RETHINKING THE NONMETROPOLITAN TURNAROUND:

RENEWED RURAL GROWTH OR EXPANDED URBANIZATION?

A Dissertation

by

XIAODONG WANG

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2006

Major Subject: Sociology

RETHINKING THE NONMETROPOLITAN TURNAROUND:

RENEWED RURAL GROWTH OR EXPANDED URBANIZATION?

A Dissertation

by

XIAODONG WANG

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Approved by:

Co-Chairs of Committee,	Steve Murdock
	Alex McIntosh
Committee Members,	Don Albrecht
	Cruz Torres
Head of Department,	Mark Fossett

December 2006

Major Subject: Sociology

ABSTRACT

Rethinking the Nonmetropolitan Turnaround:

Renewed Rural Growth or Expanded Urbanization?

(December 2006)

Xiaodong Wang, B.A., Nanjing Normal University;

M.S., Beijing Agricultural University

Co-Chairs of Advisory Committee: Dr. Steve Murdock
Dr. Alex McIntosh

This dissertation proposes a new, synthesized perspective for explaining the "Nonmetropolitan Turnaround" in the 1970s and 1990s. By studying the definition of urbanization carefully, using the human ecological perspective, many processes happening during the "Nonmetropolitan Turnaround" in the 1970s and 1990s, such as suburbanization, deconcentration, and counterurbanization, can be understood as different forms of the urbanization processes. When the majority of the population was rural, the dominant pattern of urbanization was rural-urban migration. When the majority of the population became urban, the dominant urbanization pattern reversed to urban-rural migration because urban centers had reached beyond their optimal density and processes operated to reduce their density. This paper hypothesizes that the two "turnarounds" were simply the result of different aspects of urbanization complicated by metropolitan status reclassifications. The perspectives of suburbanization, counterurbanization and deconcentration are integrated into the urbanization perspective. Using migration flow data compiled by the Census Bureau from 1975 to 1980 and from

1995 to 2000, the summary analyses confirmed that the net migration due to the three forms of urbanization largely accounted for all of the net migrant flows. This dissertation further tested the validity of optimal density theory with net migration data and confirmed the utility of this perspective in predicting the direction of net migration.

To my beloved wife

Helen Xiuhong You

ACKNOWLEDGMENTS

I owe special thanks to Dr. Steve Murdock and Dr. Alex McIntosh. Without the patient guidance and the financial aid Dr. Murdock provided, the completion of my doctorate education would have been completely impossible. Besides, I learned most of my human ecological knowledge, which is the theoretical foundation of this dissertation, from Dr. Murdock. His insightful comments and editorial efforts affected every paragraph I wrote. In sum, Dr. Murdock's contributions to this work are theoretical, methodological, technical, and financial.

Dr. McIntosh has assisted me through every step of my education, especially after Dr. Murdock left Texas A&M University and Dr. McIntosh became my co-chair. Since I live in Austin, he often offered to take care of my school-related paperwork. Many times he even delivered forms for me in person to ensure that I met important deadlines.

I would also like to thank two other professors on my advisory committee, Dr. Don Albrecht and Dr. Cruz Torres, for their professional guidance and editorial efforts.

I want to express special appreciation to Ms. Pat Bramwell for making all kinds of arrangements for me, whether they are study-related or work-related. She made my seven years of school experience memorable.

I am deeply indebted to my beloved wife who has endured these long years of graduate study. She experienced with me much stress and anxiety, both of which I hope she will no longer experience.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Population redistribution in the US can be characterized by three dominant historical patterns (Lajubutu 1996). The first and continuing historical pattern has been the shift of rural populations to urban areas, resulting in rural America being transformed into an urban nation. This was first reflected in the 1940 census (when 52.6% of the total US population was urban), and by 2000, 79% of the US population was urban (Census Bureau 2006). The second pattern has been a dramatic shift of the population out of the central cities into the suburbs beginning after World War II. While 76.7% of the urban population lived in central cities in 1910, the proportion was 45.8% in 1970 and 40.4% in 1990; this means the majority of the urban population no long lives in central cities. The third pattern became evident in the 1970s when nonmetropolitan America collectively grew faster than metropolitan America, resulting largely from net migration from metropolitan to nonmetropolitan areas.

The first two patterns have been well documented and explained. The third pattern has received substantial attention by demographers since the 1970s and it has been studied as "Counterurbanization" (Berry 1976), "Rural Renaissance" (Frey 1987), "Metropolitan Deconcentration" (Long 1981), or the "Nonmetropolitan Turnaround" (Fugitt 1985). Various explanations have been provided to account for this

_____

This dissertation follows the style of *Demography*.

redistribution pattern that reversed the historical pattern of net migration loss of nonmetropolitan to metropolitan areas. Frey and Speare (1992) summarized these explanations into three main categories: period effects, regional restructuring, and deconcentration explanations. However, before any of these three explanations could give a satisfactory answer to the phenomenon, the migration returned to historical pattern in the 1980s, which led some to believe that the migration turnaround of the 1970s was just a short term deviation from the historical pattern. In the 1990s, the overall pattern again showed nonmetropolitan gain or reduced loss, though the overall growth rate did not surpass that of metropolitan areas (Fulton et al. 1997). Therefore there appeared renewed interest in explaining the "three unanticipated changes in migration" (Fuguitt et al. 1998). Although alternative forms of analyses have variously supported period effects (Long and Nucci 1998, for 1980s only), regional restructuring (Long and Nucci 1998; Lajubutu 1996; Noyelle and Stanback 1984; Scott and Storper 1986), and deconcentration (Johnson 1998; Long and DeAre 1988; Hawley 1978; Wilson 1984 and Berry 1976) explanations, a systematic and encompassing explanation has not yet been developed.

There is no doubt that the determinants of the redistribution patterns of the U.S. population in recent decades have been more complicated than what can be explained by a single examination. However, the phenomenon itself is not difficult to understand. This dissertation attempts to explain the phenomenon by asserting that there may not have been a "rural renaissance" or "rural rebound" at all. Rather it maintains that all the

patterns observed during the past decades are just continuations of the long standing urbanization process. Several observations support such an explanation.

First, it can be argued that the confusion regarding explanations is partially due to the misuse of the terms metropolitan/nonmetropolitan for urban/rural. They are sometimes used interchangeably, leading people to think they are interchangeable, but the distinction between these two dichotomies is of critical significance. According to the Census Bureau, the metropolitan/nonmetropolitan classification is based on county units instead of the real urban or rural territory in its literal sense. Since a county may have both urban and rural elements and a place may spread over two or more counties that can be metropolitan and/or nonmetropolitan counties, the mixed usage of the two dichotomies should be avoided. Generally the Census Bureau uses the metropolitan/nonmetropolitan dichotomy because federal and local data are most readily available for counties and county boundaries historically have been quite stable.

Nevertheless, a question arises: during the *nonmetropolitan* turnaround, *metropolitan* counties had a net out-flow of migrants to *nonmetropolitan* counties, but did *urban* areas lose population to *rural* areas? The mixed usage of urban/rural and metro/nonmetro makes this appear to be true, as is suggested by the use of phrases such as "rural renaissance" or the "rural rebound". The answer requires a very careful analysis. Thus suburbanization, a form of urbanization that will be discussed later, always starts with the outer rings of central cities, which are usually rural in nature and within the county boundary. Therefore a large number of people move from urban space into rural territory during suburbanization. So used, the phenomenon of "rural turnaround" has

been evident since the beginning of the industrial revolution. Indeed, by 1920 the suburban territories of cities of 50,000 or more were growing at rates three times as high as central city areas (Hawley 1956).

The rapid suburbanization taking place in the 1920s did not startle people as much as the "nonmetropolitan turnaround" simply because the urban-rural shift of population did not generally cross county lines. By definition, movers who do not cross a county boundary are not migrants. This political delimitation may have obscured the "rural turnaround" in its early stage until the "nonmetropolitan turnaround" occurred in the 1970s.

In addition, suburbanization began much earlier than was widely recognized because it was hidden by the ability of cities to annex their suburban areas. After adjusting for annexation, faster rates of growth in the suburban ring were shown to have occurred in every decade from the 1900s through the 1970s (Berry and Kasarda 1977).

Second, suburbanization is an inevitable process paralleling urbanization. One explanation involves the ecologically hypothesized role of density. Ecology asserts that in any given state of technology and organization, there is an optimal density, a figure "above which the frictions and collisions raise the costs of communication to prohibitive levels, and below which the costs again rise owing to the time and energy that must be spent in overcoming the distances separating members of the population" (Hawley 1971:88). It means that there is a centripetal momentum of urban-ward agglomeration from less dense rural areas and a centrifugal momentum of suburban-ward movement from dense urban areas. The ever-increasing demand for resources of the urban

ecosystem results in "the straggling expansion of an urban area into the adjoining countryside", namely "urban sprawling" (Brown 1993:3002).

Third, suburbanization will eventually cross county lines and be recognized as urban-rural migration. The level of optimal density is determined by existing transportation and communication technology and organization of the population because they determine the extent of accessibility among the individuals comprising the aggregate (Hawley 1971:88). The advancement of transportation and communication technology will reduce the level of optimal density, which means an increase in "urban sprawl".

Fourth, the movement of metropolitan populations into nonmetropolitan areas across county boundaries may first be recognized as a "rural turnaround", but it will very likely turn the former nonmetropolitan county into a metropolitan county. The "rural turnaround" observed in the 1970s and 1990s might be a premature form of further urbanization in the following decade(s). Reclassification is more of an administrative phenomenon than anything else, but it is quite probable that as a place grows in absolute size, it will diversify economically and socially, probably away from agricultural activities into more urban enterprises (Weeks 2001:437). Controlling for reclassification of counties into metropolitan status is essential to determine the extent to which nonmetropolitan counties were reclassified as metropolitan as a result of a large influx of urban population.

Fifth, there is a discussion (Burnley and Murphy 1995; Halliday and Coombes 1995) of Berry's "counterurbanization" claim that "a turning point has been reached in

the American urban experience. Counterurbanization has replaced urbanization as the dominant force shaping the nation's settlement patterns" (Berry 1976:17). While there is a prevailing anti-urban attitude that shifted the urban population into smaller metropolitan areas and small towns and rural areas (Fuguitt and Brown 1990; Halliday and Coombes 1995), counterurbanization could be considered as another aspect of urbanization because there is no proof that the anti-urban attitude resulted in a shift of the urban life style into a rural one despite a change of residence. To be "counterurbanization" as fully elaborated, there must be many changes in the characteristics of one's lifestyle and one's means of making a living that are "counter-urban". However, the shift of rural lifestyle into an urban form is more prevalent than the opposite. Therefore, "counterurbanization" is a process by which urbanites "colonize" rural space.

Finally, the literature (Beale and Fuguitt 1978; Beale 1975) suggests that the strongest support for the turnarounds is that a large number of nonmetropolitan counties that are not adjacent to metropolitan centers gained net in-migrants in the 1970s and 1990s. It is asserted that they are not the subjects of direct suburbanization because they are not "suburban" to any central city. However, many of these nonmetro counties are often destinations for retirement populations and recreation activities, and can be seen as service centers for urban populations. Technological advancements have extended the range of ecological expansion so much that the suburban-ward migration of urban populations is no longer confined to neighboring spaces.

This dissertation attempts to use urbanization theory to explain the migration patterns in the past several decades. It provides a perspective that has not previously appeared in the literature in the form used here. The advantage of the new perspective lies in its simplicity and the fact that it leads to a new way of looking at the latest population redistribution patterns. That is, if we want to find out the determinants behind the population changes in rural area, it suggests that we should concentrate on processes in urban areas that may be exerting dominance over rural areas.

The dissertation is presented in two parts. The first part proposes a new perspective for integrating all other theories on the rural turnaround into a single urbanization perspective by synthesizing the literature on urbanization, suburbanization and counterurbanization. The second part provides an empirical analysis of migration streams and other data to assess the validity of the new perspective.

Specifically I delineate the concept of urbanization in Chapter II and then explicate the related concepts of suburbanization, counterurbanization and deconcentration in Chapters III and IV. Chapter V presents the synthesized perspective underlying the analysis in this dissertation while Chapter VI describes the research design. Chapters VII and VIII presents the results of the analyses. Chapter IX provides an overview of the conclusions from the analysis and suggestions for further conceptual and empirical development.

CHAPTER II

URBANIZATION: AN INEVITABLE COURSE OF CHANGE IN

HUMAN POPULATIONS

In this chapter I define the process of urbanization, delineate the processes by which it occurs and discuss the forms of urbanization. The intent of this chapter is thus to fully describe the phenomenon that provides the major explanatory perspective in this dissertation.

A. DEFINITION

Many authors do not define the concept of urbanization in a formal way. It seems that it is too obvious to require definition (Tisdale 1942). This does not necessarily mean that there is consensus on the definition. Tisdale (1942:312) points out that it is occasionally defined in one way and used in another, which "is a serious blunder".

Some of the definitions of urbanization appearing in many introductory sociology textbooks tend to be overly simplified; for example, "the moving of population from rural to urban areas" (Henslin 2002:615). This type of definition is sometimes misleading because rural to urban migration, although the major form of urbanization in the last century, is only one of the many types of urbanization. In fact, Henslin (2002:615) gives another definition on the same page in a note saying "the process by which an increasing proportion of a population lives in cities", which is a more appropriate definition.

The concept of urbanization has had three different definitions. First, urbanization is considered as diffusion of urban ideas and practices into rural areas. Second, it is regarded as the increase in concentration of behaviors and problems in urban areas. Lastly, it has been defined as the process of population concentration resulting in an increased proportion of urban population. (Schwirian and Prehn 1962; Tisdale 1942). Usually the third definition is adopted in demography.

This latter definition of urbanization is comprised of two parts: (1) It is a process leading to increased density (concentration) and (2) it results in a higher percentage of the total population in urban areas. However, the moving of rural population into urban areas is only one of many sources of urbanization. In other words, urbanization can be achieved by both "the multiplication of points of concentration" and "the increase in the size of individual concentrations" (Tisdale 1942:311). The concentration of urban populations, mainly by the moving of rural populations into urban centers, is the latter form of concentration. The reclassification of a rural place as an urban one as the result of urbanization is the form of urbanization involving "multiplication of points of concentration". In a broad sense, any kind of transformation involving the two forms defined above may be considered as resulting from the process of urbanization.

Clarification of the terms of urban growth and urbanization is essential. The former means an increase in the number of people living in urban settlements. It is one form of urbanization. Urbanization, "on the other hand, refers to a rise in the proportion of a total population that is concentrated in urban settlements" (Rogers 1982:486). The critical difference between the two concepts lies in the fact that urbanization can be seen

as incorporating rural growth if that growth ever results in an area later attaining urban status.

