular labor market would migrate in; by contrast, as job opportunities decrease in a particular labor market, job losers might migrate out to another places with surplus job opportunities in the particular labor market.

Population is not a static process, but dynamic. Migration, deaths and births continuously change the total population of a place. As labor markets are considered as the subdivisions in a population, the sizes of labor markets are not static. Although, population size in a certain labor market may not be influenced by births at all, new participants to labor markets are like births to the population. Migrants, deaths, and new participants, who do just enter the particular labor market, are three elements which determine the total number of people in a certain labor market. Suppose the total number of employment positions in a certain labor market is fixed, deaths can release some employment opportunities for both in-migrants and new participants. However, in this situation in which the number of employment opportunities does not change, the total number of migrants is determined by the interaction of deaths and new participants. As the total number of deaths exceeds that of new participants, it would be attractive to in-migrants; on the other hand, if the total number of new participants is larger than that of deaths, it may lead to increased out-migrants. Therefore, the two equations above should be modified as:

$$I_{m} = a_{im} + b_{1im} \cdot \Delta J_{m} + b_{2im} \cdot N I_{m}$$
⁽⁴⁾

$$O_m = a_{om} + b_{1om} \cdot \Delta J_m + b_{2om} \cdot NI_m \tag{5}$$

where,

 NI_m represents the total increase or decrease in the number of local people in terms of deaths and new participants in labor market m. Moreover, NI_m can be illustrated as:

$$NI_{m} = N_{m} - D_{m} = k_{m} \cdot NLI \tag{6}$$

where

 N_m means the number of new participants who do just enter into labor market m;

 D_m is the number of deaths who were labor participants in labor market m; k_m is the constant proportion; and

NLI is the natural increase in the entire population.

From equation (6), NI_m is the difference between N_m and D_m . Also NI_m is the proportional *NLI*, the natural increase in the whole population. In

this study, I use *NLI* instead of NI_m , the difference of N_m and D_m . First, because of data availability constraints and secondly, NI_m is not the main factor in this research.

Based on equations (4) and (5), with increasing employment opportunities, if the number of increased jobs exceeds the number of new local participants, the surplus new jobs should be filled by in-migrants. By contrast, with no change of job opportunities and no deaths in a particular labor market, new labor force participants would be the main stream of outmigrants. Also, the number of in-migrants should be low, because no more employment opportunities are available for new participants or in-migrants. However, equations (4) and (5) are not yet complete. The influence of outmigration should be considered in the equation for explaining in-migration. Also, the influence of in-migration should be taken into account in the interpretation of out-migration. The completed models are as below.

$$I_m = a_{im} + b_{1im} \cdot \Delta J_m + b_{2im} \cdot NI_m + b_{3im} \cdot O_m$$
⁽⁷⁾

$$O_{m} = a_{om} + b_{1om} \cdot \Delta J_{m} + b_{2om} \cdot NI_{m} + b_{3om} \cdot I_{m}$$
(8)

In the long term, like deaths, people out-migrating, if they are job occupiers, would create some surplus employment opportunities for local new participants as well as in-migrants. On the contrary, people inmigrating would lead new labor participants who are just in labor market to migrate out to seek jobs, because job opportunities might be previously occupied by in-migrants and old labor participants before new participants are in labor market.

In summary, migration is a function of job opportunities and population increase or decrease. Change in population size in certain labor markets, in the long run, is determined by the difference of N_m (new participants) and D_m (deaths) as well as in- or out-migrants. Therefore, there are three factors explaining in- and out- migration. The number of inmigrants in a certain labor market can be explained by the change of employment opportunities, the increase or decrease of labor participants in terms of deaths and new participants, and the number of out-migrants in a particular labor market can be modeled by the change in employment opportunities, the increase of out-migrants in a particular labor market can be modeled by the change in employment opportunities, the increase of labor participants in that and new participants, and the number of out-migrants in terms of deaths and new participants in the change in employment opportunities, the increase or decrease of labor market.

CHAPTER IV

EMPIRICAL RESULTS

Following Rathge, et al. (1981), the 83 counties of the State of Michigan are classified into five groups:

- 1. Group 1 -- Metropolitan counties;
- 2. Group 2 -- Fringe metropolitan counties;
- 3. Group 3 -- South non-metropolitan counties in the Lower Peninsula;



Figure 1. Michigan Counties by Five Groups

- 4. Group 4 -- Northern non-metropolitan counties in the Lower Peninsula; and
- 5. Group 5 -- Counties in the Upper Peninsula.

According to Table 1, comparing the total population between 1975 and 1980, the State of Michigan increased population by 105,678. Its crude natural increase rate in the entire population was 41.75 per thousand, and crude net migration rate was -30.27 per thousand. Since the natural increase exceeded the net out-migration rate, the entire population increased about 11.48 per thousand.

Comparing by region, the crude natural increase rate in 1975-1980 in the fringe metropolitan counties was the highest and that in the Upper Peninsula was the lowest. That in fringe metropolitan countries was higher than that in metropolitan counties by 3.02 per thousand in the population,

Table 1. Total Num	ber of Population	on, Total Numl	bers of Natural	Increase and
Net Migra	tion, and Crude	Rates of Natur	al Increase and	Net Migration
in the State	e of Michigan, 1	975-1980.	· · · · ·	_
	Total Population	Total Population	Natural Increase	Net Migration
	in 1975	in 1980	in 1975-1980	in 1975-1980
Region	(a _i)	(c _i)	(e _i)	(g _i)
	(b _i)	(d _i)	(f _i)per 1000	(h _i)per 1000
1 Metro	4,936,200	4,784,073	202,007	- 354,134
	53.91 %	51.65 %	41.56	- 72.87
2 Fringe	2,544,900	2,709,137	117,104	47,133
-	27.79 %	29.25 %	44.58	17. 94
3 Nonmetro South	900,800	952,398	41,160	10,438
	9.84 %	10.28 %	44.42	11.26
4 Nonmetro North	449,500	496,713	14,943	32,270
	4.91 %	5.36 %	31.58	68.21
5 Upper Peninsula	325,000	319,757	9,273	- 14,516
	3.55 %	3.45 %	28.76	- 45.03
Total	9,156,400	9,262,078	384,487	- 278,809
	100.00 %	100.00 %	41.75	- 30.27
Note: 1. $(b_i) = [(a_i)]$) / Σ(a _i)] * 100			
2. (d _i) = [(c _i) / Σ(c _i)] * 100			
3. $(f_i) = (e_i)$	$/[((a_i) + (c_i)) / 2]$	* 1000		
3. $(h_i) = (g_i)$	$/[((a_i) + (c_i)) / 2]$	* 1000		

higher than that in nonmetropolitan northern counties by 13.00 per thousand, extremely higher than that in counties in Upper Peninsula by 15.82 per thousand, and slightly higher than that in nonmetropolitan southern counties in Lower Peninsula by 0.16 per thousand in the population. Based on crude rates of net migration, there were 2 regions with net out-migration, and 3 regions with net in-migration. Region 4, nonmetropolitan northern counties in Lower Peninsula, had the highest rate of net in-migration -- 68.21 per thousand in the population. In the other two regions, fringe metropolitan counties and southern nonmetropolitan counties, those rates were 17.94 and 11.26 per thousand in the population, respectively. Region 1, metropolitan counties, had the highest rate of net out-migration -- 72.87 per thousand in the population. Upper Peninsula was the other area with extremely high net out-migration rate -- 45.23 per thousand in the population.