It is also necessary to note the form of urbanization based on the attainment of a "greater share of urban population". Tisdale (1942:312) defines urbanization as "the concentration of population" and "this is the only meaning it should be given." He claims that, "As soon as population concentration stops, urbanization stops" (Tisdale 1942:312). However, concentration does not necessarily mean urbanization, though it will eventually lead to urbanization. A farming village growing to 1,000 people, although its population has a greater density than before such growth, is not considered as an urban place; therefore, the concentration of farming population, by the contemporary definition of urbanization, does not contribute to urbanization.

Similarly, based on the definition, the movement of urban residents to rural places cannot be treated as the opposite of urbanization, or "counter"-urbanization, if the movement results in the transformation of such rural places into urban territory and thus increases the share of the population that is urban. This will be further discussed in the chapter on suburbanization.

B. THE COURSE OF URBANIZATION

Tisdale (1942) gives a good account of the process of urbanization in which several points are worth highlighting here.

First, human beings have a disposition to live together in the sense that the earliest human beings collected, hunted, fished or wandered around in groups. Agricultural

development made human beings settle down in fixed habitats, and urbanization was thus initiated. Interestingly, agriculture, which is considered the chief occupation that is excluded from urban dwellers, seems to be the first step toward the process of urbanization.

Second, the next necessary condition for urbanization is the freeing of labor from agricultural activities, which is made possible by the advancement of agricultural technology that produces enough food to support non-agricultural populations.

Finally, urbanization is inherent in society and it is inevitable.

Technology is of critical importance in the process of urbanization. According to Tisdale (1942), there are two necessary conditions for urbanization. One is people (surplus labor) and the other is technology. The advancement of technology accompanied every major step human beings took in history, including the steps in urbanization. However, technology is a necessary but not sufficient condition for urbanization (Davis 1955) and is a double-edged sword that can both disperse and compact population (Tisdale 1942).

Clark (1998:88) similarly proposes two prerequisites for urbanization. One is "generation of surplus products that sustain people in non-agricultural activities", which is equivalent to Tisdale's freeing of labor. The other is "achievements of a level of social development that allows large communities to be socially viable and stable", which emphasizes the importance of social organization (especially the division of labor) in the process of urbanization.

Clark's second set of prerequisites is supported by Davis's (1955) earlier work on the origins of urbanization, in which he says, "The rise of towns and cities therefore required, in addition to highly favorable agricultural conditions, a form of social organization in which certain strata could appropriate for themselves part of the produce grown by the cultivators. Such strata-religious and governing officials, traders, and artisans-could live in towns, because their power over goods did not depend on their presence on the land as such. They could thus realize the advantages of town living, which gave them additional power over the cultivators" (Davis 1955:430).

This social organization can be traced to the division of labor, which has been widely accepted since Durkheim's classic work in which he suggests a direct relationship between the division of labor and urbanization (Durkheim 1964: 256-260).

C. THE INEVITABILITY OF URBANIZATION

One explanation of why urbanization is inevitable lies in the fact that human beings, like other life forms, tend to aggregate (Tisdale 1942). So the logic goes that human beings aggregate for warmth, protection, reproduction, etc. The aggregation necessitates social organization and division of labor. Division of labor eventually leads to urbanization. This explanation, however, does not explain why population concentration does not go on endlessly.

The inevitability of urbanization may lie in two attributes of human beings. The first is the above-mentioned tendency toward agglomeration. The other is the tendency toward growth in the size of the human population.

Human beings are social beings because social relationships are essential for survival. Human beings hunt, fish, and gather in interdependent relationships for the benefits of warmth, safety and efficiency. After agriculture became the main method of production, the division of labor was initiated. Technological innovations released the labor from agriculture and thus initiated the industrial revolution. Both agriculture and industries in earlier periods were labor-intensive modes of production; therefore, aggregation of individuals is critically important to their productivity. In the beginning stages of aggregation, the major concern is more one of insufficient density than overpopulation because, without agglomeration, the costs of communication among members of an aggregate, both in time and energy, rise to a prohibitive level. The lower the level of technology in transportation and communication, the higher the density that is required in the efficient operation of a human aggregate (Hawley 1978). In Marxist terms, it is equilibrium of "forces of production" (i.e. technology) and the "relations of production" (i.e. the organization of production) (Marx 1904:21).

The tendency toward growth lies in the fecundity of human beings, as the well-known Malthusian principles about population size and resources reveal. Human's tendency to increase the density of populations without exhausting resources occurs as a result of technological and organizational innovations. Population growth and aggregation lead to the formation of villages, towns and cities where the organization of the system becomes ever more complex. Cities grow as an inevitable process because they embody the efficient organization of systems in commercial, industrial and political terms. Commercially, cities bring together buyers and sellers of goods and services.

Industrial centers bring together materials, laborers, financial goods, and places of production. Politically, cities centralize power and lower the costs of administration and management (Weeks 2001: 442-443).

Therefore human beings tend to agglomerate and, if unchecked by natural disasters or human interference, eventually pursue a path of urbanization.

D. THE FORMS OF URBANIZATION

The main purpose of this chapter is to point out that, based on a complete definition, urbanization has multiple forms. As long as the process involves the concentration of population, and it results in a larger share of the total population in urban areas, it is urbanization.

Rural to urban migration is probably the most classic source of urbanization and it is often considered as a synonym for urbanization itself. But it is not the only source of urbanization. It is not necessarily even the major source of urbanization. A study by the United Nations concluded that urban growth in the less developed world resulted primarily from the natural increase of its urban population instead of net in-migration from rural areas (Rogers 1982).

Urban growth, therefore, is another important source of urbanization. Urban growth refers to "an increase in the number of people living in urban settlements", while urbanization is "a rise in the proportion of a total population that is concentrated in urban settlements" (Rogers 1982:486). Urban growth and urbanization are different concepts measuring different attributes of a population, but they always occur together. The

immediate demographic sources of urbanization, according to Rogers (1982), are natural increase, rural to urban migration and reclassification of rural to urban status.

There are two situations that result in the reclassification of areas from rural to urban status. One is the growth of a rural place until it attains the threshold of being urban. The other is the change of the definition of being urban. The majority of the reclassifications are of the first type, and it is therefore, the focus of the discussion. The growth of a rural place can be caused by natural increase or net in-migration. This raises a question as to whether migration from an urban center to a rural place qualifies as urbanization. For the urban center, it means deconcentration; for the rural place receiving migrants, however, it means concentration and usually results in urbanizing a rural place. It can be argued that the migration process from urban centers to rural places, if resulting in urbanizing the rural territory, is urbanization instead of counterurbanization. Of course, the situation can be complicated by the fact that the migration does not result in urbanizing the rural places immediately. During the transition, therefore, urban to rural migration may be characterized as deconcentration or counterurbanization, but after the transition is completed, it ends up being urbanization. Lewis and Maund (1976) defined a "Transitional Zone" as the rural urban fringe that is neither urban nor rural in function. It seems that there is a need to define a "Transitional Period" for a rural place, with a mixture of characteristics of both urban and rural, receiving large number of urban migrants and waiting to be reclassified as urban. This will be further discussed in the chapter on suburbanization.

A situation related to reclassification is annexation, which is considered a major tactic to retain or recapture the dispersing population of central cities (Smith, Bromley and Manton 1979; Kasarda and Redfearn 1975). Annexation becomes so important that 98.4% of city growth in the United States between 1960 and 1970 came from annexation (Zimmer 1975). Other evidence of the prevalence of annexation lies in the simple fact that current city territories are many times larger than their original size (Smith, Bromley and Manton 1979).

Annexation seems to be a natural component of urbanization. However, a reminder is necessary here that much of the land being annexed is rural in character at the time of annexation. Before annexation occurs, the dispersion of urban population into the urban hinterland is studied as suburbanization or deconcentration. The completion of annexation reclaims the population that is otherwise "lost" to rural land and thus hides much of the reclassification of rural land into urban territory. This raises a question similar to that for reclassification: is suburbanization or deconcentration in fact just a form of urbanization if the "suburbanized" or "deconcentrated" population is recaptured through annexation?

The last form of urbanization, the convergence of urban and rural in terms of life style, economic activities etc., is definitely more controversial. As a consequence of widespread urbanization, the clear distinction between urban and rural starts to disappear (Lewis and Maund 1976). Rural places and cities seem to converge in many characteristics as a result of the diffusion of ideas and behavior patterns facilitated by mass education, mass media and the extension of technologies. The convergence starts at

the city hinterland, but it does not take much effort to spread all over the rural areas with our current communication technologies. It is not clear how much of the rural-urban migration is caused by the diffusion of urban ideas, but it is relatively clear that the further convergence of rural and urban social, economic and other characteristics has resulted in a narrowing of differences between urban and rural places and may possibly result in the "urbanization" of rural places.

The reason for listing convergence as a form of urbanization is that one of the definitions of urbanization stated earlier is the diffusion of urban ideas and practices into rural areas (Schwirian and Prehn 1962; Tisdale 1942). The major purpose is to point out the potentially important role convergence plays in the process of urbanization. The growth of an urban system may involve both the growth of the center itself and an enlargement of the scope of the center's influence (Wilson 1978). The important point is that, by diffusing urban values, urban centers are exerting their influence over rural areas, which means rural areas may be seen as becoming incubators for urbanization.

CHAPTER III

SUBURBANIZATION: A SPATIAL CONCERN

A. DEFINITIONS

Few authors have formerly defined suburbanization because the term seems to be self-explanatory. Although some such as Kopecky and Suen (2004:2) defined suburbanization as "the increased dispersion of urban population over land areas", and Henslin (2002:626) define suburbanization as "the movement from the city to the suburbs", one finds few definitions in the literature.

In fact, the term suburbanization has been loosely defined. For example, Berry (1976:17) treats suburbanization as "a process of population deconcentration; it implies a movement from a state of more concentration to a state of less concentration". However, deconcentration, which will be discussed in later chapters, is not equivalent to suburbanization despite the fact that they share some characteristics. Jackson (1975) defines suburbanization as a multidimensional concept which involves 1) an increase in the proportion of people who live outside the central city; 2) an equalization of residential densities within an urbanized area: 3) an absolute loss of population and reduction of the density of central city areas; 4) a positive and direct correlation between increasing socioeconomic status and the increasing distance of residences from the central business district; and 5) a pattern of population redistribution that results in increasing geographical distance between places of work and places of residence. This

type of definition is complex and it serves far more purposes than that of a mere definition.

What is essential to the definition of suburbanization seems to be "the increase of population residing in suburbs". Deconcentration is a form of suburbanization because for central cities it is deconcentration; for suburbs it means concentration and growth in the suburbs. Moving from the city to the suburbs seems to be the definition of suburbanization itself. However, there is evidence that in-migration from outside the metropolitan areas has often contributed substantially more to suburban growth than city-to-suburb migration (Adams, VanDrasek and Phillips 1999).

B. EXPLANATIONS OF SUBURBANIZATION

There is such a rich body of literature on the causes and explanations of suburbanization in the field of sociology, economics and geography that an exhaustive overview is not possible. Presented here is simply an examination of those works that the author deems representative of the major schools of thought.

Evolutionary theory is favored by many urban theorists and transportation experts. It explains the movement of jobs and populations from central cities to suburbs on the basis of distance between residential sites and central work places, the effects of rising real incomes over time, the demand for new housing and land, and the heterogeneity of the housing stock, affected by technological factors such as transportation costs, innovations in intra-urban transportation and changes through time in the comparative advantage for different income groups of commuting longer distances to work

(Mieszkowski and Mills 1993). The "Flight from Blight" Theory emphasizes the fiscal and social problems of central cities associated with factors such as high taxes, low-quality schools, crime, and racial tensions.

Employment-based hypotheses suggest that residential suburbanization has been the result of the decentralization of employment opportunities from the central cities (Heilbrun 1987). In 1948, 77 percent of all metropolitan employment was located in the central cities; this number fell to 43 percent in 1982. Although there is disagreement about whether residential suburbanization follows employment suburbanization or vice versa, there is some evidence that residential suburbanization is caused, at least in part, by the suburbanization of jobs (Heilburn 1987).

Political economists explain suburbanization as a response to the political environment. Examples include dissatisfaction with public services provided by the central city government (Tiebout 1956), manipulation of growth by land-owners (Molotch 1976), the influence of environmentalists, and other factors.

Cultural explanations suggest that suburbanization reflects the influence of a popular culture, or a "suburban myth", that Americans cherish in a search for a "Gemeinschaft-like culture and life style" in the suburbs (Schwartz 1976:326).

C. INEVITABILITY OF SUBURBANIZATION: A SPATIAL INTERPRETATION OF SUBURBANIZATION

None of the above explanations provides an answer to a critical question in the study of suburbanization; that is, why do all countries, after being industrialized and urbanized,

tend to eventually suburbanize. An examination of the urbanization history of various countries, whether developed or underdeveloped, shows that urbanization is always followed by suburbanization.

Hawley (1978) elaborates on the spatial issues of population, although he does not provide a direct discussion of suburbanization. However, one can utilize his work to develop an explanation of the inevitability of both urbanization and suburbanization.

Space limits a population's natural environment. It "has always been one of man's major preoccupations" because resources in the environment are not always sufficiently or evenly distributed. "On the one hand, the necessary interdependence among human beings generates a centripetal tendency. It tends to draw them into compact clusters where inter-individual accessibility is maximized. On the other hand, the pursuit of sustenance exerts a centrifugal pressure, inasmuch as access to sustenance materials and conditions is no less important than is access to one's fellows" (Hawley 1978:85). Therefore the present occupancy of space of a population is often the result of reconciliation of diverse accessibility requirements.

Density, a crude measure of population distribution over a finite space, has certain utility in linking population and space and thus in measuring the degree of accessibility. The efficient operation of a system places certain requirements on density, given the level of technology and organization. In other words, "there is conceivably an optimal density, a figure above which the frictions and collisions raise the costs of communication to prohibitive levels, and below which the costs again rise owing to the

time and energy that must be spent in overcoming the distances separating members of the population" (Hawley 1978:86) .

Historically we have observed a complex pattern of relationship between density and technological development. In early eras when productivity was low, humans had to depend mainly on larger spaces to gain enough resources for survival, so population density was very low. After the industrial revolution, the labor-intensive industries brought together a huge number of persons due to the need for specialization and interdependence. It was at this time that most wide-spread urbanization took place and most of the present megapolitan cities took form. After World War II, the mechanization of production reduced the need for labor density, and innovations in transportation and communication increased the accessibility of human beings to one another; that meant that human beings could gain control over greater space without having to increase the density of the settlements. Therefore, the centrifugal propensity in human beings gained dominance, and human density began to decline. These are the natural forces driving urbanization and suburbanization. Indeed, although the average daily vehicular miles traveled by members of a household increased more than five-fold from 1920 to 1970, there was no significant change in the frequency of residence changes between 1947 and 1970. It was mainly because the increased accessibility reduced the need for residence change. In other words, the previous "high density of residence has been replaced by high traffic density" (Hawley 1978:91).