In summary, the summations of natural increase rate and net migration rate show that metropolitan counties and those of the Upper Peninsula are two main areas with population decrease and the other three areas are places with moderate population increase. The population growth rate in metropolitan counties is -31.31 and that in the Upper Peninsula is -16.27 per thousand. The other three areas have the population growth rates from 55.68 to 99.79 per thousand in the population.

Out-migration and Natural Increase

Based on a concept of dual economy, rural sectors always provide surplus labor force of zero or very low productivity, and urban industrial sectors are characterized by full employment where capitalists reinvest the full amount of their profits. The marginal productivity of labor force in rural sectors is quite low; workers usually are paid low wages which are almost equal to their cost of subsistence. Wages in the urban modern sectors are maintained at levels much higher than the average agricultural wage in rural sectors. In this dual economy, migration from the rural subsistence sector to the urban industrial sector increases industrial production as well as the capitalist profits. Since the capitalist profits are fully reinvested in the industrial sector, it further leads to the more demand for labor from the rural subsistence sector. Consequently, rural-urban migration might continue if the growth rate of population in the rural sector is higher or equal to the rate of labor out-migration. However, it would end eventually if the rate of expansion of demand for labor outstrips the growth rate of population in the rural rates.

In Table 2, urban areas consist of the counties of groups 1 and 2 defined as above, and rural areas are those of groups 3, 4 and 5. Natural increase rate is the proportion of births in 1975-1980 subtracting deaths in 1975-1980 to the average of total numbers of population in 1975 and 1980. The simple regression equations show the relationship between the natural increase rate and out-migration rate in three levels of geographical areas. For the entire state of Michigan, in 1975-1980 an increase of one person per thousand in the population in natural increase rate would lead to .0167 out-migrants per thousand. In other words, if there were a county with natural increase of 1000 people, there would be 16.7 out-migrants from that area. On the other hand, as the value of births subtracting deaths in 1975-1980 equals to zero, there still were about 21.78 per thousand people migrating out. However, at the state level, natural increase rate is slightly related to out-migration rate, because the proportion of the variance of out-migration rates in all counties explained by natural increase rate almost equals to zero.

in the	e State of Michi	gan, 1975-1980		
Region	Constant	Natural Increase Rate	R ²	Total Cases
Entire State	21.7811	.0167	.0015	83
Urban Areas	11.1883	.1528	.0644	25
Rural Areas	20.0892	.0461	.0229	58

In urban areas, the relationship between natural increase rate and outmigration rate is slight, though R^2 is larger than that for the regression equation for the entire state. Increasing one person per thousand in the population, would have encouraged about .1528 out-migrants per thousand in the population. Therefore, a county with a natural growth in the population of 1000 people would have about 152.8 people migrating out between 1975 and 1980. In addition, if a county had zero natural increase, it would still have 11.1883 out-migrants in 1975-1980.

The relationship between natural increase rate and out-migration rate in rural areas is weaker than that in urban areas. The proportion of the variance of out-migration rate explained by the change of natural increase rate is 2.29%. In rural counties of Michigan, an increase of 1000 people in natural growth, the number of out-migration would increase by 46.1 people. By contrast, as the deaths exceed the births, the out-migration rate would decrease. For example, if the population decreased by 1000 people, outmigration would decrease by 46.1 people. Therefore, according to the simple regression equation, for a negative increase of 434.8312 people in natural increase, out-migration would be zero. Yet, as natural increase equals to zero, the number of out-migration would be about 20.0892 per thousand in the population. Comparing the relationship between natural increase rate and outmigration rate in urban to rural areas, as zero natural increasing, the outmigration rate in urban sectors would be lower than that in rural sectors by about 8.9 per thousand. Further, the influence of natural increase rate in urban sectors is much stronger than that in rural areas. In urban areas, increasing 1000 people in the population would lead to 152.8 out-migrants, but in rural sectors, that would only increase the number of out-migrants by 46.1.

In summary, natural increase rate is barely an adequate predictor for interpreting population migration in this study. The data in Table 2 show that the proportion of variance in the out-migration rate explained by natural increase rate is very slight. It explains the variance of out-migration rate by 6.44% for urban counties and 2.29% for rural counties. The first hypothesis that out-migration from rural areas was higher for those rural areas where the rate of population growth was highest is supported, although the relationship between them is slight. However, natural increase rate is not the only determinant. Migration should be considered as a function of job opportunities and population increase, especially for people in labor force.

Job Opportunities and Migration⁵

Migration is a function of job opportunities and population increase or decrease. To understand the behavior of population movement, in- and outmigration can be separately illustrated as the different multiple regression equations above. The main idea in those equations implies that individuals migrate due to the increase or decrease of job opportunities. Migration

⁵ The analysis in this section uses numbers of employment opportunities, and inand out-migrants, as opposed to rates.

might not be directly explained by the total number of increasing or decreasing job opportunities, unless the job opportunities are considered separately in terms of different labor markets. The numbers of migrants in different labor markets vary with the increase or decrease of job opportunities in different labor markets.

Construction industry

In the two multiple regression equations, there are 78 counties with all variables for testing migration in the construction industry. For the entire state of Michigan as a whole, one additional job opportunity in the construction industry led to about .35 in-migrants, and also decreased the number of out-migrants related to the construction industry by .20. Moreover, one out-migrant could have increased in-migrants by about .55, and one in-migrant led to increase out-migrants by about .48 in the construction industry.

If the entire state is broken down into two areas in terms of urban and rural, migration patterns were different in two sectors. In the urban sectors, one extra job opportunity would have led to .33 in-migrant construction workers, and one extra out-migrant would also have encouraged about .64 construction workers to migrate in. Additionally, increasing one more job opportunity led to a decrease of about .20 people migrating out. However, the number of in-migrating construction workers had a strong influence on out-migration.

In the rural counties, increasing job opportunities played an important role in encouraging people to move in. According to the data, increasing one job in construction would increase in-migrants of construction workers about .57. Nevertheless, increasing job opportunities was not so important

Table 3. Migration	Patterns in	the Labo	r Market	of Constru	uction I	ndustry						
			In-migrat	ion					Dut-migra	tion		
	a_i	b_{1im}	b_{2im}	b_{3im}	R ²		a_{n}	b_{1om}	b20m	p30m	R ²	
		Change		Out-				Change		-ul		
Daction		of job	Natural	migrant		Total		of job	Natural	migrant		Total
NCGIOII	Constant	number	increase	number		cases	Constant	number	increase	number		cases
Entire State	104.6140	.3532	0141	.5478	.9094	78	- 21.7367	2001	.0848	TTT4.	.9694	78
Urban Areas	225.3052	.3298	0260	.6364	.8980	25	- 179.0224	1973	.0840	.5631	.9702	25
Rural Areas	46.1316	.5650	.0329	.3387	1629.	53	75.4834	0656	.0804	.1438	.8374	53
1 Metro	158.3896	.1746	.0100	.2876	.9762	11	- 386.4978	3354	.0375	1.7350	.9772	11
2 Fringe	109.9828	1815	.0545	.5737	.9741	14	147.1309	1.0363	0204	.2616	7066.	14
3 Nonmetro South.	49.5040	.6403	.0130	.5429	.5768	16	56.5015	1502	7060.	.0831	7568.	16
4 Nonmetro North.	38.1001	.5677	.0004	.5677	.7005	25	49.8239	0533	.0819	.3100	.6716	25
5 Upper Peninsula	63.0988	.0672	.0262	1602.	.7124	12	61.4255	6889	.0873	.4672	.8290	12

on keeping construction workers in rural areas. The data show that increasing one additional job opportunity in construction industry would only reduce the number of out-migrant construction workers by .07. Moreover, increasing in-migrant construction workers did not lead to construction workers to migrate out. In this case, increasing one in-migrant only encouraged about .14 people to move out.

Comparing urban and rural sectors, increasing job opportunities in rural areas had more impact than that in urban sectors. The data show that increasing one job in rural areas could have encouraged about .57 construction workers to move in. By contrast, increasing one job in urban areas could only lead to in-migrant construction workers by .33 which is less than .57 in rural sectors. On the other hand, increasing job opportunities in rural areas did less function than that in urban sectors in keeping construction workers. Increasing one extra job opportunity could keep about .20 people in urban sectors, but only .07 in rural areas.

Urban areas are divided into two groups, metropolitan counties and fringe metropolitan counties, and rural areas are separated into three groups, southern nonmetropolitan counties, northern nonmetropolitan counties, and counties in the Upper Peninsula. The data show that increasing job opportunities led to increasing in-migrants in construction industry in southern and northern nonmetropolitan counties. For southern and northern nonmetropolitan counties, increasing one job could have led to .64 and .57 people to move in, respectively. In the Upper Peninsula, and metropolitan counties, increasing job opportunities played an important role in reducing the number of out-migrants. In the Upper Peninsula, increasing one job decreased about .69 out-migrants and in metropolitan counties, it reduced about .34 people to move out. Fringe metropolitan counties are special areas. Increasing one job reduced about .18 people to migrate in. On the other hand, it encouraged about 1.04 people to move out.

Manufacturing

For most counties, increasing manufacturing job opportunities is an important factor in attracting people. For the entire state, one increased job opportunity led to about .59 in-migrants, and also decreased about .34 people who worked in manufacturing industry. In addition, one out-migrant would have encouraged 1.28 people to migrate in, but one more in-migrant could have only pushed about .41 people to move out.

In general, most counties in Michigan experienced an increase in inmigration of manufacturing workers, when there was no change in job opportunities, zero natural increase, and no out-migration in the population. Urban counties were the most preferred destinations. With no increased jobs in manufacturing industry, no natural increase in population, and no outmigration, urban counties still experienced about 1124.99 in-migrants. Increasing one more job opportunity could have increased about .60 inmigrants, and also one more out-migrant led to 1.43 people moving in. However, in-migration could increase the number of out-migrants.

In rural counties, increasing job opportunities in manufacturing industry was important in encouraging in-migration. One increased job could have attracted about .72 in-migrants, and meanwhile, one more outmigrant could have led to .57 people to move in. By contrast, with no change in job opportunities, no natural increase in population, and no inmigration, rural counties experienced, on average, about 160.89 manufacturing workers to move out in 1975-1980.

Table 4. Migration	Patterns in	the Labor	r Market c	of Manufa	acturing	-						
			In-migrat	ion				0	Dut-migra.	tion		
	a _i	b_{1im}	b_{2im}	b_{3im}	R ²		a_n	b_{1om}	b20m	p30m	\mathbb{R}^2	
		Change		Out-				Change		-u		
Darrion		of job	Natural	migrant		Total		ofjob	Natural	migrant		Total
INCEIOIL	Constant	number	increase	number		cases	Constant	number	increase	number		cases
Entire State	200.5601	.5927	3767	1.2800	.9401	78	- 138.7582	3416	.4491	.4132	.9844	78
Urban Areas	1124.9853	.5950	4923	1.4323	.9295	25	- 783.4379	3200	.4669	.4072	.9853	25
Rural Areas	- 45.0710	LLUL.	.0580	.5725	.8650	53	160.8899	2825	.3028	.4469	.9026	53
1 Metro	610.2508	.1717	.0305	.5600	.9855	11	-1003.9227	3021	.1929	1.1380	.9895	11
2 Fringe	389.0033	.2527	0465	1.2348	.9912	14	- 523.4378	1559	.4137	.3380	.9953	14
3 Nonmetro South.	- 163.6863	.7446	.0669	.6853	.8853	15	263.4736	3222	.3045	.4125	.9386	15
4 Nonmetro North.	123.7485	.4206	.0653	.3214	.6754	25	162.0013	1818	.3131	.2061	.7501	25
5 Upper Peninsula	65.9975	6696.	.1007	.0263	.8450	13	178.8450	.2998	.3005	.4865	.6783	13

Furthermore, comparing urban and rural counties, increasing job opportunities in manufacturing industry in rural areas could have increased more in-migrants than in urban areas. Based on the data, increasing one additional job opportunity caused about .72 people to move to rural counties, but it only attracted about .60 people to migrate to urban areas. In general, urban counties were the most preferred destinations by manufacturing workers.

When urban counties are categorized into metropolitan and fringe metropolitan counties, the metropolitan counties were the most preferred destinations for manufacturing workers. With no increased job opportunity, no natural increase, and no out-migration, there were still about 610.25 people moving in. By contrast, southern nonmetropolitan counties were the least favorite areas. Counties in this geographical level would experience about 263.47 people to migrate out, as no increased job, no natural increase, and no in-migration. Increasing job opportunities did the most function in the counties of the Upper Peninsula; one increased job opportunity could have encouraged about .97 in-migrants. Interestingly, increasing one job could also encourage about .30 people to migrate out.

Transportation, communication and other public utilities

In the industry of transportation, communication and other public utilities, increasing job opportunities was not so important to attract workers. For the entire state as the whole, one increased job opportunity could have encouraged about .27 people to move in, and also caused about .26 people to migrate out. Additionally, one out-migrant could have increased in-migrants by about .36. By contrast, one in-migrant caused about .79 people who

Table 5. Migration	n Patterns in	the Labo	r Market	of Transp	ortation	n, Comi	nunication a	and Other	r Public L	Itilities		
D			In-migrat	ion					Dut-migra	tion		
	a_i	b_{1im}	b_{2im}	b_{3im}	R ²		an	b_{1om}	b_{2om}	pzom	R ²	
		Change		Out-				Change		-II-		
Doctor		of job	Natural	migrant		Total		of job	Natural	migrant		Total
Region	Constant	number	increase	number		cases	Constant	number	increase	number		cases
Entire State	58.5052	.2701	.0338	.3570	.9652	71	- 90.4806	2617	.0670	.7918	.9594	71
Urban Areas	179.5240	.2728	.0200	.4383	.9643	24	- 342.8287	2784	.0658	.8925	.9658	24
Rural Areas	24.5073	.1960	.0737	.1186	.7139	47	57.4510	0603	.0863	.0938	.7533	47
1 Metro	319.9885	0243	.0183	.4246	.9738	10	- 675.3248	0187	.0380	1.3389	.9748	10
2 Fringe	103.9517	.1261	0111	1.0047	.9924	14	- 28.7706	.0559	.0540	.4186	1966.	14
3 Nonmetro South.	29.8266	.0482	.1159	2652	.6916	16	32.3911	1640	.1262	2108	7957	16
4 Nonmetro North.	- 34.2189	.3163	.0156	1.0203	.8360	19	24.2074	1194	.0940	.3085	.8484	19
5 Unner Peninsula	26.7506	e700	.0740	.0480	.9580	12	79.3871	.0055	.0234	.7028	.6158	12

wo uti pa op re n b worked in the industry of transportation, communication, or other public utilities to move out.