Suburbanization is not caused by change in density alone; rather accessibility is the fundamental force driving suburban-ward redistribution. The higher the degree of

accessibility, the more footloose a population can be. Hawley suggests that, if the cost of getting from point to point were reduced to zero, the spatial distribution could be completely random. That condition does not exist in reality. But what does exist in reality is that, if the cost of getting from point A to point B is not much different from that for getting to anywhere else (due to reduced transportation and communication costs), the population distribution pattern will become more and more unpredictable. This may lead to a new way of looking at the puzzling migration patterns for 1970-2000.

Based on Hawley's "optimum density" theme, urbanization can be viewed as a three-stage process. First, the tendency for agglomeration will cause populations to concentrate, and eventually urbanization is under way. Second, urbanization continues until its "maturity", i.e., until the density reaches its "optimum" level given the present level of technology and organization. Third, urban centers past their mature stage tend to "deconcentrate" by out-migration or suburbanization. It is important to point out that any life form at its maturity stage will eventually decline or seek continuity of its life, i.e., its offspring. For a city, suburbanization is the extension of the life of the city if the suburbs are successfully annexed by the city. Even if annexation does not happen, the whole system including the city and its suburbs can be viewed as an entity by their economic and cultural ties, whether or not they are one in a political sense. Suburbs used to be distinguishable empirically from the city by demographic, structural, and economic variables, but with the decentralization of urban activities and organizational structures, suburbs are less distinguishable from cities, suggesting a change in the traditional view of suburbs as solely bedroom communities (Wood 1988).

The three-stage hypothesis implies that a system with low density will still show continuous urbanization while a system with high density will display a degree of suburbanization. Needless to say, density is not the only indicator of a mature system. Maturity here means the completion of its growth cycle, therefore it should include a highly dense inner core and a complex organizational structure including a highly developed transportation system and a more complex network of intra-area relationships (Hawley 1956).

It must be pointed out that the stage of maturity of an urban center is similar to the equilibrium state of an ecosystem. Any internal or external change may impact the state of equilibrium in either direction: deconcentration or concentration. The possible causes of changes are numerous and their causal relationships to population change are sometimes unclear. Therefore the changes are becoming more unpredictable. This partially explains why there has not been a consensus on the explanation of recent population redistribution patterns.

This equilibrium theme seems to be equivalent to Wardwell's "Equilibrium Hypothesis" that metropolitan concentration has reached the upper limit and that migration between metropolitan and nonmetropolitan areas is determined largely by the convergence of the two sectors in social and economic structures (Wardwell 1977). Some empirical analyses (Hwang and Murdock 1986; Wilson 1978) have failed to find evidence to support Wardwell's hypothesis. However, my equilibrium hypothesis does not assume the convergence of the socioeconomic characteristics of the two migration streams. It assumes the convergence of the push and pull forces in the decision-making

processes for urban-ward or rural-ward moving. Based upon the optimum density concept, if the density exceeds the optimum level, there may be more push forces from urban centers than the pulling forces resulting from the frictions and collisions in communication. The opposite situation would result in more pulling forces than push forces. However, it will be very difficult to operationalize and test this hypothesis, especially when the data are mostly available for the unit of counties instead of a real urban/rural dichotomy.

There might be some controversy over whether suburbanization is a continuation of urbanization or a counter-stream to urbanization. There can be several types of suburban-ward movers. The first type is the rural population moving to suburbs of urban cities. Instead of moving to central cities, they move to the suburbs of central cities because there are as many opportunities, if not more, for realizing their urban dreams. The second type is those who move from small cities/towns. These first two types are typically movers during the course of urbanization. Apparently these suburban-ward movements are simply the continuation of urbanization. The third type is the movers from central cities or other metropolitan areas. They form the "counter-stream" of urbanization. Unlike a "return to farmland" movement, these movers do not return to farming employment, nor do they seek temporary escape from urban unemployment or other disamenities. Instead, they are moving to rural nonfarm or small city destinations (Hawley 1978). In other words, they are more likely to go after a new opportunity to continue their urban living in a different way than through a conversion to rural living.

Of course, there are other factors that affect the course of suburbanization. Hwang and Murdock (1998) advocate an ecological perspective integrating social and cultural views on suburbanization because, when survival is not the critical issue for a human population, cultural values may come to have increased importance in migration decision making. One of these cultural factors is the suburban image of middle-class living and the conspicuous consumption of socioeconomic status found in suburban areas. However, the status brought by suburban living is rooted in the power of consuming more space.

In sum, the main point made in this chapter is that suburbanization is an inevitable process when urbanization proceeds to a certain point. Therefore, to a large extent, suburbanization is a continuation of urbanization. The occupation of space is the force linking the processes.

CHAPTER IV

COUNTERURBANIZATION AND DECONCENTRATION

A. REVIEW OF DEFINITIONS OF COUNTERURBANIZATION

Berry (1976:17) claimed that "A TURNING POINT has been reached in the American urban experience. Counterurbanization has replaced urbanization as the dominant force shaping the nation's settlement patterns." He defines counterurbanization as "a process of population deconcentration; it implies a movement from a state of more concentration to a state of less concentration". This is one of the few formal definitions offered while others use the term "counterurbanization" rather loosely without giving a specific definition (Gordon 1979; Dahms and McComb 1995)

Another definition of counterurbanization, in the context of Europe, is given by Coombes, Longa and Raybould (1989: 9). They defined it as "a process of demographic deconcentration beyond that of suburbanization or metro decentralization." This type of definition goes further than Berry's because it specifically excludes suburbanization and metro decentralization as forms of counterurbanization.

Burnley and Murphy (1995), in the context of Australia, defined counterurbanization as net internal migration downwards in the urban hierarchy. Therefore migration from larger urban centers to medium or small size urban centers is also considered counterurbanization, which contradicts the definition of Coombes et al. (1989:9).

Halliday and Coombes (1995) point out that, though the phenomenon of counterurbanization has been widespread and received ongoing attention, the concept itself remains underdeveloped. Their major concern is whether or not the motivation of migrants (e.g. the anti-metropolitan attitude, the aspiration for a rural way of life and scenery, etc.) should be considered in the definition of counterurbanization since the term itself implies some type of anti-urban attitude.

The above definitions reflect the fact that there are several different ways of interpreting the term counterurbanization although the term has never been precisely defined.

The definitions by Burnley and Murphy (1995) can be problematic. The classic definitions of urbanization concentrate on the net migration from rural to urban areas. Then the "counter"-urbanization is supposed to be the net migration from urban to rural areas. The reversal of the direction of net migration in the urban hierarchy from large urban areas to smaller urban areas cannot be appropriately considered as "counter"-urbanization.

Halliday and Coombes (1995) imply that the counterurbanization phenomenon has to be warranted by anti-urban motives. But their analyses indicated that decision-making related to migration is very complicated and that anti-urban attitudes do not emerge as the primary motives for migration decisions, even if the attitudes are widespread.

The definition of Berry relies on another concept of deconcentration; "it implies a movement from a state of more concentration to a state of less concentration". The problem with Berry's definition lies in the fact that he does not have a clear subject in

his definition. In other words, is counterurbanization a process or a phenomenon? If it is a process, what factors are involved in the process? If it is a phenomenon, what is being compared? The term "counterurbanization" is apparently the opposite of urbanization; therefore the definition must involve the distinction between the two. However, "the movement from a state of more concentration to a state of less concentration" does not tell us what factors are involved or what is being compared.

Berry's definition is apparently rooted in Tisdale's statement, "In most cases, the implied meaning of urbanization is the one we have chosen, the concentration of population. This is the only meaning it should be given. … As soon as population concentration stops, urbanization stops" (Tisdale 1942:312). In Berry's interpretation, urbanization is equal to concentration, thus deconcentration is equal to counterurbanization. However, in the same paragraph as Tisdale's statement quoted above, there is also the statement that, "There can be urbanization in one area and not in another" (Tisdale 1942:312). At the beginning of his article, Tisdale says "Urbanization is a process of population concentration. It proceeds in two ways: the multiplication of points of concentration and the increase in size of individual concentrations" (Tisdale 1942:311). His statements basically tell us that urbanization is not a universal phenomenon for all places in a country and that urbanization is not just the increase of city size or population density of cities. Urbanization can also be the emergence of more cities of smaller sizes. All these statements suggest that the depopulation or deconcentration of large cities cannot necessarily be considered to be "counter"-urbanization because the deconcentration of large cities may be leading to the

urbanization of suburban or non-suburban places, i.e., in Tisdale's terms, "the multiplication of points of concentration".

The definition of Coombes et al. (1989: 9) differs from Berry (1976:17) only in that it excludes suburbanization and urban decentralization. Therefore the expansion of cities into their suburbs and the net movement of population down the urban hierarchy cannot be considered as counterurbanization. What are the possible situations that can fall into this definition? It is reasonable to exclude suburbanization and urban decentralization from forms of counterurbanization because they are processes within the urban sphere. It can be the net migration from urban to rural places that are not suburbs of the origin cities. Once the process exceeds the urban territory, it becomes a candidate for counterurbanization. However, it is not always appropriate to look at a city's population redistribution in isolation. Very often the origin and destination of net migration are related and analyzed in an interactive way. An important question to ask under the circumstances is: if the net migration out of large cities (which is considered as counterurbanization by Berry) is into rural places, which are thus urbanizing, is it still appropriate to characterize the net out-migration from large cities as "counterurbanization"?

The previous chapters have argued that urbanization is any process resulting in increased density and an increasing share of urban population. Both total population and the share of urban population have been on the rise over the past century. Therefore at the national level, it is safe to say that there is little counterurbanization.

In fact, the root of the term "counterurbanization" is the implied counter-urban attitude. Very likely some readers of the counterurbanization literature in which the definition is not given would simply regard counterurbanization as the movement of large city dwellers into rural surroundings out of an anti-metropolitan attitude. This type of impression hardly fits into Berry's definition of counterurbanization. However, the implication apparently persists even after the definition is provided.

B. DECONCENTRATION

Since Berry's definition is based on the concept of deconcentration, it is necessary to discuss this concept. The deconcentration perspective emerged as a prevalent explanation for the nonmetropolitan turnaround in the 1970s in contrast to metropolitan growth, especially in explaining the redistribution pattern down the urban hierarchy (Frey 1987:243; Brown and Wardwell 1980; Kasarda 1980; Hawley and Mazie 1981; Fuguitt 1985). However, a formal definition of the term "deconcentration" has yet to be developed. In fact, the concept of deconcentration has been used in a wide range of contexts and often used interchangeably with "decentralization" or even "suburbanization". For example, Biggar and Biasiolli (1978:590) said "… a primary aspect of spatial differentiation has been suburbanization, i.e., the deconcentration of population and the decentralization of industrial units." She indicates that there are two kinds of deconcentration patterns, one of which is the suburban-ward flow and the other involves central to ring movements.

Carlino (2000:15) defines deconcentration as "the slower growth of dense and

large MSAs so that the proportion of total MSA population and total MSA employment in dense and large MSAs has declined while the proportion in less dense and smaller MSAs has increased." Therefore this definition refers to the deconcentration within the entire metropolitan system.

Vining and Strauss (1977) applied Hoover's Index of Concentration to population data at five different geographic levels, the lowest of which was the county, and they concluded that the long-term trend towards concentration between 1900 and 1970 had been reversed and thus indicated a "clean break with the past". The critical issue, which will be discussed in later chapters, is how the county level analysis precisely reflects the redistribution trend between rural and urban areas because usually a county has both rural and urban portions, whether it is defined as a metropolitan or a nonmetropolitan county. The issue here is how well the metropolitan/nonmetropolitan dichotomy can be used as a proxy for the urban/rural dichotomy. Even if we set this issue aside, the Hoover Index can decline simply because of suburbanization or redistribution of population from larger cities to smaller cities or because of other forms of urban sprawl (Gordon 1979). The Hoover Index measures the distribution differentiation at a rather large aggregate level (usually at the national or regional level), while urbanization and counterurbanization are about the distribution trend at the local level. If the definition of counterurbanization is established as the distinction between concentration or deconcentration reflected in the Hoover Index, it can be easily illustrated how inappropriate this definition is. Consider an extreme example: suppose a country has one large city (containing 80% of the total population) and nine other rural places, for which

the Hoover Index will be very high. Then disperse half the city's population to the rural places and turn all the rural places into small cities that are urban in definition. The Hoover Index will decrease and thus reach a state of deconcentration. The question is whether we can call this "counter"-urbanization. The direction of movement from urban to rural places implies that this is some form of "counter"-urbanization. But the result may be that 95% of the population is urban in the end and all the places become urban. This is definitely a process of urbanization.

The early stage of urbanization is signified by concentration of population, while the later stage of urbanization, i.e., suburbanization, leads to deconcentration of population. This fact, together with the above example, implies at least one thing: deconcentration does not constitute a sufficient condition for counterurbanization.

C. SUMMARY

In sum, Berry's (1976) proposition of counterurbanization and its subsequent debate demonstrate the ambiguous nature of the concept. It may create more confusion than utility in explaining the nonmetropolitan turnaround. In order to become the antithesis of urbanization, counterurbanization can only be recognized if:

1) it is not only urban "spillover" or urban "sprawl" or suburbanization;

2) it does not result in the emergence of new metropolitan areas;

3) it not only involves the relocation of residence but also a change of life-style (Lajubutu 1996:41).

It is very difficult, if not impossible, to find such an antithesis at an aggregate level. Although appealing to some to define it as "counter"-urbanization deriving from an anti-urban attitude, the so-called counterurbanization is indeed not so different from suburbanization or an extended form of suburbanization. It is about the diffusion of urban influence, such as urban values, the urban lifestyle, the urban economy, and urban dominance. As argued in Chapter II, urbanization is an inevitable process in the development of a thriving human society. Suburbanization is the continuation of urbanization. So is the process that is called "counterurbanization".

CHAPTER V

TOWARD A SYNTHESIZED PERSPECTIVE OF

NONMETROPOLITAN TURNAROUND

A. RURAL GROWTH OR EXPANDED URBANIZATION?

The proposed perspective is a derivation of Tisdale's (1942) definition of urbanization. Urbanization is a process of population concentration. It proceeds in two ways: the multiplication of points of concentration (emergence of new cities) and an increase in the size of individual concentrations (the growth of existing cities). In reference to the current diversity of geographic territories in the US, the urbanization process is inevitably multifaceted.