Within urban and rural sectors, the data reveal different migration patterns in different regions. In urban sectors, increasing one job opportunity could have attracted about .27 people to move in, and also reduced out-migration by about .28 people. Further, increasing one outmigrant worker caused about .44 people moving in to fill the labor market, but increasing one in-migrant worker could have caused about .89 worker to migrate out.

In rural areas, one increased job opportunity could only have encouraged about .20 workers to move in, and reduced about .06 people to move out. Moreover, the number of out-migrants was not so important; increasing one out-migrant would have only increased about .12 people to move in to replace the positions vacated. In general, most of rural counties lost workers in the period of 1975-1980. With all predicators held at zero, rural counties could have only 24.51 in-migrants, but they also experienced about 57.45 out-migrants.

Although increasing job opportunities in transportation, communication, and other public utilities was not so important in explaining the migration patterns in the state of Michigan, in 1975-1980, comparing urban and rural sectors, it did more to encourage people to migrate in urban sectors than in rural sectors. In rural areas, one increased job caused about .20 people to migrate in, but in urban sectors, it caused about .27 people to move in.

Based on five regions, metropolitan counties were the favorite areas for workers in the industry of transportation, communication, and other public utilities. If all predicators were zero, there were about 319.99 people migrating in metropolitan counties. However, perhaps some metropolitan counties could have experienced high numbers of out-migrants, because inmigrating one person in this industry could have increased out-migration by 1.34 people. Further, of five regions, increasing job opportunities did the most to encouraging in-migration in northern nonmetropolitan counties; one increased job opportunity caused about .32 people to migrate in.

Wholesale trade

For the entire state of Michigan, increasing job opportunities in wholesale trade could have led to about .32 people to migrate in, and also reduced about .30 people to move out. Moreover, one out-migrant increased by about .47 in-migrants, and one in-migrant increase by .96 out-migrants in wholesale trade.

In the urban sectors, increasing one more job opportunity led to the increase of in-migrants in wholesale trade by .32 people, and also it could have reduced about .28 people to move out. However, increasing out-migrants would increase job opportunities for in-migrants. In this case, as increasing one out-migrant, urban counties could have increased about .45 in-migrants. By contrast, increasing in-migrants would reduce the job opportunities for new people who just enter the labor market. According to the data, as increase one in-migrant, urban counties increased about .92 people to move out.

In rural counties, extra job opportunities in wholesale trade did not play as an important role in encouraging in-migrants or reducing outmigrants during 1975-1980. One additional job opportunity could have increased about .20 workers in wholesale trade to move in, and reduced about .02 people to move out. In general, increasing job opportunities in

Fable 6. Migration	Patterns in	the Labo.	r Market o	of Whole	sale Tra	ade						
			In-migrat	ion					Dut-migre	ution		
	a_i	b_{1im}	b2im	b_{3im}	R ²		a_n	b_{1om}	b20m	p30m	R ²	
		Change		Out-				Change		-nl		
Darrion		of job	Natural	migrant		Total		of job	Natural	migrant		Total
Incgrou	Constant	number	increase	number		cases	Constant	number	increase	number		cases
Entire State	- 12.2464	.3181	.0183	.4654	.9821	75	- 21.4020	3032	.0354	6096.	.9722	75
Jrban Areas	- 24.9848	.3193	.0201	.4522	6626.	24	- 121.9779	2845	.0407	.9166	.9702	24
Rural Areas	18.1623	.2004	.0145	.2926	.7828	51	3.6911	0150	0597	.4011	.8611	51
Metro	- 99.9512	.2264	.0275	.3351	.9853	10	82.8815	4593	0100	1.7738	.9831	10
2 Fringe	- 44.5337	.0475	0301	1.6768	8966.	14	15.7192	.0713	.0396	.2890	7866.	14
Nonmetro South.	45.1159	0134	.0068	.4359	.7536	15	- 39.9622	.1677	.0530	.5868	.8928	15
I Nonmetro North.	.3620	.3980	.0073	.5588	.7488	25	20.6364	2006	.0359	.4315	.6248	25
Upper Peninsula	9.2678	.5559	0201	.4617	.8022	11	4.9879	6069	.0491	1.1450	.6936	11

wholesale trade did more to attract the wholesale trade workers in urban counties than in rural counties.

In five regions, increasing job opportunities did the most to attract inmigrants and reduce out-migrants in those counties in the Upper Peninsula, but did the least function in southern nonmetropolitan counties. The data reveal that in Upper Peninsula, increasing one job could have encouraged about .56 people to move in, and also reduced about .69 people to migrate out. In those southern nonmetropolitan counties, increasing one additional job opportunity could have reduced about .01 people to migrate in, and also increased about .17 people to move out.

Retail trade

Increasing job opportunities in retail trade acted as an important factor in determining migration. For the entire state of Michigan, increasing one additional job opportunity could have led to about .48 in-migrants, and also reduced the number of out-migrants by .36. Furthermore, assuming outmigrants would lead to surplus job opportunities for in-migrants and new labor force participants, but two situations could be happened. First, when in-migrants occupy those job opportunities released by out-migrants before new labor force participants enter the particular labor market, new labor force participants would be encouraged to migrate out, because of no sufficient employment opportunities for them. Second, when local new labor participants occupy those released employment opportunities before People move in, in-migrants would move again from this place to another to seek jobs. From the data, first, with one additional out-migrant, there were about .65 people attracted to move in. Second, with increasing one more inmigrant, there were about .72 people pushed to migrate out.

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Table 5. Migration	Patterns in	the Labo:	r Market c	of Retail	Trade							
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				In-migrat.	ion				0	Dut-migra	tion		
Region Change Change Out- constant Out- miner Out- cases Change Constant Change miner Change Manner Entire State 256.1212 4832 - 0805 6530 9661 83 - 2098 - 3716 277 Entire State 256.1212 4833 - 1200 -183 - 9606 83 - 2098 - 3616 277 Mean Areas 667.824 4698 - 1200 -183 9610 25 - 7980.231 2835 - 288 2016 277 Rural Areas 667.824 4698 - 1200 - 183 9610 25 - 7980.231 2835 288 201 217 336 333 33 3400 - 7115 - 333 1 101 - 160.6500 - 7115 - 333 333 333 332 201 201 201 201 201 201 201 201 201 201 201 201 201 201 201 201 201 201		a_i	b_{1im}	b_{2im}	b_{3im}	R ²		an	b_{1om}	$p_{2,0,m}$	p30m	R ²	
Region Constant number number mean increase number ass cass Constant number number number increase number ass number as number as number as			Change	Noticel	Out-		Total		Change	Monthell	-ul		Total
Entire State 226.1212 4832 - 0805 6520 9661 83 - 2098 08 - 3616 277 Aben Areas 667.8324 4408 - 1230 -1382 9610 25 - 1982.021 2855 382 Rural Areas 667.8324 4408 - 7302 918 38 66.4405 - 3860 205 385 385 386 205 385 385 386 205 381 386 207 316 335 385 386 207 316 335 381 386 207 316 335 386 207 316 335 385 385 385 385 382 312 2017 2017 215 332 312 317 317 316 317 217 218 332 312 317 316 312 217 325 332 312 317 317 317 317 317 317 312 317 317	Region	Constant	number	increase	number		cases	Constant	number	increase	number		cases
Urban Areas 667 8824 4698 - 1.1290 7482 9610 25 - 798.0221 2.855 2.82 Rural Areas 37.4001 .7121 - 0855 .7302 9183 58 65.4495 - 3660 .200 Rural Areas 37.4001 .7121 - 0855 .7302 9183 58 66.4605 - 3660 .200 Areas 400.8464 .12176 - 0.857 .1582 9963 11 - 160.6500 .7117 .333 2 Fringe 397.1342 .7012 - 0.467 .2258 9963 14 - 180.2 2117 2117 3 Noimmetro South. .77501 .7082 .1382 .2835 9000 16 - 8.1254 .3222 2117 2131 3 Noimmetro North. .235770 .6303 .8350 .2835 .283 .363 .322 .322 .322 .321 .2017 .2131 4 Nonmetro North. .235770 .6303 .8350 .2835 .327<	Entire State	226.1212	.4832	0805	.6520	.9661	83	- 209.8098	3616	.2720	.7169	8676.	83
Rural Areas 37.400 7121 0855 77302 918 58 65.4405 3660 207 I Metro 400.8464 1.2176 5397 1.8806 9720 11 - 106500 - 7115 .333 I Metro 400.8464 1.2176 0467 .2258 .9965 14 - 69.3621 .2017 .218 3 Nonmetro South. 77501 .7082 .3085 .9066 14 - 69.3621 .2017 .218 3 Nonmetro North. 23.5790 .6363 .6363 .8350 .9283 27 .56.377 .3522 .2182 4 Nonmetro North. 23.5790 .6345 0503 .8350 .9283 27 .56.377 .3624 .153	Urban Areas	667.8824	.4698	1290	.7482	.9610	25	- 798.0221	.2855	.2855	.7173	.9815	25
	Rural Areas	37.4001	.7121	0855	.7302	.9183	58	63.4405	3680	.2074	.6182	.9380	58
Z Fringe 597.1342 7.012 0467 .2258 .9963 14 69.3621 .2017 .215 3 Nonmetro South. 77.5501 .7083 1582 .8925 .9000 16 81254 3822 .211 4 Nonmetro North. .23.5790 .0345 0503 .8330 .9283 27 5.63707 3624 .155	1 Metro	400.8464	1.2176	5397	1.6806	.9720	11	- 160.6500	7115	.3358	.5156	0866.	11
3 Nonmetro South. 77.5501 7083 1582 .8925 .9000 16 - 8.1254 3822 .211 4 Nonmetro North. 23.5790 .6345 0503 .8350 .9233 27 56.3707 3624 .153 .1154	2 Fringe	597.1342	.7012	0467	.2258	.9963	14	69.3621	.2017	.2195	.2091	0966	14
4 Nonmetro North. 23.5790 .63450503 .8350 .9283 27 56.37073624 .15	3 Nonmetro South.	77.5501	.7083	1582	.8925	0006.	16	- 8.1254	3822	.2135	.6854	.9407	16
	4 Nonmetro North.	23.5790	.6345	0503	.8350	.9283	27	56.3707	3624	.1533	.6502	.8611	27
5 Upper Peninsula 66.8656 .5105 .1099 .2922 .9358 15 128.96802237 .193	5 Upper Peninsula	66.8656	.5105	.1099	.2922	.9358	15	128.9680	2237	.1935	.5252	.9016	15

In all urban counties, increasing one job opportunity could have encouraged about .47 people to move in, but it also could have encouraged about .29 people to move out. However, the number of in-migrating workers in retail trade had a strong influence on out-migration; one out-migrant could have caused about .75 people to move in. By contrast, in-migration also had an influence on out-migration; one in-migrant could have caused about .72 people to move out.

In rural counties, increasing job opportunities was important to encourage people to move in. According to the data, an increase of one extra job opportunity caused an increase of in-migrants by .71, and reduced the number of out-migrants by .37. However, increasing one more outmigrant retail trade worker could have attracted about .73 people to migrate in, but on the other hand, increasing one more in-migrant retail trade worker could have led to about .62 people to move out.

Comparing the different influence of increasing job opportunities on migration in urban and rural counties, increasing job opportunities had more importance in rural counties than in urban sectors. According to the data, increasing one additional job opportunity in retail trade could have encouraged the number of in-migrants about .71 which is larger than .47 people in urban sectors. Moreover, in rural counties it could have reduced about .37 people moving out to seek jobs. By contrast, increasing job opportunities did not reduced the number of out-migrants; it could have increased about .29 retail trade workers to move out.

Comparing five different regions, people would find that increasing job opportunities in retail trade played an important role in encouraging retail trade workers to migrate in. Increasing job opportunities was most important in metropolitan counties. In metropolitan counties increasing one more job opportunity could have increased 1.22 people to migrate in. In the counties in the Upper Peninsula where increasing job opportunities was less important in attracting people to move in, increasing one extra job opportunity could have still increased about .51 people to move in. Further, increasing one additional job opportunity in metropolitan counties could have reduced about .71 people to move out. Interestingly, increasing job opportunities did not keep people in the fringe metropolitan counties; one increased job opportunity could have increased about .20 people to move out.

Services

For Michigan during 1975-1980, increasing one extra employment opportunity in services could have encouraged about .56 in-migrants, and also reduced the number of out-migrants by about .54. Further, one outmigrant increased about .87 people in-migrating, but increasing one inmigrant could have increased about .97 people out-migrating. In general, out-migration had more influence on the number of in-migrants than increasing employment opportunities.

Basically, the regression coefficients in the equations for urban areas are similar to those for the entire state. In detail, one increased employment opportunity could have attracted about .53 people to migrate to urban counties, and also reduced about .54 people to move out. Increasing one out-migrant could have encouraged about .90 people to move in urban counties, but increasing one in-migrant could have pushed about 1.01 people to migrate out from urban counties.

Increasing out-migration could empty employment opportunities for new labor force participants who just enter the labor market, and then could

Table 5. Migration	n Patterns in	the Labo	r Market o	of Service	es							
			In-migrat	ion				0	Dut-migra	tion		
	a_i	b_{1im}	b_{2im}	b_{3im}	\mathbb{R}^2		a_n	b_{1om}	b_{2am}	p30m	R ²	
	Constant	Change	Natural	Out- miorant		Total		Change	Natural	In- miorant		Total
Kegion		number	increase	number		cases	Constant	number	increase	number		cases
Entire State	629.8725	.5557	2917	.8650	.9810	75	- 629.3189	5437	.4350	.9748	9876	75
Urban Areas	1992.7354	.5334	3590	7668.	.9849	25	-2100.6631	5368	.4541	1.0069	.9911	25
Rural Areas	14.9396	.6450	2599	.9850	.9227	50	67.5202	5314	3779	7987.	.9471	50
1 Metro	79.3520	.9885	3740	9559	.9961	11	- 68.9077	-1.0265	.3974	1.0346	9866.	11
2 Fringe	694.2500	0202	5448	1.6693	9966.	14	- 6.3864	.2086	.3833	.3507	1666	14
3 Nonmetro South.	293.8537	0624	1959	9066.	.9594	15	- 241.9498	0052	.2572	.9273	.9725	15
4 Nonmetro North.	134.1366	1.0632	5415	7994	.9591	25	27.2417	7125	.7687	.6579	.9270	25
5 Upper Peninsula	- 62.7121	2.1727	.4822	.4174	<i>6611</i> .	10	30.9371	2.1198	1.0768	.2321	.8854	10
Note: The labor 1	narket of servic	ces contain	s five types	of employ	ment opp	ortunitie	s: 1. finance,	insurance a	nd real esta	te; 2. busir	ness and r	epair
services: 3	nersonal servi	ces: 4. ente	ertainment a	und recreati	ion servic	ses: and a	. professional	and related	services.	The reason	for why	

attract in-migrants. Like urban areas, in rural counties out-migration had more influence on encouraging people in-migrating than increasing employment opportunities. The data reveal that one more out-migrant could have encouraged about .99 people to migrate in, but increasing one more employment opportunity could have attracted about .65 in-migrants. Also, increasing one extra employment opportunity reduced about .53 people to move out, but increasing one in-migrant pushed about .80 people to migrate out.