The reviews provided in previous chapters suggest that the population redistribution patterns between 1970 and 2000 were not completely new phenomena, but rather multifaceted aspects of urbanization. The majority of the period prior to the 1970s was characterized by an urbanization process consisting of mainly rural to urban migration and the growth of urban centers. As the density of cities increases, cities will inevitably increase in size through annexation and suburbanization, which is Tidale's "increase in the size of individual concentration". At the same time, "the multiplication of points of concentration" is also evident through two processes. One process is the city's sprawl into its suburbs that may result in the creation of new (satellite) cities. The other process is that, in rural areas away from urban centers, rural places may concentrate their populations into a few rural "hubs" and thus create new emerging cities.

Hawley's optimal density theory suggests that urbanization can be perceived as having a life cycle. In the early stages of urbanization, the tendency for agglomeration will cause populations to concentrate from low density to high density. Urbanization continues until its "maturity", that is, until the density reaches its "optimum" level given the current level of technology and organization. Urban centers past their maturity tend to expand by out-migration or suburbanization so that the density will not exceed the optimal level.

It is very important to emphasize that the optimal density is not a constant concept. Rather it varies with the development of technologies and organization, especially transportation and communication technologies. Conceivably, the relationship between technology and optimal density is complicated because technology can both reduce and increase the level of optimal density. For example, the advancement of transportation and communication enhances human being's accessibility, therefore reducing the effects of a given level of density. At the same time, advancement in construction technologies makes it possible that higher density is organizationally possible if needed. The mixed effects of technologies make the population redistribution patterns more complicated than ever.

Suburbanization seems to be an inevitable process in the maturing stage of urbanization because cities will inevitably expand spatially in order to maintain an optimal density. It can be considered as the continuation of urbanization. The so-called "counterurbanization" can be considered as an extended form of suburbanization, caused by the increased dispersion of urban populations both from the central city and from

satellite cities, facilitated by high levels of transportation and communication technologies.

The United States is not alone in experiencing these new population redistribution patterns. Many other highly industrialized countries have been through similar patterns in the post-1960 era (Mitchell 2004). This raises an interesting question: is this a common trajectory of urbanization? Further proof of this trajectory comes from evidence in the US that more urbanized divisions in the US experienced migration reversals as early as the 1930s and 1940s, with the more urbanized divisions sending migrants to less urbanized areas (Wilson 1986). Many others have also found, by analyzing regional migration flows (Long and Nucci 1997; Elliott 1997), that the direction and volume of migration flows seem to be related to the level of urbanization. These findings provide indirect support for Hawley's optimal density thesis.

Some may still argue that many remote nonmetropolitan counties that are not adjacent to any metropolitan areas experienced extensive growth in the 1970s and 1990s. Being nowhere near the metropolitan areas, they are "free" from the direct influence of metropolitan areas. How can this be defined as a form of urbanization? This can be seen as urbanization through the second process of urbanization, "the multiplication of points of concentration". It is the very early stage of urbanization that has been experienced by metro counties. First of all, based on the optimal density theory, low density areas will have a tendency to concentrate, which was the starting point for the earliest examples of urbanization. In addition, the rural areas that are not close to large urban areas are under the indirect influence of the present urban areas, though they are not under the *DIRECT*

influence of urban areas. They are not really "free" from urban influence because with the availability of television, radio broadcasting, automobiles, electricity, etc. even the most remote rural areas of the US are under some urban influence. More exciting urban lifestyles and cultures and the availability of urban jobs have been diffused into every corner of the country through the mass media, which, exerting the *indirect* influence of urban culture, may result in two forms of urbanization. One is the typical rural to urban migration, especially among young adults, which is almost a synonym for definitions of urbanization in some textbooks. The other form is rural to rural migration, an example of the early incubation of urbanization, which happened at the beginning of urbanization before the first cities in the world were formed. A rural place that is suitable as a "seed" for urbanization will attract population from neighboring rural places. This may in fact be how the first city was formed. The conditions for being a seed city may vary and may include a central location (among rural places), relatively convenient transportation, abundant natural resources, amenities or other factors that give the seed cities advantages over others in accessibility to both human and natural resources. This form of urbanization proceeds slowly and may go unnoticed until a new city emerges.

What is different in this situation now than in the past is that the indirect influence of urban culture via mass media may have accelerated this process for rural areas. First, not all the persons who are born in remote rural areas and long for a more urban life style can actually migrate to an existing urban center because of many barriers, such as limited employment opportunities in the city, the physical costs of long distance moving, and psychological readiness for an abrupt change in environment, among others. Second,

the indirect influence of urban culture has changed the way of rural life so much that the differences between urban and rural areas have been narrowed, which makes moving to urban centers less essential. Third, the mass production of products has pushed its way into rural areas and virtually eliminated the possibility of a self-sufficient way of life. The commercialization of consumption is everywhere and leads to acceleration of the division of labor, hence incubating urbanization. Urbanization may thus happen first in rural "seed" area because they possess more urban characteristics. Those who are unable to move to urban centers have a second choice within reachable distance.

In fact, the view of the turnaround as being a consequence of urbanization is not new. When the "turnaround" was first detected, some scholars developed models to explain the turnaround as effects of urban spillovers without much success (Fuguitt 1985; Beale 1975; Beale and Fuguitt 1978). The main setback was that adjacent nonmetropolitan counties were not the only counties that gained migrants. The apparent limited utility of the "spillover" model may lie in two overlooked factors. First, metro areas include two parts: the central metro counties that qualify as metro by themselves and the outlying counties categorized as metro only because they have strong commuting ties with the adjacent central metro county. The first type may be called "standalone" metropolitan counties and the latter "commuting" metropolitan counties. The commuting metropolitan counties are nonmetro in nature, and they are indeed the immediate suburbs of the metro counties. They should be the destinations of the majority of the "spill-over" out-migrants from cities. Unfortunately these "commuting" metro counties are generally considered in the large metro pool, and therefore most of the

urban "spill-over", which is being absorbed inside the metro category, is left out of their analysis. Second, many of the nonmetro counties that are not adjacent to metro counties are urbanizing and contribute to nonmetro growth. Since these counties have not been separated from other counties, much of the urbanization effects is not revealed by standard analyses.

What is being argued here is that there is virtually no rural turnaround or rebound. That does not rule out the possibility that there might be a "nonmetropolitan turnaround" when the nonmetropolitan turnaround is observed at the unit of the county. A county usually has both urban and rural territories, so the metro/nonmetro dichotomy is not equivalent to the urban/rural dichotomy. However, since city limits change constantly, whereas the county boundary is rather stable, the metro/nonmetro dichotomy has been used as an approximation of the urban/rural dichotomy.

The main problem in using the county as the unit of analysis for urbanization is that suburbanization starts at the edge of city limits, which are usually within the county boundary. Therefore much of the suburbanization process is not detected by migration studies (as migration is defined as movement beyond a county line), until the migration exceeds the county boundary. By explaining migration patterns based on the metro/nonmetro dichotomy, the movement from cities to suburbs within the same county is undetected, even though this type of movement constitutes the majority of the suburbanization process. In other words, suburbanization of *metropolitan* areas will not be observed until suburbanization of *urban* areas within a county has reached a "saturation" point. There is a lag between the two processes.

Take a typical example: a City in a metro County A. At the first stage of urbanization, the city grows and expands into its suburbs within County A. But this suburbanization goes unnoticed in a typical migration study because the movers do not cross the county line, so they are not migrants. At the second stage, the city expands to a point where it occupies the majority of the county space and extends into a neighboring nonmetro County B, and the suburbanizing migration is detected as metro to nonmetro migration. The "*turnaround*" occurred at this point in time. At the third stage, the city continues to expand and the destination county (County B) is reclassified as a metro county because of the strong commuting ties between the two counties (based on the definition of metropolitan). At this point, migration from County A to County B goes on as usual except that the migration is no longer metro to nonmetro migration. In other words, *the nonmetropolitan "turnaround" disappears* as the migration destination county changes to metro status. Finally, County B grows to the extent that it has its own city and thus expands into its own suburbs and further out to County C. *The nonmetropolitan "rebound"* is observed. In fact, just another round of suburbanization is going on.

The above process forms a cycle of "nonmetropolitan turnaround", which may approximate the patterns observed between 1970 and 2000. How much of this pattern is attributable to the hypothesized cycle can be tested with adequate data.

In sum, the basic premise of this study is that there is no rural turnaround when examined in terms of the urban/rural dichotomy, although there may be a nonmetropolitan turnaround in terms of the metropolitan/nonmetropolitan dichotomy.

However, when three forms of urbanization (classic urbanization, suburbanization and deconcentration) are taken into account, there is virtually no nonmetropolitan turnaround, either. The three forms of urbanization constitute the three major hypotheses of this dissertation.

B. HYPOTHESES

A set of three hypotheses will be used to test the premise that the nonmetropolitan turnaround was caused by an urbanization process, manifesting itself in three population redistribution patterns.

Hypothesis 1: The majority of the turnaround was due to population spillover from metropolitan centers into their adjacent nonmetropolitan territories.

Hypothesis 2: Another part of the "turnaround" occurred in nonmetropolitan counties that were not adjacent to metropolitan counties because metropolitan counties extended their functional bases into nonmetropolitan counties.

Hypothesis 3: Part of the "turnaround" occurred in nonmetropolitan counties that were not adjacent to metropolitan counties because these counties acted as localized urbanizing hubs attracting net migration from nearby nonmetropolitan counties.

The majority of all the "turnaround" migrants are hypothesized to be accounted for by the above-mentioned three cases. The rest of the unaccounted "turnaround" will be a small proportion and thus will not support the view that the turnaround in the 1970s and the 1990s was widespread.

CHAPTER VI

RESEARCH DESIGN

A. DATA

Net migration data for 1975-1980 were obtained from the Inter-university Consortium for Political and Social Research (Project No. ICPSR 8471). Data for 1995-2000 were derived from county to county migration flow data prepared by the Census Bureau (http://www.census.gov/population/www/cen2000/ctytoctyflow.html). They were analyzed to determine migration flow patterns. Other socioeconomic variables were collected from the summary files of Census 1970 and 1990. Some of the geographic variables were created using GIS analysis employing ESRI Arcview software.

B. METROPOLITAN STATUS CODES

Since the metro/nonmetro dichotomy fails to account for inter-county differences, data from the Economic Research Service of USDA were compiled using two types of metropolitan status codes that are the most widely used for further decomposing county categories. The first set is the Rural-Urban Continuum Codes that categorize counties by their urban population size and adjacency to metro areas. Codes are available for the years of 1974, 1983, 1993 and 2003.

The codes for 1974 and 1993 (Table 6.1) were used in this dissertation because migration analyses were conducted for the periods of 1975-1980 and 1995-2000.

Therefore the starting period codes are used in the analyses, although occasionally the

end period codes are used for comparison purposes.

Table 6.1   Rural-Urban Continuum Codes in 1974 and 1993

Code	Description
Metro counties:	
0	Central counties of metro areas of one million population or more.
1	Fringe counties of metro areas of one million population or more.
2	Counties in metro areas of 250,000 to one million population.
3	Counties in metro areas of fewer than 250,000 population.
Nonmetro counties:	
4	Urban population of 20,000 or more, adjacent to a metro area.
5	Urban population of 20,000 or more, not adjacent to a metro area.
6	Urban population of 2,500 to 19,999, adjacent to a metro area.
7	Urban population of 2,500 to 19,999, not adjacent to a metro area.
8	Completely rural or less than 2,500 urban population, adjacent to a metro area.
9	Completely rural or less than 2,500 urban population, not adjacent to a metro area.

Source: ERS/USDA. http://www.ers.usda.gov/Briefing/Rurality/RuralUrbCon/

The second type of codes used is the Urban Influence Codes (Table 6.2) that

emphasize the adjacency of nonmetro counties to different types of metro counties,

regardless of the size of their populations.

The detailed definition of these two types of codes is not discussed here except

where they are directly employed in the research procedures. However there are several

issues that must be noted that bear on the analyses presented in this research.

Table 6.2 Urban Influence Codes in 2003

Code	Description	N	2000 Population	Square miles	Population per sq. mile
Metropolitan counties:					
1	In large metro area of 1+ million residents	413	149,224,067	267,423	558.0
2	In small metro area of less than one million residents	676	83,355,873	629,671	132.4
Nonmetropolitan counties:					
3	Micropolitan adjacent to large metro	92	5,147,233	94,178	54.7
4	Noncore adjacent to large metro	123	2,364,159	88,229	26.8
5	Micropolitan adjacent to small metro	301	14,668,144	285,527	51.4
6	Noncore adjacent to small metro with own town	358	7,855,590	334,361	23.5
7	Noncore adjacent to small metro no own town	185	1,879,264	336,499	5.6
8	Micropolitan not adjacent to a metro area	282	9,139,821	338,256	27.0
9	Noncore adjacent to micro with own town	201	3,227,833	193,200	16.7
10	Noncore adjacent to micro with no own town	198	1,313,175	196,269	6.7
11	Noncore not adjacent to metro or micro with own town	138	2,247,189	488,521	4.6
12	Noncore not adjacent to metro or micro with no own town	174	999,558	285,304	3.5
	Total	3,141	281,421,906	3,537,438	79.6

Source: ERS/USDA. http://www.ers.usda.gov/briefing/rurality/UrbanInf/

First, metropolitan counties include two types of counties: the counties that qualify for metro status by having at least one place of 50,000 or more people (abbreviated as "metro on its own" or "metro central"), and the counties that do not qualify but are still categorized as metro because of their commuting ties with the metro counties (abbreviated as "metro by commuting" or "metro suburban"). The Office of Management and Budget (OMB) defines such counties as metropolitan because the commuting patterns suggest integration with other parts of the metro system through strong commuting relationships. This distinction is useful for defining metro systems but

not useful for migration studies. Under the proposed perspective on urbanization, commuting counties are not part of the central cities. Instead they are the immediate suburbs of the central cities that are nonmetro in nature. By putting these two types of counties into the same category, suburbanizing migration from central cities to immediate suburbs cannot be identified. Among the Continuum Codes, the "Fringe counties of metro areas of one million persons or more" are in fact the commuting nonmetro counties described above.

Second, the metro counties are divided into large, medium and small metro counties according to the rural-urban continuum codes, i.e. one million or more, 250,000 to one million and 250,000 or less. These can be seen as rough proxies for degrees of urbanization.

Based on the above argument, all US counties are recoded into the following predefined types combining the continuum codes (abbreviated as Con) using GIS analysis.