Comparing urban and rural counties, increasing one additional job opportunity could have attracted about .53 people to migrate in urban areas, and .65 in-migrants in rural sectors. Therefore, as increasing 100 employment opportunities in both urban and rural counties, rural counties could have experienced 12 more in-migrants than urban counties could. On the other hand, increasing one additional employment opportunity could have reduced the similar number of out-migrants from urban and rural sectors. The data show that urban and rural areas reduced about .54 and .53 people to migrate out, with increasing one extra employment opportunity.

According to the regression coefficients, increasing employment opportunities did more to encourage in-migrants in the Upper Peninsula, the northern nonmetropolitan counties and metropolitan counties than in the other areas. Increasing one more job in services could have attracted about 2.17 in-migrants in the Upper Peninsula, about 1.06 in the northern nonmetropolitan counties, and about .99 in metropolitan counties. Moreover, it is suspected that increasing job opportunities could also have reduced more out-migration in these regions, but it did not happen in the Upper Peninsula. Increasing one additional job could have pushed about 2.12 people to move out. Also, interestingly, increasing job opportunities did not encourage people to move in the fringe metropolitan counties and the southern nonmetropolitan counties; it reduce about .02 in-migrants in the fringe metropolitan counties, and .06 in the southern nonmetropolitan counties.

Summary

Massey (1988) believes that the geographic unevenness of economic development actually causes rural-to-urban migration. Classical economists also put forward a concept of dual economy which consists of rural sectors providing surplus labor force which has zero or very low productivity, and urban industrial sectors characterized by full employment where capitalists reinvest the full amount of their profits. Within the concept of dual economy, internal rural-to-urban migration is an equalizing mechanism that brings about wage equality in the two sectors by way of shifting human resources from locations where their social marginal products are often assumed to zero toward where these marginal products are high. However, in the concept of dual economy, rural-to-urban migration, in fact, assumes that there are no sufficient employment opportunities in rural sectors. Therefore, as natural increase is extremely high in a rural place, outmigration from the particular rural location could be more distinguished. The reason is that a rural location with high natural increase could have a lot of new labor force participants. As the pace of increasing employment opportunities is slower than the increase of new labor participants, the employment opportunities could be less than the total number of labor participants. Therefore, the unemployment labor participants would increase, and also out-migrants could be more. Empirically, the relationship between natural increase rate and out-migration rate in the rural Michigan counties between 1975 and 1980 is positive, but slight.

However, natural increase might not be an appropriate factor for explaining migration patterns. In other words, migration cannot be simply considered as the function of locational population increase. Most scholars agree that the young are more mobile than the old, and also many studies show that for young migrants the most important reasons for moving are economic. Therefore, migration should be determined not only by population increase, but also by economic reasons. Migration can be considered as a function of interaction between employment opportunities and the change of population size.

In modern society, like the United States, no single place provides one kind of job. In other words, in any location, there are many types of employment opportunities which are considered as many types of labor markets. Due to personal education, experience, and background, an individual is not suited for every labor market. Consequently, migrants with particular skills could be influenced by the change of particular employment opportunities. Also, migrants with particular skills could be influenced by the change of the size of population meeting the requirement of particular labor markets. The change of the size of population here can be in terms of natural increase and in- and out- migration.

It seems contradictory that in-migration is related to out-migration or out-migration is related to in-migration. However, in the short term, the relationship between them could be ambiguous, but in the long run, it is more meaningful. In fact, no population is static; population is extremely dynamic; at any time, population changes through natural increase and inand out-migration. In the long run, in-migration in a particular labor market could be viewed as the result of the interaction among the change of the number of appropriate employment opportunities and the number of appropriate people consisting of natural increase which means the increase or decrease of local labor participants who meet the requirement of the particular labor market and out-migrants. The main idea for considering the number of out-migrants as a predictor of in-migration is because out-migration could provide surplus employment opportunities for new local labor force participants and in-migrants. In the same way, the number of in-migrants could be considered as a factor for explaining out-migration.

In this study, the relationship between increasing employment opportunities and migration patterns is tested. Comparing the influences of increasing job opportunities in different labor markets on migration patterns, no single region could always have had high or low relationship between increasing job opportunities and migration. In some areas, increasing job opportunities had strong influences on in- or out- migration, but in other areas increasing job opportunities had weak influences. In some cases, even though increasing job opportunities had a strong influence on in-migration, out-migration had a stronger influence on in-migration than increasing job opportunities. However, migration is a function of job opportunities and population increase or decrease in terms of population natural increase and out-/in-migration.

Obviously, in particular regions, increasing employment opportunities in some labor markets could strongly influence increasing in-migration or reduce out-migration, but increasing employment opportunities in the other labor markets might not function at all. For the entire state of Michigan, increasing employment opportunities in construction, manufacturing, retail trade, and services had strong influences on encouraging in-migration. Increasing one additional employment opportunity in all of them could have encouraged more than .35 people to move in. By contrast, increasing job opportunities in transportation, communication, and other public utilities, and wholesale trade had weak influences on attracting in-migrants related to those labor markets. In those labor markets, increasing one extra employment opportunities could have only encouraged around or less than .30 people to move in.

The influence of increasing employment opportunities in urban counties was similar to that for the entire state. Increasing one more employment opportunities in construction, manufacturing, retail trade, and services encouraged about or more than .33 in-migrants who were in those four labor markets. In the labor market of transportation, communication, and other public utilities, increasing employment opportunities in urban counties had weak function on attracting in-migrants. Increasing one more employment opportunity could only have encouraged less than .30 inmigrants who were in transportation, communication, and other public utilities.

As Table 9, in metropolitan counties, increasing employment opportunities in such labor markets like retail trade and services could have had strong influences on in-migration. In fringe metropolitan counties, increasing employment opportunities in retail trade could have had strong attraction for in-migrants. Somehow, the migration patterns in rural counties were different from those in urban counties. In the southern nonmetropolitan counties, increasing employment opportunities in construction, manufacturing, and retail trade could have strongly encouraged in-migrants. In those counties in the Upper Peninsula, increasing job opportunities in manufacturing, wholesale trade, retail trade, and services could have encouraged more in-migrants related to those labor markets. Most interestingly, in the northern nonmetropolitan counties, increasing employment opportunities in all labor markets had strong influences on attracting in-migrants. Especially, increasing employment opportunities had the strongest influence on encouraging in-migrants related to the labor market of services. Totally, the northern nonmetropolitan counties were the most favorite destinations for in-migrants in all types of labor markets.

Table 9. Matrix of Opportuni	Regions ar ties Strong	id Labor M Iy Encoura	arkets in wl ged In-migi	nich Increas ation	ing Job
Labor Market	Metro	Fringe	Southern nonmetro	Northern nonmetro	Upper Peninsula
Construction			x	x	
Manufacturing			x	x	x
Transportation, etc.				x	
Wholesale trade				x	x
Retail trade	x	x	x	x	x
Services	x			x	x

CHAPTER V

SUMMARY AND CONCLUSION

Principally, structuralists argue that individual and structural elements are simultaneously involved in human migration. Migration decisions are inevitably made by actors who weigh the costs and benefits of movement, but these decisions are always made within the specific social and economic environment that is determined by larger structural relations. In other words, although rational decisions of migration are made for maximizing expected returns, these decisions are always constrained by local structural conditions. Simply, classical economists believe that individuals were more likely to migrate from places with less employment opportunities to places with more employment opportunities.