1 Large metro 1M +
2 Large metro 1M+ Sub
3 Medium metro 250K-1M
4 Small metro <250K
5 Adj to large metro with a city of 10K
6 Adj to large metro without a city of 10K
7 Adj to Medium/Small metro with a city of 10K
8 Adj to Medium/Small metro without a city of 10K
9 Not adj to metro with a city of 10K
10 Not adj to metro with a city of 2.5K
11 Not adj to metro without a city of 2.5K

For purposes of simplification, the above categories are sometime collapsed into fewer categories in the analysis.

C. OPERATIONALIZATION OF HYPOTHESES

The hypotheses will be assessed by first using descriptive data and decomposing migration flows between counties.

Hypothesis 1: By analyzing the migration flows, the majority of "turnaround" migrants should be found to flow into the adjacent nonmetropolitan counties and most of these counties will be reclassified as metropolitan in subsequent censuses.

Hypothesis 2: Although not adjacent to metropolitan counties, counties dependent on retirement, recreational, service and governmental activities are serving urban areas by hosting these functions, and their growth through net migration is also part of the urbanization process. Such functions are defined by the Economic Research Service, USDA and can be used to analyze how many of the net out-migrants move into these urban-serving counties.

Hypothesis 3: In the remainder of the nonmetropolitan counties that gain migrants, counties with large migration flows from nearby nonmetropolitan counties will be determined. They are examples of the original pattern of urbanization in which new urban settlements are being created.

The sum of the net migration flows into these three types of counties is expected to account for the majority of the "nonmetropolitan turnaround", supporting the premise that the turnaround is mainly due to different phases of the urbanization process.

If the three hypotheses are supported by descriptive data, the phenomenon of the two "turnarounds" can be said to be the result of different stages of urbanization. However, such an analysis will not explain why these migration patterns occurred at

different phases of urbanization. Statistical models will be used to test the associations between net migration and population density based on Hawley's optimal density theory.

It is hypothesized that high density metropolitan counties may have exceeded the optimal density, therefore density is negatively related to net migration because population tends to reduce in density by movement into suburbs or movement of its functional bases into suburban areas.

However, based on urbanization theory, populations in lower density areas tend to concentrate. Therefore density is positively related to net in-migration in nonmetropolitan counties. This is contrary to the counterurbanization thesis that urban populations move into rural areas seeking less dense settlement (which predicts lower net in-migration in more dense rural areas). Further dividing the nonmetropolitan counties into adjacent and nonadjacent types, it is hypothesized that in nonadjacent counties, the association between density and net in-migration will be strong and significant.

CHAPTER VII

RESULTS AND FINDINGS

A. DEFINITIONS INVOLVED IN THE ANALYSES

Hypotheses 1 through 3 test the assertions that the majority of migration flows were absorbed by three types of nonmetro counties: adjacent counties, urban function counties and urbanizing counties (hereafter referred to as "Urbanization Types"). To test these hypotheses, all the nonmetro counties are divided into four categories: the above-mentioned three types and a residual category.

Adjacent counties are defined as all the nonmetro counties that share county borders with metro counties. The Economic Research Service (ERS) of US Department of Agriculture (USDA) has made these codes available.

Urban function counties are defined as nonmetro counties whose income is **dominantly** dependent on certain urban functions. The definitions of ERS in 1979 and 2003 are used for analysis of 1975-1980 and 1995-2000 migration patterns, respectively. (See ERS website for complete information on these definitions at http://www.ers.usda.gov/Briefing/Rurality/Typology/.) It is important to note that the threshold of being classified as one of the dependent functions was defined after research by ERS. To be qualified as "dependent" on a certain function, a county has to have a level of labor engaged in and income deriving from the function that is one standard deviation above the mean level for all nonmetro counties. The counties that do not meet any of the thresholds are defined as "Unspecialized" counties. There were 398

and 615 unspecialized counties in 1979 and 1998, respectively. The codes also include other dependent functions such as farming, mining, manufacturing, etc.

Government-dependent counties are nonmetro counties in which local, state, and federal payrolls contributed 25 percent or more of total labor and income.

Services-dependent counties are nonmetro counties in which 45 percent or more of average annual labor and proprietors' earnings were derived from services (retail trade, finance, insurance, real estate, and other services) during 1998-2000.

Nonmetro recreation counties are classified using a combination of factors, including the share of employment or share of earnings in recreation-related industries in 1999, the proportion of seasonal or occasional use housing units in 2000, and per capita receipts from motels and hotels in 1997. ERS uses a series of standards and verification processes to classify counties that are dependent on recreational functions.

Retirement counties are nonmetro counties with 15 percent or more net immigration of people aged 60+ from 1970 to 1980 and from 1990 to 2000, respectively.

In 1979 codes, recreation and service functions were not available, so only government and retirement functions will be used in the analysis of 1975-1980 net migration.

Hypothesis 3 defines urbanizing counties as nonadjacent nonmetro counties that are destinations of other nonmetropolitan counties' commuter flows, with such flows accounting for 25% or more of the source counties' work force. This definition borrows the definition of outlying metro counties used by OMB, which defines some nonmetro counties as outlying metro counties if they have at least 25% of their labor force

commuting to an adjacent metro area or have at least 25% of metro workers commuting to them. Prior to 2003, OMB used both commuting rates and other settlement structure variables to define metropolitan areas. In the new 2003 definitions, OMB utilized only one criteria, the commuting rate, for defining outlying metropolitan areas because "…as changes in settlement, commuting patterns, and communications technologies have occurred, settlement structure no longer is as reliable an indicator of metropolitan character as was previously the case" (OMB, 2000:82233).

This dissertation attempts to imitate this method for defining the "urbanizing nonmetro areas" -- that is, nonmetro nonadjacent counties that act as urbanizing hubs among nonmetro areas. The general rule for identifying these "urbanizing nonmetro counties" is also a 25% commuting rate, so a nonadjacent nonmetro destination county to which at least 25% of another nonmetropolitan county's labor force commute will be identified as an "urbanizing" county. An analysis of the County to County Worker Flow Files, compiled from the 2000 Census long form questionnaires, showed that there were 96 counties identified as urbanizing counties in 2000.

To categorize the nonmetro counties in a mutually exclusive way, priorities are given in the order of adjacent, urban functions and urbanizing. If a county is both an urbanizing and urban function county, it will be included as an urban function county only. If a county is both an urban function and adjacent county, it will be included as an adjacent county only. There is no overlap between urbanizing and adjacent because urbanizing counties by definition are nonadjacent nonmetro counties. This categorization will decrease the number of counties included in the urban function and urbanizing types.

To access the effects of these priorities, counties that could be included in more than one type will be studied for the possible effects of categorization.

B. TESTS OF THE THREE HYPOTHESES ON NET MIGRATION IN 1975-1980

As the migration flow files for 1975-1980 are no longer available, the only data available is the net migration file derived from the migration flow files. The "urbanizing" type of counties, which requires migration flow analyses, cannot be derived and the 3rd hypothesis cannot be tested for 1975-1980. Also the economic dependency definitions of recreation and service are not available for year 1979, so only the government and retirement dependent counties are compared.

1. Adjacent and Government/Retirement Counties Accounted for All Net

Migration during 1975-1980

Table 7.1 provides strong support for hypotheses 1 and 2. In 1975-1980, there were 966 counties that were adjacent to metro counties. They accounted for 51.8% of the total nonmetro population, but they have 70.8% of all net migration for 1975 to 1980. Retirement and government dependent counties had 13.5% of nonmetropolitan population but accounted for 31.9% of net migration. These two categories together accounted for 102.6% of the net migration, which means that, in aggregate, these two types of counties accounted for all of the net in-migration while the residual category had net out-migration.

Table 7.1   Nonmetro Population and Net Migration by Adjacency Status and Retirement/Government Functions, 1975-1980

Category	N	Population in 1970	%	Net Migration in 1975-1980	%
Adjacent	966	28,105,614	51.8	948,162	70.8
Retirement or Government	383	7,333,463	13.5	427,268	31.9
Subtotal	1349	35,439,077	65.3	1,375,430	102.6
Residual	1,094	18,760,059	34.6	-35,275	-2.6

In order to get more detailed net migration patterns by these categories, the counties were further delineated as to whether they had net in-migration or net out-migration during 1975 and 1980. Table 7.2 presents the results.

2. The Net Migration Gains by Adjacent Counties and Urban Function Counties Were Pervasive during 1975-1980

Among the retirement/government counties, 279 out of 383 counties (73%) had net in-migration. Among the adjacent counties, 593 of 966 counties (61%) had net in-migration. In contrast, the majority of the residual counties (675 out of 1094, or 62%) had net out-migration.

Table 7.2 Net In and Out Migration Status in Nonmetro Counties, 1975-1980

Category	Net	N	%	Population in 1970	%	Net Migrants	% in Net In	% in Net Out
Retirement								
Gov	Out	104	27.2	1,968,890	26.8	-94,787		-10.8
	In	279	72.8	5,364,573	73.2	522,055	23.5	
Adj	Out	373	38.6	11,350,386	40.4	-356,313		-40.5
	In	593	61.4	16,755,228	59.6	1,304,475	58.8	
Residual	Out	675	61.7	10,609,054	56.6	-428,482		-48.7
	In	419	38.3	8,151,005	43.4	393,207	17.7	
Total	Out	1152		23,928,330		-879,582		-100.0
	In	1291		30,270,806		2,219,737	100.0	

The last column of Table 7.2 shows the contributions of each type to the total net migrants in each of the net in and net out migration counties. The total net migration gain was 2,219,737 among all the nonmetro counties that had net in-migration. Only 393,207 (17.7%) occurred in the residual category. By contrast, 428,482 (48.7%) of the total migration loss of 879,582 occurred in the residual category.

These findings clearly show that the net migration gains by adjacent counties and urban function counties were pervasive and were not a result of a small number of counties gaining extremely large numbers of migrants.

3. 75% of the 1975-1980 Net Migration Occurred in Counties that Had Become Metro Counties by 2003

Although metropolitan classification standards have changed over time, they reflect the gradual evolution of many nonmetro counties into metro counties. By applying the

"future" metro codes to the 1975-1980 migration data, we can examine the differences between nonmetro counties that were to become metropolitan and those that remained nonmetropolitan throughout the period of time.

Table 7.3 shows differences in the patterns of population and net migration by the extent of change in metropolitan status in all the nonmetro counties in 1975-1980.

Table 7.3   Net Migration in 1975-1980 Considering Metropolitan Classification Changes in Later Years

Metro status	Urbanization Type?	Num	%	Population in 1970	%	Net Migration in 1975	%
Consistently Nonmetro							
	No	1,014	41.5	15,811,414	29.2	-122,655	-9.2
	Yes	936	38.3	20,451,179	37.7	464,752	34.7
New Metro in 83							
	No	25	1.0	1,505,155	2.8	44,745	3.3
	Yes	109	4.5	6,386,738	11.8	483,180	36.1
New Metro in 93							
	No	6	0.2	276,887	0.5	2,202	0.2
	Yes	92	3.8	3,691,302	6.8	217,329	16.2
New Metro in 03							
	No	49	2.0	1,166,603	2.2	40,433	3.0
	Yes	212	8.7	4,909,858	9.1	210,169	15.7
Total		2,443	100.0	54,199,136	100.0	1,340,155	100.0

Note: "Urbanization Type" here refers to those nonmetro counties that are either adjacent to metro counties or are dependent on government/retirement functions.

Consistent nonmetro counties are those that were nonmetro throughout the period from 1970 to 2000. These counties made up 79.8% (41.5+38.3) of all the nonmetro counties and had 66.9% (29.2+37.7) of the population in 1970, which means that they constituted the majority of nonmetropolitan counties. However, they contributed only

25.5% (-9.2+34.7) of the total net migration from 1975 to 1980. In contrast, the rest of the nonmetropolitan counties were only 20.2% of the nonmetropolitan counties and 33.1% of the total population, but they accounted for almost 75% of the net migration gains in the period of 1975 to 1980. They were the counties that became metro counties sometime in the period between 1980 and 2000.

Among the consistently nonmetro counties, only the urbanization type counties contributed to net migration gain, while those without urban functions showed net out-migration of 122,655. These net loss counties were 41.5% of all nonmetro counties and contained 29.2% of the nonmetro population.

By dividing the 493 newly reclassified metro counties into urbanization types and others, 413 of them (109+92+212) were urbanization type counties in 1970. 413 of 493 (84%) newly reclassified metro counties were either adjacent counties or counties specialized in government/retirement functions in the 1970s. In other words, the new metro counties mainly emerged from urbanization functioning counties.

4. Only the Largest Metro Counties Had Net Out-Migration during 1975-1980

Table 7.4 shows net migration by the detailed 1974 Continuum Codes compiled by ERS. This table provides another means of explaining the net migration patterns as affected by extended urbanization.

Table 7.4   Net Migration in 1975-1980, by Continuum Codes in 1974

Metro Codes of 1974	Num	Net Mig in 1975	NMR	% of Migration Gain from 1M+
Metro Counties				
Large Metro 1M+	49	-3,074,486	-5.14	100.0
Adj to 1M+	137	836,560	3.34	27.2
Medium Metro 250K-1M	269	391,688	0.84	12.7
Small metro<250K	192	499,336	2.86	16.2
Subtotal	647	-1346,902		56.2
Nonmetro Counties				
20K+ Adj	173	373,354	2.95	12.1
20K+ Nonadj	154	128,324	1.53	4.2
2500-20K Adj	565	468,872	3.59	15.3
2500-20K Nonadj	736	202,383	1.48	6.6
Pure rural Adj	241	120,173	5.30	3.9
Pure rural Nonadj	621	53,867	1.23	1.8
Subtotal	2,490	1,346,973		43.8

Table 7.4 shows clearly that in 1975-1980, only the largest category of metro counties with one million persons or more had net out-migration. These counties accounted for only 49 out of 647 metro counties based on the 1974 classification. All the other types of metro counties had a net in-migration of 1.7 million, which was greater than the net migration gain of 1.3 million among all nonmetro counties. In other words, net out migration was not a pervasive phenomenon for metropolitan counties. Net out migration among the metro counties between 1975 and 1980 was the result of a high level of out-migration from a small number of large metropolitan areas with a population of over one million, whereas the majority of metro counties had net in-migration. This phenomenon seems to be consistent with Hawley's Optimal Density proposition. The highly urbanized areas with population density over the optimal level tend to lower the density by out migration.

Especially noteworthy is the 836,560 net migration gain in the fringe counties of metro areas of one million or more. These counties were the "outlying" metro counties defined by OMB that would otherwise be classified as nonmetro counties if not for their adjacency to the largest metro counties and their high commuting ties with these counties. They could be regarded as the immediate suburban counties of the largest metro counties whose density may have exceeded their optimal density and needed to expand their sustenance base to their suburban areas and beyond.