Consequently, the first question raised in this study is whether outmigration from rural areas was higher for those rural areas where the rate of population growth was highest. The empirical result shows that outmigration rate is positively associated with natural increase rate in population, but only slightly so. About 6.44% of the variance in outmigration is explained by natural increase rate in urban counties, and 2.29% in rural counties. However, natural increase rate is not a sufficient predictor for interpreting out-migration in Michigan counties in 1975-1980. This research sought to construct a framework for approaching migration and to demonstrate its empirical relevance. This study focuses on explaining migration within Michigan from a macro-socio-economic perspective. This

59

choice is predicated by a belief that such a structural approach conceptually captures the unique components of Michigan economy and society which had an impact on migration. Two principal points emerge for the analysis.

First, differences of employment opportunities between different locations could be the primary determining factor of migration, but migration might not be directly explained by the change of the total number in employment opportunities. Since the labor markets are distinguished, the employment opportunities should be separated in terms of different labor markets. Although, it is possible to have many labor markets in a single location, no one is suited for every labor market. Individuals are more likely to be in a particular labor market, because of their personal education, experience, background, and characteristics. In this study, individuals are assumed to fit into one labor market; they do not move between labor markets. Rigidly, the relationship between migration and employment opportunities, therefore, should be discussed in certain labor markets. For example, there is no theoretically direct relationship between manufacturing migrant workers and increasing employment opportunities in the labor markets of construction or services. The migration patterns of manufacturing workers should be related to the change of employment opportunities in manufacturing.

Second, migration is not only related to job opportunities; migration is a function of employment opportunities and population increase or decrease in certain labor markets. In other words, there are three factors explaining migration: the change of employment opportunities, the increase or decrease of labor participants in terms of deaths and new participants, and the number of in- or out- migrants. Migrants react to the available employment opportunities which are the interaction among the three factors. Increasing
employment opportunities play two roles. It could encourage in-migrants and reduce out-migrants. On the other hand, with decreasing employment opportunities, the number of out-migrants could raise and that of in-migrant could reduce. Like increasing job opportunities, the increase or decrease of labor participants has two functions. With increasing labor participants in a certain labor market in a certain location, the number of in-migrants could decrease and that of out-migrants could increase. Also, increasing outmigrants could increase in-migration and increasing in-migrants could encourage out-migration. In short, the number of in-migrants in a certain labor market can be explained by the change of employment opportunities, the increase or decrease of labor participants in terms of deaths and new participants, and the number of out-migrants in that labor market. Like inmigration, the number of out-migration in a particular labor market can be interpreted by the change of job opportunities, the increase or decrease of local labor force participants in terms of deaths and new participants, and the number of in-migrants in that labor market.

This study covers six labor markets: 1. construction; 2. manufacturing; 3. transportation, communication and other public utilities; 4. wholesale trade; 5. retail trade; and 6. services. Also, the entire state of Michigan is subdivided into five regions: 1. metropolitan counties; 2. fringe metropolitan counties; 3. southern nonmetropolitan counties in the Lower Peninsula; 4. northern nonmetropolitan counties in the Lower Peninsula; and 5. counties in the Upper Peninsula. Comparing the relationship between increasing employment opportunities and migration patterns in different labor markets, no single region could always have had high or low relationship between them. In some regions, increasing employment opportunities could have done strong influences on increasing in-migrants or reducing out-migrants in certain labor markets, but in other areas, increasing job opportunities in the same labor markets could not have functioned at all.

For the entire state of Michigan, increasing job opportunities in construction, manufacturing, retail trade, and services had strong influences on increasing in-migration. Among of them, increasing employment opportunities in manufacturing had most influence on attracting in-migrants. In the labor market of manufacturing, increasing one additional job opportunity could have encouraged about .59 in-migrants. One increased employment opportunity in services attracted about .56 people to migrate in, about. 48 people in retail trade, and about .35 in construction.

Dividing the entire state of Michigan into urban and rural counties, the influence of increasing employment opportunities encouraged in-migrants in urban counties in a pattern which was similar to that for the entire state. One increased job opportunity in manufacturing could have attracted about .60 people migrating in urban counties. Also, increasing one additional employment opportunity could have encouraged about .53, .47, and .33 people in the labor markets of services, retail trade, and construction, respectively. In rural counties, increasing manufacturing and retail trade employment opportunities had the most important influence on attracting inmigrants; increasing one employment opportunity in manufacturing and retail trade could have attracted about .72 and .71 people to migrate in. In the labor markets of services, and construction, increasing job opportunities also did important function on attracting in-migrants; .65 and .57 people in services and construction migrated in because of one increased employment opportunity.

When the urban counties are broken down into two regions, in metropolitan counties, increasing employment opportunities in retail trade and services had strong influences on encouraging in-migrants; one increased employment opportunity could have attracted in-migrants about 1.22 in retail trade and .99 in services. In fringe metropolitan counties, increasing employment opportunities in such the labor market of retail trade had a strong attraction for in-migrants. As the data show, .70 people in-migrating in the labor market of retail trade because of increasing one additional job opportunities.

However, the migration patterns in rural counties were different from those in urban counties. Also, among rural counties, the northern nonmetropolitan counties special. Increasing employment were opportunities in all types of labor markets in the northern nonmetropolitan counties had important influences on encouraging in-migrants. One increased employment opportunity could have attracted about 1.06 people in services, .63 people in retail trade, .57 people in construction, .42 in manufacturing, .40 in wholesale trade, and .31 in transportation, communication and other public utilities. In the southern nonmetropolitan counties. increasing employment opportunities in construction, manufacturing, and retail trade strongly encouraged in-migration; there were respectively about .64, .74, and .71 in-migrants because of one increased employment opportunity. Finally, in those counties in the Upper Peninsula, increasing one more job opportunity in services, manufacturing, wholesale trade, and retail trade could have encouraged about 2.17, .97, .56, and .51 inmigrants, respectively. Although increasing one additional employment opportunity could have encouraged about 2.17 people to move in, most interestingly, it also pushed about 2.12 people to move out.

In summary, before 1970 the increasing concentration of national population in and around large urban centers always has been a major

dimension of population redistribution in the most states of the United States, as well as in the state of Michigan. Most of those who were concerned with population trends had once assumed that this process would continue indefinitely. This research reveals that during 1975-1980, most of metropolitan counties were not the most favorite destinations of migration, unlike themselves before 1970. In the past, metropolitan counties had provided a lot of employment opportunities in manufacturing, but during 1975-1980, manufacturing employment opportunities did not encourage inmigrants. By contrast, the southern and northern nonmetropolitan counties and the Upper Peninsula counties had substituted for the metropolitan counties on encouraging labor in-migrants related to manufacturing. Meanwhile, in the metropolitan counties employment opportunities of retail trade and services had replaced those of manufacturing on encouraging inmigrants during 1975-1980. Increasing employment opportunities in retail trade and services had more important influence on attracting people in the related labor markets than in manufacturing.

Also, the study reveals that during 1975-1980, the northern nonmetropolitan counties became the most favorite destinations of labor migration; increasing employment opportunities in all of labor markets could have strongly encouraged people to migrate in. Especially, increasing employment opportunities in the labor market of services had the strongest attraction for in-migrants.