The last column of Table 7.4 presents the proportions of net migration loss from large metro areas with one million or more to all the other types of counties. The majority (56%) of the net out-migration was gained by the rest of the metro counties, while only 44% was gained by nonmetro counties.

Among the nonmetro counties, those adjacent to metro counties gained 31.3% out of the 44% total migration gain of all nonmetro counties. In other words, nonmetro counties adjacent to metro areas gained 71.5% of the total net migration in the nonmetro area.

These data clearly display the dominant pattern with the largest metro counties having population overflows into their metro suburbs or nonmetro (especially adjacent) counties.

5. Summary of Net Migration during 1975-1980

The evidences for 1975-1980 point to several conclusions: 1) Net out-migration among metro counties was not pervasive. Only a small number of metro counties had net out-

migration; 2) all of the net migration gains by nonmetro counties in 1975-1980 happened in those counties that were defined as urbanization counties (adjacent or government/retirement function counties); 3) the net migration gains in 1975-1980 were mainly (75%) taking place in the nonmetro counties that became metro in the next two decades.

C. TESTS OF THE THREE HYPOTHESES ON NET MIGRATION IN 1995-2000

The net migration in 1995-2000 is analyzed by similar means to those for 1975-1980. The urban function counties in 1995-2000 include government, retirement, recreational and service types. Furthermore, since the migration flow data are available, the urbanizing counties could be identified to test the third hypothesis.

1. Adjacent or Urban Functions Counties Alone Account for All the Net In-Migration during 1995-2000

Table 7.5 shows similar results to those found for net migration from 1975 to 1980. Corresponding to the three hypotheses, adjacent counties accounted for 113% of the total nonmetro net migration, while the urban function and urbanizing types accounted for 25.5% and 0.1% respectively. The three types of counties accounted for 139.1% of total net migration gains in the nonmetro area. That is, the three hypotheses accounted for all the net migration gains by nonmetro counties in aggregate.

Table 7.5 Net Migration Analysis by Exclusive Nonmetro Types, 1995-2000

Type	#	Net Mig 95-00	%	Pop in 90	%	NMR
Adjacent	988	608,276	113.4	28,038,783	55.08	2.17
Urban Functions	411	137,004	25.6	8,592,706	16.88	1.59
Urbanizing	53	693	0.1	2,011,182	3.95	0.03
Residual	839	-209,663	-39.1	12,263,203	24.09	-1.71
Total	2,291	536,310	100.0	50,905,874	100.00	1.05

The number for urbanizing counties is surprisingly small. Considering that the use of mutually exclusive types may mask some relationships, Table 7.6 provides net migration numbers among overlapping categories.

Table 7.6 Net Migration Analysis by Overlapping Nonmetro Types, 1995-2000

Nonmetro Types	#	Net Migration 95-00	% in Total Migration	Pop in 1990	% in Total Pop	NMR
Adjacent only	693	73,592	13.72	19,243,438	37.80	0.38
Adj & Urban Function	295	534,684	99.70	8,795,345	17.28	6.08
Urban Function only	368	90,216	16.82	6,725,883	13.21	1.34
Urban Function & Urbanizing	43	46,788	8.72	1,866,823	3.67	2.51
Urbanizing only	53	693	0.13	2,011,182	3.95	0.03
Residual	839	-209,663	-39.09	12,263,203	24.09	-1.71
Total	2,291	536,310	100.00	50,905,874	100.00	1.05

Table 7.6 shows that, while all the adjacent counties accounted for 113.42% (13.72% + 99.70%) of the total net migration in the whole nonmetro area, all the urban

function counties accounted for 125.24% (99.70% + 16.82% + 8.72%) of the total net migration in nonmetro areas. In other words, either adjacent or urban function type alone could account for all the net migration gains in the period for 1995-2000. Urbanizing counties accounted for only a small proportion (8.85%). However, with only a 7.62% population base, urbanizing counties were significant contributors to the positive net in-migration into nonmetro areas. Especially noteworthy for urbanizing/urban function counties is that they had the second highest net migration rate of 2.51%. The largest net migration rate occurred in adjacent/urban function counties (6.08%).

On the other hand, the residual counties, although they had 24.1% of the total nonmetro population, had 209,663 net out-migrants (-39.09%).

These numbers suggest that the three types of counties hypothesized to display net migration were the sole contributors to the net in-migration into nonmetro areas. Is there a possibility that these three types of counties just happened to include all the net in-migration counties?

2. The Net In-Migration in Urbanization Types of Counties Was Pervasive

Table 7.7 shows that, in each type of counties, there were counties had net in and net out migration. The greatest difference between in and out migration occurred in adjacent/urban function counties in which 80% of the counties had net in migration. Therefore net in migration gains by the three types of counties were not the results of a small proportion of counties that had extremely large numbers of net migrants, but were pervasive across counties. Among the 839 residual counties, 260 had net in migration.

Table 7.7   Net Migration Analysis by Net In/Out Migration Types, 1995-2000

Type	Net Mig	#	%	Net Mig 1995-2000	Pop in 90	NMR
Adjacent only	In	360	51.9	358,358	9,756,962	3.7
	Out	333	48.1	-284,766	9,486,476	-3.0
Adj & Urban Function	In	236	80.0	588,351	7,143,496	8.2
	Out	59	20.0	-53,667	1,651,849	-3.2
Urban Function only	In	202	54.9	225,195	3,915,671	5.8
	Out	166	45.1	-134,979	2,810,212	-4.8
Urban Function & Urbanizing	In	27	62.8	65,966	1,237,097	5.3
	Out	16	37.2	-19,178	629,726	-3.0
Urbanizing only	In	20	37.7	34,814	896,800	3.9
	Out	33	62.3	-34,121	1,114,382	-3.1
Residual	In	260	31.0	129,288	4,066,844	3.2
	Out	579	69.0	-338,951	8,196,359	-4.1
Total		2,291		536,310	50,905,874	1.1

3. Only the Largest Metro Counties Had Net Migration Losses between 1995 and 2000

As the data in Table 7.8 suggest, between 1995 and 2000, metro counties lost a total of 536,310 migrants. But only the largest metro counties with populations of one million or more had net migration loss (2.3 million), whereas other types of metro counties all had net migration increases. This resulted in a moderate migration loss for all metro counties of 0.5 million. This means that, similar to net migration patterns for 1975 to 1980, net migration loss among metro counties was not pervasive, but was rather a phenomenon occurring primarily in the largest metro counties.

After applying the 2003 Continuum Codes to the net migration between 1995 and 2000, the net migration loss among metro counties declined to 223,913 (42% of the number under the 1993 definition). Again, some of the nonmetro counties that had net migration gains in the 1990s were reclassified into metro counties under the 2003 continuum codes. Using the 1993 metro codes, there were 169 large metro counties and 132 fringe counties adjacent to the large metro counties. They had a combined net migration loss of 1.5 million. Under the 2003 continuum codes, their combined net migration loss was reduced to 0.9 million.

Table 7.8   Net Migration in 1995-2000 by 1993 and 2003 Continuum Codes

	1993 Codes		2003 Codes	
	#	Net Mig	#	Net Mig
Metro Counties				
1M+	169	-2,311,690	*	
Adj to 1M+	132	823,863	400	-922,660
250K-1M	316	711,503	323	341,424
<250K	199	240,014	344	357,323
Subtotal		-536,310		-223,913
Nonmetro Counties				
20K+ Adj	133	133,603	215	193,215
20K+ Nonadj	114	-41,280	105	-35,898
2500-20K Adj	607	364,385	602	161,014
2500-20K Nonadj	655	-34,743	449	-103,804
Pure rural Adj	248	110,288	235	44,341
Pure rural Nonadj	534	4,057	434	-34,955

* In the 2003 Continuum Codes, fringe counties to largest metro counties are no longer listed separately. They are merged into the largest metro counties.

It is also apparent in this table that, the adjacent nonmetro counties were the only ones that gained migrants, with only one exception: That is the 534 pure nonmetro

counties not adjacent to any metro areas, which had a negligible net migration gain of 4,057. However, under the 2003 continuum codes, they had a significant net migration loss of 34,955. Apparently some of these counties were no longer nonadjacent nonmetro counties as the result of population changes during the 1990s.

All the evidence so far points to a pattern in which the large metro counties expanded their populations into adjacent or urban function nonmetro counties, as suggested by the three hypotheses put forth in this dissertation.

Since the 1995-2000 dataset has detailed migration flows, more in-depth analyses can be done to analyze the migration patterns underlying the population dynamics between 1995 and 2000.

Table 7.9 Analysis of Migration Flows Out of the Large Metro Areas, 1995-2000

Flows from Large Metro To	Migration Flow	% in All Flows	% of Flows to Nonmetro
Other Large Metros	12,218,990	57.0	-
Other Metros	6,712,567	31.3	-
Adjacent	1,528,061	7.1	60.6
Urban Function	580,733	2.7	23.0
Urbanizing	79,763	0.4	3.2
Residual	331,819	1.5	13.2
Total	21,451,933	100.0	100.0

Table 7.9 shows the destinations of the migration flows out of the largest metro counties. Fifty-seven percent of the migration flows were between pairs of large metro counties. 31.3% of the migration flows were from the large metro counties to other

metro counties. Overall, only 11.7% the migrants moving out of the large metro counties moved into nonmetro counties. The last column shows the percentage of flows out of the largest metro counties into nonmetro counties. Nearly 61% of the flows into the nonmetro counties went into adjacent nonmetro counties. Another 26.2% went into urban function counties and urbanizing counties, which left 13.2% going to the residual nonmetro counties.

Table 7.10 presents the metro to metro and metro to nonmetro migration flows and the percentage among the total flows. When inter-metro moves are considered, the majority of the moves (83.5%) were still within metro counties. If only the metro to nonmetro flows are considered, the patterns were very similar to those presented in Table 7.9, with 63% of the movers moving into adjacent nonmetro counties, 23.2% of them moving into urban function or urbanizing counties, and only 13.8% moving into the residual nonmetro counties.

Table 7.10   Analysis of Migration Flows Out of the Metro Areas into Nonmetro Counties, 1995-2000

Flows from Metro to	Flow	% in All Flows	% in Metro to Nonmetro Flows
All Other Metro	31,353,500	83.5	
Adjacent	3,916,927	10.4	63.0
Urban Function	1,246,958	3.3	20.1
Urbanizing	190,637	0.5	3.1
Residual	859,198	2.3	13.8
Total	6,213,720	100.0	100.0

Tables 7.9 and 7.10 present two patterns for the migration flows between 1995 and 2000. First, the majority of the flows were between metro counties, in large part because 80% of the population resided in metro counties. Second, among the metro to nonmetro migrants, about 86% of the migrants moved into the three urbanization types of counties, i.e., the adjacent, urban function and urbanizing counties.

How much did the nonmetro counties that became metro in 2003 contribute to total net migration between 1995 and 2000? Table 7.11 shows net migration patterns by separating out the nonmetro counties that became metro counties in 2003. The adjacent counties displayed a totally different pattern from the non-adjacent counties. Among the adjacent counties, the newly reclassified metro counties accounted for most of the net migration. For example, among the adjacent nonmetro counties with urban populations of 20,000 or more, only 33 counties with 29% of the population base out of 133 counties were reclassified; they accounted for 83.4% of the net migration. On the other hand, the nonadjacent nonmetro counties had net out-migration in aggregate, despite the fact that the newly reclassified metro counties attributed positively to net in-migration. For example, the nonadjacent counties with 20,000 or more urban population had net out-migration of 41,000. However, among them, the new metro counties accounted for 43,000 net in-migration with 23% of the population base. The pure rural counties not adjacent to any metro areas had 4,000 net in-migration, as shown in Table 7.8. However, as the data in Table 7.11 indicate, that the mere 10 new metro counties (out of 534 counties) were almost the sole contributors to the net in-migration (with 6,047), while the rest of this category had a net out-migration of 2,000 people.

In addition, although not shown in the table, these 10 newly defined metro counties were all classified as Small Metro counties in 2003. They were classified as metro only because they became adjacent to and had strong commuting ties with existing small metro counties. This is because the 10 counties had a total population of 97,027 in 1990, which means that it was not possible for them to grow into stand-alone metro counties within 10 years.

Table 7.11   Net Migration Patterns in Nonmetro Counties in 1995-2000, by Newly Defined Metro Counties in 2003

Cont Codes in 1993	New Metro in 2003	#	Net Migration	%	Pop in 1990	%
20K+ Adj	No	100	22,168	16.6	6,748,722	71.0
	Yes	33	111,435	83.4	2,756,463	29.0
20K+ Nonadj	No	93	-85,057	-206.0	5,025,530	77.0
	Yes	21	43,777	106.0	1,504,757	23.0
2500-20K Adj	No	476	214,678	58.9	12,763,661	79.6
	Yes	131	149,707	41.1	3,266,433	20.4
2500-20K Nonadj	No	643	-36,747	-105.8	12,562,177	98.1
	Yes	12	2,004	5.8	247,292	1.9
Pure rural Adj	No	159	43,284	39.2	1,624,076	64.9
	Yes	89	67,004	60.8	879,428	35.1
Pure rural Nonadj	No	524	-1,990	-49.1	3,430,308	97.2
	Yes	10	6,047	149.1	97,027	2.8

The implication of the 10 new metro counties is that they provided a typical example of the urbanization process hypothesized in this dissertation. They were defined as pure rural not adjacent to any metro counties in 1990. With the expansion of metro counties, these pure rural nonadjacent counties became physically adjacent to existing or newly emerging metro counties and had strong commuting ties with these metro

counties. By the definition of outlying metro counties, they were also reclassified as metro. To a certain extent, they were merged into the ever expanding metro system.

4. Summary of Net Migration between 1995 and 2000

The evidence for the migration flows between 1995 and 2000 points to similar conclusions to those for the 1975-1980 period: 1) all of the net migration gains in 1995-2000 occurred in those counties that were defined as urbanization counties (adjacent, urban function or urbanizing); 2) more than half of the net migration gain occurred in the nonmetro counties that were reclassified into metro counties by the 2003 definition; 3) the majority of the metro to nonmetro migrants moved into adjacent, urban function or urbanizing counties.

D. TESTS OF THE NEW CLASSIFICATION WITH OLS REGRESSION MODELS

The categorization based on urbanization appears to provide a better means of predicting net migration in nonmetropolitan areas than the Urban Rural Continuum Codes and the Urban Influence Codes compiled by the Economic Research Service in USDA. To compare the utility of these codes, a series of OLS regression models are constructed .

Table 7.12 shows the results of OLS regression models using the Net Migration Rate between 1995 and 2000 as the dependent variable and three different classification codes as independent variables in separate models. The urbanization codes predict

14.04% of the variance in net migration rates in nonmetro areas, while the Continuum

Codes and Urban Influence Codes predict less than 6% (5.57% and 5.96% respectively).

Table 7.12   Standardized Coefficients of OLS Regression Models of Net Migration Rate on Different Categorizations of Nonmetro Counties, 1995-2000

Urbanization Codes			Continuum Codes			Urban Influence Codes		
IV	Beta		IV	Beta		IV	Beta	
Adj	0.232	***	cont4	0.081	***	urban3	0.083	***
Urban function	0.300	***	cont5	0.014		urban4	0.196	***
Urbanizing	0.027		cont6	0.181	***	urban5	0.094	***
Residual	Ref		cont7	0.011		urban6	0.203	***
			cont8	0.217	***	urban7	0.050	*
			cont9	Ref		urban8	0.004	
						urban9	Ref	
R^2 adj.	0.1404	***		0.0557			0.0596	***
N	2241		N	2241	***		2241	

Significance Level: * p<.05 ; *** p<.001

Table 7.13 takes a step further by using more control variables that are

conventionally used in migration models. The results show that the differences in R

squares narrowed among the three categorizations. But the urbanization codes are at

least marginally better in predicting net migration.

Table 7.13 OLS Regression Models of Net Migration Rate on Different Categorizations of Nonmetro Counties, with Control Variables, 1995-2000

Independent Variables	Beta Coef.			Beta Coef.			Beta Coef.	
Adj to metro areas	0.062	**	cont4	0.008		urban3	0.051	*
Urban functions	0.215	***	cont5	-0.027		urban4	0.068	**
Urbanizing	0.001		cont6	0.058		urban5	0.070	*
Residual	Ref		cont7	0.025		urban6	0.083	**
			cont8	0.060	**	urban7	0.063	*
			cont9	Ref		urban8	0.051	
						urban9	Ref	
Intercept	0.000	***		0.000	***		0.000	***
Pop density in 1990	0.076	***		0.090	***		0.065	**
% of urban population	-0.084	***		-0.114	**		-0.157	***
% bachelor's degree	0.030			0.098	***		0.092	***
M1 Index	0.073	***		0.098	***		0.097	***
% in agriculture	-0.312	***		-0.360	***		-0.351	***
Median household income	-0.159	***		-0.150	***		-0.156	***
Unemployment rate	-0.205	***		-0.189	***		-0.189	***
Natural amenity scale	0.076	*		0.109	***		0.109	***
West	0.125	**		0.117	**		0.109	*
South	0.228	***		0.197	***		0.195	***
Midwest	0.212	***		0.205	***		0.198	***
Northeast	Ref			Ref			Ref	
Median age	-0.009			0.002			0.009	
Child/women ratio	-0.033			-0.027			-0.026	
Median number of rooms per household	-0.029			-0.090	***		-0.088	***
Mean commuting time to work (minutes)	0.260	***		0.257	***		0.253	***
% of households having 2 or more vehicles	0.179	***		0.181	***		0.183	***
Observations	2241			2241			2241	
Adj R-Sq	0.348	***		0.318	***		0.317	***

Significance level: * p<.05; ** p<.01; *** p<.001

CHAPTER VIII

TOWARD AN URBANIZATION PERSPECTIVE ON THE

"NONMETROPOLITAN TURNAROUND": OPTIMAL DENSITY

THEORY REVISITED

The previous chapter has found support for a hypothesized explanation of the two turnarounds based on the perspective of urbanization. In both the periods of 1975-1980 and 1995-2000, net migration into nonmetropolitan counties was mainly into nonmetropolitan counties adjacent to metro counties or into nonmetropolitan counties that were specialized in government, retirement, services or recreation functions that mainly serve urban population. The urbanizing counties, defined as nonadjacent nonmetro counties that had 25% or more commuters from other nonmetro counties, also gained a disproportionate number of net migrants between 1995 and 2000.

These three types of nonmetro counties accounted for the majority of metro to nonmetro net migration, which suggests that the "nonmetropolitan turnarounds" were mainly effects of different aspects of urbanization. The adjacent nonmetro counties clearly show the effects of suburbanization; the urban function counties indicated that metro counties extended their sustenance bases over longer distances, facilitated by technological advances; urbanizing counties suggest that they serve as incubators for urbanization. This means that such counties were urbanizing by becoming more urban centers among the surrounding nonmetro counties.

However, there were not many urbanizing counties, which made their contribution to the "turnarounds" relatively small. Part of the reason for this may be that, since the majority of population (79% in 2000) was urban, the migration flows of urban population make the much smaller migration flows within nonmetro counties marginal. The following table shows the proportions of migration flows among the metro and nonmetro counties between 1995 and 2000.

Table 8.1   Proportions of Migration Flows between 1995 and 2000

| Residence in | | | | |
2000	1995	# of flows	flow	%
Nonmetro	Nonmetro	154,504	3,995,847	8.5
Nonmetro	Metro	195,784	6,213,720	13.2
Metro	Nonmetro	153,936	5,677,410	12.0
Metro	Metro	231,307	31,353,500	66.4
Total			47,240,477	100.0

Table 8.1 clearly shows that migration flows within nonmetro counties only accounted for 8.5% of all migration flows, while 66.4% of the migration flows occurred within metro counties.

When rural population moves into urban areas, urban areas increase not only their density, but also their space. The question is, where is urban territory going to expand? Strictly speaking, any space urban counties expand into beyond the previously defined urban territory is rural. Therefore the suburbanization process we have been so familiar with is literally the "urban-rural turnaround", which has been going on for several centuries. But no one calls this the urban-rural turnaround. What is the difference

between this and the so-called "nonmetropolitan turnaround", which is hypothesized here as nothing more than the accumulative result of the "urban-rural turnaround" until the "urban-rural turnaround" goes beyond the county boundary?

The difference between the urban/rural dichotomy and the metro/nonmetro dichotomy is really the key to understanding the two "nonmetropolitan turnarounds", as illustrated in Chapter V. Although the US population was predominantly urban by the 1970s, the territory was still predominantly nonmetropolitan. The urban population sprawling into the neighboring rural territory would not have been shown as nonmetropolitan turnaround if this sprawling happened within the metro county boundary. In other words, the urban population inside metro counties did not generally move into their adjacent nonmetro counties until the metro counties were saturated with urban population. This is when the first "nonmetropolitan turnaround" was observed. This is actually a typical suburbanization process if the county boundary line is disregarded. As the suburbanization continued, the newly suburbanized nonmetro counties were reclassified into metro counties. The "turnaround" then "disappeared", not because the suburbanization stopped, but because the suburbanization was happening between the old metro and the new metro counties, which is not then counted as metro to nonmetro migration. This would continue until the new metro counties became saturated again and sprawled further into their adjacent nonmetro counties. The second "turnaround" took form.

Although chapter VII provided no direct evidence for the above speculation, it nonetheless provided indirect evidence for the hypothesized "cycles" of Nonmetropolitan Turnaround.

To answer the question in the title of this dissertation, whether nonmetropolitan turnaround was renewed rural growth or extended urbanization, another question has to be answered: how can the phenomenon of rural population growth that is largely due to net in-migration be interpreted as extended urbanization? This can be answered by looking at two smaller questions: What is the fundamental force driving metro populations into nonmetropolitan areas? What is the result of this net migration? We already know the answer to the second question, that is, the eventual urbanization of the nonmetro areas. The focus here will be of the first question.

Hawley's optimal density theory provides the answer to this question. The optimal density is really the optimal accessibility for human beings. Accessibility reaches an optimal level when the accessibility to space (sustenance) and the accessibility to other human beings (interdependence) reach equilibrium. In sparsely populated areas, people tend to concentrate to gain more interdependence. In dense areas, people tend to deconcentrate to maximize access to the sustenance base. Therefore urbanization proceeds until it reaches the optimal density and then it takes the form of suburbanization. In other words, suburbanization is a continuation of urbanization.

The optimal density theory is not alone in providing such an explanation. The "optimal city size", or rather the "efficient city size" issue, has been extensively discussed by urban sociologists and economists (Capello and Camagni 2000). This is

because the economies of scale operate at certain city sizes, a size above which increased size offsets the advantages of agglomeration. However, the quantification of this optimal density or city size is not feasible because of many factors. First, optimal density is determined by technological and organizational factors. Both technological advances and innovations in organization can either increase or decrease the optimal density. For example, transportation and communication technologies allow people to live farther away from work. However, improved city planning allows for increased density of cities without deteriorating the living and working environment. Second, cities with different functional characteristics will require different levels of optimal size (Henderson 2003). Third, cities exist in different spatial contexts. The interdependency among cities may also affect the optimal size.

Even if an estimation of the optimal density is difficult to make, it is still possible to at least partially test the theory with empirical data. Based on optimal density theory, density should have a negative relationship with net migration in high density areas such as large metro counties, while it should have a positive relationship in low density areas such as pure rural areas. The following OLS regression models test the utility of density in predicting net migration.

Table 8.2 shows the results of OLS regression models when net migration rates between 1995 and 2000 are regressed on density in different types of counties in the 1990s (since it is very difficult to obtain variables other than population for the 1970s, the regression models of the net migration rates in the 1970s are not conducted). The dependent variable is the Net Migration Rate (NMR) between 1995 and 2000, and the

independent variable is density in 1990. With the time lag between the independent and dependent variables, the models can have implications for the predicted causal effects between the two variables. These models are done separately, with different counties included in the models and therefore the results should be interpreted with caution.

Table 8.2   Standardized Coefficients of OLS Regression Models of Net Migration Rate on Density between 1995 and 2000 Using Different Types of Counties Separately

Models with different combination of counties	Beta Coef of Density		N	R^2 Adj.	
All Counties	-0.0564	**	3116	.0029	**
Dichotomous					
Metro	-0.1812	***	839	.0317	***
Nonmetro	0.2051	***	2277	0.0416	***
11 Detailed Categories					
Large metro 1M +	-0.3011	***	181	0.0856	***
Large metro 1M+ Sub	0.1385		132	0.0116	
Median metro 250K-1M	-0.2595	***	321	0.0644	***
Small metro <250K	0.0210		205	0.0045	
Adj to large metro with a city of 10K	0.0032		63	-0.0164	
Adj to large metro without a city of 10K	0.0327		123	-0.0072	
Adj to M/S metro with a city of 10K	0.0714		188	-0.0003	
Adj to M/S metro without a city of 10K	0.2266	***	626	0.0498	***
Not adj to metro with a city of 10K	0.2299	***	229	0.0487	***
Not adj to metro with a city of 2.5K	0.3048	***	534	0.0912	***
Not adj to metro without a city of 2.5K	0.3650	***	505	0.1315	***

Significance level: * p<.05; ** p<.01; *** p<.001

With all counties included in the model, density is negatively related to NMR, and it is very significant. Overall, the higher the density, the lower the net migration rate. But the whole model is very weak in explaining the variance in NMR. This is consistent with the claim earlier that the density level or urbanization level varies from county to county, and putting all counties together in the same model will cancel out the predicative power of these variables.

When metro counties and nonmetro counties are separated into two models (Dichotomous models), the results show a totally different pattern. For metro counties, density is negatively related to NMR, while for nonmetro counties, density is positively related to NMR. A comparison of the two models suggests that density has opposite effects on NMR, which is consistent with Hawley's optimal density theory. Since metro counties have a higher level of urbanization and have reached a higher level of density, the dominant force in metro counties is to decrease the density. In contrast, the density is still low inside nonmetro counties, and the dominant force in nonmetro counties is still to increase the density. Furthermore, by separating into metro and nonmetro counties, both models improve in significance level and R square.

The next set of models attempts to separate the counties into 11 detailed categories by combining the Urban Rural Continuum Codes and Urban Influence Codes in order to see the different effects density has on different types of counties at different stages of urbanization.

Metro counties are further differentiated into four categories: large metro counties with one million persons, metro counties adjacent to large metro counties (Note--which

do not qualify for being a stand alone metro county), medium-sized metro counties with 250,000 to one million persons, and small-sized metro counties with less than 250,000 persons. The reason for this classification is based on hypothetical difference in levels of urbanization.

The large metro counties have the highest level of urbanization, and density has a strong and significant negative effect on NMR, explaining 8.6% of the variance in NMR.

Suburban metro counties, however, are not at the same urbanization level (indeed they are not metro on their own) and density has a positive effect on NMR. But the model is not significant, partly because their migration pattern is influenced more by their adjacency to high-density metro counties than to their own density.

Medium-sized metro counties are at a relatively lower level of urbanization. Density still has a significant negative effect on NMR, but it is not as strong as the effects in the large metro counties (comparing their coefficients and the R squares with large metro counties).

Small metro counties are not at a very high level of urbanization. This is not to say that a city with 200,000 people is not very urban, but that a county that has such a city is very likely to have low overall density because the city will occupy only a small portion of the county's land area. This model is not significant but the sign is positive, which may imply that they may be approaching the optimal density level and that the effects of density may become less distinctive.

For nonmetro counties, effects of density levels on migration will be conceptionally different for adjacent counties and for those not adjacent. In other words,

their migration patterns are influenced by their own density level and that of metro counties to which they are adjacent (which exert an influence on the nonmetro counties as a result of their own density). These nonmetro counties are divided into different categories by their adjacency to metro counties and by their own density as approximated by their own cities size.

For the four types of nonmetro counties adjacent to metro counties, density has no significant effects on NMR except for one type: those adjacent to medium or small metro counties and without a city of 10,000 or more persons. This type of county has minimal effects from adjacent metro counties, and is relatively low in density. Therefore the low density concentration effects stand out more clearly than for other types of adjacent counties. In the models for the other three types of adjacent nonmetro counties, their effects of density are all positive though not significant. This suggests that the effects of density in counties without a city are stronger than the effects in counties with a city (0.0327 vs. 0.0032 and 0.2266 vs. 0.0714). Although these models are not significant at all, they nonetheless show that the low density effects of concentration are still in play, but are perhaps diluted by the effects brought about by being adjacent to metro counties.

For nonmetro counties not adjacent to any metro counties, NMR is affected by density as suggested by the optimal density theory. The coefficients are all positive and significant, which means that the higher the density, the higher the net migration rate. The difference in the size of cities inside these counties suggests a relative level of urbanization. The larger the city inside these counties, the more urbanized the counties

are and the higher density they have. By comparing the models, it is clear that density in

the pure rural counties (without a city of 2,500 persons) has a more significant effect

than that in the counties with a city (0.3650 vs. 0.3048 and 0.2299).

Table 8.3   OLS Regression Results of Density in Metro/Nonmetro Counties with Control Variables, 1995-2000

Independent Variable	Metro Standardized Estimate		Nonmetro Standardized Estimate	
Density in 90	-0.1022	***	0.1415	***
Adjacency			0.1582	***
M1 Index	0.1612	***	0.1189	***
Median Household Income	-0.1465	**	-0.0333	
Unemployment Rate	-0.4249	***	-0.1156	***
Farming Dependent	-0.0383		-0.1893	***
Natural Amenity Scale	0.1282	*	0.1860	***
Median Age	0.0038		0.0559	**
NORTHEAST	Ref		Ref	
WEST	0.0691		0.0986	*
SOUTH	0.2878	***	0.2903	***
MIDWEST	0.1701	***	0.2118	***
R adj	0.2332		0.1788	
P	<.0001		<.0001	
N	835		2277	

Significance level: * p<.05; ** p<.01; *** p<.001

To further test the optimal density theory, two more OLS regression models were tested by adding conventionally used control variables. These are shown in Table 8.3. This time all the US counties were divided into metro and nonmetro types to simplify the interpretation.

The density effects in metro and nonmetro counties still remain, even after several control variables are added. In metro counties, density is negatively related to net migration, while it has positive effects in nonmetro counties. This proves that, among the metro counties, the higher density counties may have passed the optimal density and hence will have net out-migration. The lower density metro counties still have net in-migration as shown in Chapter VII. The massive out migration from metro areas is not a prevailing phenomenon for all metro counties. Among the nonmetro counties, the higher density counties tend to have higher net migration rates.

Counterurbanization theory implies that urban populations move into rural area to seek more space and a rural lifestyle. It would suggest that the lower the density, the more migrants the rural area will attract. However, the evidence found in Table 8.2 and Table 8.3 shows that, among nonmetro counties, the regression coefficients are all positive. In other words, the higher the density in a nonmetro county, the more migrants it will attract. In adjacent nonmetro counties, the relationship is not significant, which may imply that, in these areas, the density is not as important as their easy accessibility.

In summary, the relationship between density and net migration is strong and suggests that density may have played the critically important role in determining the migration patterns in the two "turnaround" periods. That is, the urbanization process was

initially dominated by a concentration process to increase density. After passing the optimal density, however, the urbanization process may be dominated by deconcentration processes, such as suburbanization. But both the concentration and deconcentration processes were caused by the same fundamental force—the search for an optimal density.

CHAPTER IX

CONCLUSIONS AND DISCUSSIONS

Are the nonmetropolitan turnarounds an example of renewed rural growth or extended urbanization? There is no clear answer without further analyses. However, the evidence in this dissertation supports two points. First, the main source of nonmetropolitan growth is that metropolitan migrants move out to reduce urban density. Second, the nonmetro counties that have been receiving migrants have become or will soon become part of metropolitan areas. This process is therefore more appropriately called extended urbanization than renewed rural growth.

However, this dissertation clearly has many limitations. First of all, the unit of the county is used, which makes it impossible to reveal the real urban-rural migration phenomenon. This conceptualization of urbanization is not based on political boundaries, rather it is based on the true urban/rural dichotomy. Therefore the analyses can only provide indirect inferences, rather than direct evidence. It is unfortunate that migration data are not available for smaller units than counties, such as census tracts. However, since census tracts change considerably between decennial censuses, such units would be difficult to use in comparing migration patterns in different time periods. Moreover, even if the migration data become available at the census tract level, it would still be difficult to find other variables for modeling purposes.

Metro and nonmetro counties may be units that are too large for analysis of net migration because the real urbanization is happening between urban and rural territory, which often exists within the same county boundary. The same optimal density

perspective can apply to the urban rural dichotomy with units as small as a census block. A small-sized city may not have a very high density overall, but some parts of it may have passed the optimal density, and it will expand into adjacent areas, especially rural space which is cheaper to develop. If this happens within a county, it is not documented as migration as currently defined. But they are the building blocks of the process of urbanization. However, optimal density theory cannot be based on arbitrary boundaries. If a smaller geographic unit could be used to analyze migration, such as a census tract, we could see more clearly when optimal density operates in other geographical areas.

Another issue in redefining "rural" is equally important. Without a consensus on the definition of rural and urban areas, the argument may become very difficult to assess because of theoretical disagreements. Historically the Census Bureau defines a rural place as one without a city of 2,500 persons or more. Size and density seem to be all that it takes to distinguish between urban and rural. However, "rural" also has a cultural connotation when we use it to refer to a real geography. Many "rural" places have become the bedroom communities of adjacent cities and will eventually become urbanized. But before that happens, can a "rural" place with no agricultural activity at all still be called "rural"? Can population growth in these places be called "rural growth"? Consequently, can the changing of residence from an over-crowded city into an undefined open space be called "urban to rural migration"? We did not need to ask these questions when the majority of land in the US was rural and when agriculture was still a way of life for a majority of the population. But when the contemporary farmers rely more and more on off-farm employment, and when the farmers buy as much

manufactured food in the supermarket as urban residents, "the most fundamental to improving our understanding of contemporary patterns of human settlement change was the better conceptualization and definition of settlement patterns" (Champion and Hugo 2004:xxi). It becomes more and more difficult to tell whether urban to rural migration is to rejuvenate rural communities or to urbanize them.

Despite such limitations, the main purpose of this dissertation has not been to take sides relative to these two arguments. The most important thing to point out is that all the population redistribution patterns are pervasively driven by urban population, rather than by rural populations. One thing appears evident: one day the US is likely to become almost completely urbanized under the definitions and premises used in this dissertation. With every movement of urban to rural migrants, we are one step closer to that ultimate destination.

Additionally, the urban functions defined in this dissertation are somewhat arbitrary with little support in the literature on urbanization. It is easy to understand that government and services are urban functions. Recreation and retirement functions are more controversial. Traditionally farmers used to die in farms residences, without the transition of retirement in formal retirement facilities. However, the lifestyle of contemporary farmers has gone through so many changes, mainly due to the acquisition of urbanized lifestyles, that more and more farmers also retire like urban dwellers, although the majority of the retirement population is still urban.

Recreation is classified as an urban function not because rural populations do not do recreational activities, but because, as an industry, it is more reasonable to understand

it as an urban function. The Economic Research Services of USDA defines recreational counties based on the income and employment from recreational activities. It is not intended to deny that rural residents have recreational activities. My argument is that, when recreational activities become the major source of income and employment, it is not likely the result of self-sufficient recreation for the rural population themselves.

Finally, the optimal density theory is very useful conceptually, but it is very difficult to quantitatively test due to its complexity. Further research must be done to quantify density with other variables that are potentially related to density so that the relationship between urbanization and density can be further understood in terms of other demographic, geographic, social and economic dimensions.

REFERENCES

Adams, J.S., B.J. VanDrasek, and E.G. Phillips. 1999. "Metropolitan Area Definition in the United States." *Urban Geography* 20:695-726.

Beale, C.L. 1975. "The Revival of Population Growth in Nonmetropolitan America." Economic Research Service, ERS 605, Washington, DC: US Department of Agriculture.

Beale, C.L. and G.V. Fuguitt. 1978. "The New Pattern of Nonmetropolitan Population Change." Pp. 157-177 in *Social Demography*, edited by K.L. Taeuber, L.L. Bumpass, and J.S. Sweet. New York: Academic Press.

Berry, B.J.L. 1976. "The Counterurbanization Process: Urban America since 1970." Pp. 17-30 in *Urbanization and Counterurbanization*, edited by B.J.L. Berry. Beverly Hills, CA: Sage Publications.

Berry, B.J.L. and J.D. Kasarda. 1977. *Contemporary Urban Sociology*. New York: MacMillan.

Biggar, J.C. and F.C. Biasiolli. 1978. "Metropolitan Deconcentration: Subareal Inmigration and Central City to Ring Mobility Patterns Among Southern SMSAs." *Demography* 15: 589-603.

Brown, D.L. and J. Wardwell, eds. 1980. *New Directions in Urban-Rural Migration: The Population Turnaround in Rural America*. New York: Academic Press.

Burnley, L.H. and P.A. Murphy. 1995. "Residential Location Choice in Sydney's Perimetropolitanism Region." *Urban Geography* 16: 123-143.

Capello, R. and R. Camagni. 2000. "Beyond Optimal City Size: An Evaluation of Alternative Urban Growth Patterns." *Urban Studies* 37:1479-1496.

Carlino, G.A. 2000. "From Centralization To Deconcentration: People and Jobs Spread Out." *Business Review* Nov/Dec:15-27

Census Bureau. 2006. *Statistical Abstracts*. http://www.census.gov/statab/hist/HS-02.pdf . Accessed on June 8, 2006.

Champion, T. and G. Hugo. 2004. *New Forms of Urbanization: Beyond the Urban-Rural Dichotomy*. Bodmin. Cornwall: Ashgate Publishing, Ltd.

Clark, D. 1998. "Interdependent Urbanization in an Urban World: A Historical Review." *The Geographical Journal* 164(1):85-95.

Coombes, M., R.D. Longa and S. Raybould. 1989. "Counterurbanisation in Britain and Italy: a Comparative Critique of Concept, Causation and Evidence." Report No. 84, University of Newastle upon Tyne, Centre for Urban and Regional Development Studies.

Dahms, F. and J. McComb. 1995. "Counterurbanization, Interaction and Functional Change in a Rural Amenity Area – a Canadian Example." *Journal of Rural Studies* 15:129-146

Davis, K. 1955. "The Origin and Growth of Urbanization in the World." *The American Journal of Sociology* 60(5): 429-437.

Durkheim, E. 1964. *The Division Of Labor In Society*, translated by G. Simpson. New York: The Free Press.

Elliott, J.R. 1997. "Cycles within the System: Metropolitanisation and Internal Migration in the US, 1965-90." *Urban Studies* 34(1): 21-41.

Frey, W.H. 1987. "Migration and Depopulation of the Metropolis: Regional Restructuring or Rural Renaissance?" *American Sociological Review* 52: 240-257.

Frey, W.H. and A. Speare. 1992. "The Revival of Metropolitan Growth in the United States: An Assessment of Findings from the 1990 Census." *Population and Development Review* 18(1):129-146.

Fuguitt, G.V. 1985. "The Nonmetropolitan Turnaround". *Annual Review of Sociology* 11:259-280.

Fuguitt, G.V., C.L. Beale, J.A. Fulton, and R.M. Gibson. 1998. "Recent Population Trends in Nonmetropolitan Cities and Villages: From the Turnaround, Through Reversal to the Rebound." Pp. 1-24 in *Research in Rural Sociology and Development: Focus on Migration* edited by H. K. Schwarzweller and B.P Mullan. Stamford, CN: JAI Press.

Fuguitt, G.V. and D.L. Brown. 1990. "Residential Preferences and Population Redistribution: 1972-1988." *Demography* 27(4):589-600

Fulton, J.A., G.V. Fuguitt, and R.M. Gibson. 1997. "Recent Changes in Metropolitan-Nonmetropolitan Migration Streams." *Rural Sociology* 62(3):363-38.

Gordon, P. 1979. "Deconcentration Without a 'Clean Break.'" *Environment and Planning A* 11:281–290

Halliday, J. and M. Coombes. 1995. "In Search of Counterurbanization: Some Evidence from Devon on the Relationship between Patterns of Migration and Motivation." *Journal of Rural Studies* 11: 433-446.

Hawley, A.H. 1956. "A Further Note on Suburbanization." *Land Economics* 32(1): 87-89.

_____. 1971. *Urban Society: An Ecological Approach*. New York: The Ronald Press Co.

_____. 1978. "Spatial Aspects of Population: An Overview." In *Social Demography*, edited by K.E. Taeuber, L.L. Bumpass, and J.A. Sweet. New York: Academic Press.

Hawley, A.H. and S.M. Mazie, 1981. *Nonmetropolitan America in Transition*. Chapel Hill: The University of North Carolina Press.

Heilbrun, J. 1987. *Urban Economics and Public Policy. 3rd Edition*. New York: St. Martin's Press.

Henderson, V. 2003. "The Urbanization Process and Economic Growth: The So-What Question." *Journal of Economic Growth* 8:47-71.

Henslin, J.M. 2002. *Sociology: A Down-To-Earth Approach. 6th Edition*. Edwardsville, IL: Allyn and Bacon.

Hwang, S.S. 1983. *Suburbanization as a Sociocultural and Ecological Process: A Theoretical Synthesis and Empirical Investigation*. Doctoral dissertation, Texas A&M University.

Hwang, S.S. and Murdock, S.H. 1986. "The Effects of Population Interchange on Metropolitan and Nonmetropolitan Counties in Texas: An Evaluation of the

Equilibrium Hypothesis." Presented at the Annual Meetings of the Rural

Sociological Society, August 26-30. Salt Lake City, Utah.

Hwang, S.S. and S.H. Murdock. 1998. "Toward an Integrated Ecological-Sociological

Theory of Suburbanization." Pp.269-282 in *Continuities in Sociological Human*

Ecology, edited by M. Micklin and D.L. Poston. New York: Springer.

Jackson, K.T. 1975. "Urban Deconcentration in the Nineteenth Century: A Statistical

Inquiry." Pp. 110-142 in *The New Urban History*, edited by L.F. Schnore. Princeton,

NJ: Princeton University Press.

Johnson, K. M. 1998. "Renewed Population Growth in Rural America". *Research in*

Rural Sociology and Development 7:23-45.

Kasarda, J. 1980. "The Implications of Contemporary Redistribution Trends for National

Urban Policy." *Social Science Quarterly* 61:373-400

Kasarda, J. and G. Redfearn. 1975. "Differential Patterns of Urban and Suburban

Growth in the United States." *Journal of Urban History* 2:43-66.

Kopecky, K and M.H. Suen. 2004. "Suburbanization and the Automobile." *Economie*

D'Avant Garde Research Reports 6, University of Rochester. Rochester, NY.

Lajubutu, O. A. 1996. "The Changing Pace and Nature of the Spatial Distribution of the

United States Population." *Dissertation Abstracts International A: The Humanities*

and Social Sciences 57(10): 4550-A-4551-A.

Lewis, G.J. and D. J. Maund. 1976. "The Urbanization of the Countryside: A

Framework for Analysis." *Geografiska Annaler. Series B, Human Geography* 58(1):

17-27.

Long, J.F. 1981. "Population Deconcentration in the United States." *Special Demographic Analysis*. CDS-81-S, US Bureau of Census, Washington, DC.

Long, L. and A. Nucci. 1997. "The 'Clean Break' Revisited: Is US Population Again Deconcentrating?" *Environment and Planning* 29: 1355-1366.

_____. 1998. "Accounting for Two Population Turnarounds in Nonmetropolitan America." *Research in Rural Sociology and Development* 7: 47-70.

Long, L. and D. DeAre. 1988. "US Population Redistribution: A Perspective on the Nonmetropolitan