This research has policy implications for labor force migration. That the northern nonmetropolitan counties became the most favorite destinations of migration represents the transition of population redistribution and labor migration flows. Since the population redistribution and labor migration flows are usually determined by the employment opportunities, the negative net-migration in the metropolitan counties during 1975-1980 further reflected the shortage of employment opportunities indicating that the number of people who needed jobs exceeded that of employment opportunities.

The lack of sufficient employment opportunities has two implications: 1. loss of employment opportunities; and 2. slow pace of increasing job opportunities which is slower than the increase of new labor participants. Accordingly, it is recommended that in the short run, the state government should control the movement of capital which directly influences the allocation of employment opportunities. The economic perspective shows that the cost of production can be simply separated into the fixed costs (e.g., equipment, land, transportation, tax, etc.) and the labor costs. In the short run, reducing the fixed costs could be important to attract the capital investment and economic development. Therefore, the state government could improve the infrastructure and reduce tax in certain areas where experienced extremely high labor out-migration for encouraging the capital investment to increase employment opportunities and attract people to move That would not only increase in-migration, but also reduce outin. migration.

However, in long term, the labor costs would be more important then the fixed costs. Low tax and cheap transportation only can fixedly benefit capitalists in short term, but the labor costs would influence capitalists' benefits in the long run. For capitalists labor costs are cumulative and longterm. Once they invest their capital in a certain place, it is not easy to remove their capital easily, even though they recognize the continuous increasing labor costs and reducing benefits. Therefore, in order to maintain their benefits, capitalists usually prefer to invest their capital somewhere with cheap labor force for production. For this, the state government should stabilize the labor wages. In other words, what the state government should do is to equalize the labor wages at the same job levels in the entire state. It would reduce the mobility of capital, keep the number of employment opportunities at the certain level, and then reduce out-migration from certain areas.

Besides, the productive structure should change. The data in this study show that in certain areas, increasing service related jobs could have had important influence on encouraging in-migration and reducing outmigration. The phenomenon of in-migration related increasing service jobs is temporary. Increasing service jobs today will not deal with the migration problem in the future. First, service jobs quite often are part-time and low paid. As more and more people involve in the labor market of services, less and less people have economic power to consume the services provided by the others. Consequently, the demand of service jobs would become low and then service jobs would be reduced in the future. More and more people in services would become job losers and become out-migrants if they cannot find jobs in those certain areas.

Second, more and more low paid service jobs would be substituted by labor-saving machinery (Reich, 1991). For an instance, telephone operators can be replaced by computerized voice simulators, and bank cashiers can be substituted by money machines. As a consequence, more and more people who are in services would be substituted by labor saving machinery and then become job losers and out-migrants in the future.

However, increasing or remaining manufacturing jobs is important; at least it is more important than increasing employment opportunities related to services. To deal with this, I would suggest to encourage small manufacturing businesses which could be the subcontract businesses of larger manufacturing. There are two advantages. On the one hand, small subcontract businesses, theoretically and practically, do face with the global economic recession more easily than larger manufacturing businesses. On the other, small subcontract business can provide some parts of a certain product for larger manufacturing businesses which usually import those from the developing and less developed countries where usually those larger manufacturing business invest capital for producing those parts. In short, subcontract businesses could deal with the global economic recession and compete with the other businesses in other nations. Further, they could keep more employment opportunities for local labor participants. With no loss of employment opportunities, the serious problems of job losers and outmigration could be solved.

However, this study does not appropriately explain how local population increase or decrease to influence on migration. In future researches, the more data, such as how many deaths and how many new labor participants in certain labor markets, are needed. Also, I would suggest that using the time series models in future researches to illustrate the relationships among in- or out- migration, employment opportunities, and population change would be better. The time series analysis can actually demonstrate the dynamic interaction among them.

LIST OF REFERENCES

- Beale, Calvin L., and Glenn V. Fuguitt.
- 1978. "The New Pattern of Nonmetropolitan Population Change." pp. 157-77 in Karl E. Taeuber, Larry L. Bumpass, and James A. Sweet (eds.), *Social Demography*. New York: Academic Press.
- Frey, William H.
- 1987. "Migration and Depopulation of the Metropolis: Regional Restructuring or Rural Renaissance?" *American Sociological Review* 52:2. pp. 240-257.
- Frey, William H.
- 1990. "Metropolitan America: Beyond the Transition." *Population Bulletin* 45:2.

Gustav Ranis and John C. H. Fei.

1961. "A Theory of Economic Development." *American Economic Review* 51:4. pp. 533-565.

Jones, Huw.

1990. Population Geography. London: Paul Chapman Publishing Ltd.

Lee, Everett.

1966. "The Theory of Migration." Demography 3: pp. 47-57.

Lewis, W. A.

1954. "Economic Development with Unlimited Supplies of Labour." The Manchester School of Economic and Social Studies 22:2. pp. 139-91.

Massey, Douglas S.

1988. "Economic Development and International Migration in Comparative Perspective." *Population and Development Review* 14:383-413. Massey, Douglas S.

1990. "Social Structure, Household Strategies, and the Cumulative Causation of Migration." *Population Index* 56:1. pp. 3-26.

Rathge, Richard W., Ching-Li Wang, and Allan Beegle.

- 1981. Michigan Population: A Decade of Change. East Lansing, Michigan: Michigan State University.
- Ravenstein, E. G.
- 1885. "The Laws of Migration." Journal of The Statistical Society (part 2) 48. pp. 167-227.

Ravenstein, E. G.

1889. "The Laws of Migration." *Journal of The Statistical Society* (part 1) 52. pp. 241-301.

Reich, Robert B.

1991. The Work of Nations: Preparing Ourselves for 21st-century. New York: Alfred A. Knopf, Inc.

Richter, Kerry.

1985. "Nonmetropolitan Growth in the Late 1970s: the End of the Turnaround?" *Demography* 22:2. pp. 245-263.

Sjaastad, Larry A.

1962. "The Costs and Returns of Human Migration." Journal of Political Economy 70S. pp. 80-93.

Speare, Alden, Sidney Goldstein, and William H. Frey.

1975. Residential Mobility, Migration, and Metropolitan Change. Cambridge, Massachusetts: Ballinger.

Stark, Oded.

1984. "Migration Decision Making: A Review Article." Journal of Development Economics 14:2. pp. 251-9.

Stark, Oded, and David E. Bloom.

1985. "The New Economics of Labor Migration." American Economic Review 75:1. 173-8.

Stouffer, Samuel A.

1940. "Intervening Opportunities: A Theory Relating Mobility and Distance." *American Sociological Review* 5:846.

Todaro, Michael P.

1969. "A Model of Labour Migration and Urban Unemployment in Less Developed Countries." *American Economic Review* 59:1. pp. 138-148.

Todaro, Michael P.

1976. Internal Migration in Developing Countries: A Review of Theory, Evidence, Methodology and Research Priorities. Geneva: International Labour Office.

Todaro, Michael P.

- 1980. "Internal Migration in Developing Countries: A Survey." in Richard A. Easterlin (ed.), *Population and Economic Change in Developing Countries*. Chicago: University of Chicago Press. pp. 361-403.
- US. Department of Commerce, Bureau of the Census [prepared]
- 1989. Historical Statistics of the United States: Colonial Times to 1970. White Plains, New York: Kraus International Publications.

Wang, Ching-Li.

1977. Elderly Migration, Retirement Function, and Community Growth in Non-metropolitan Areas (dissertation). East Lansing, Michigan: Michigan State University.

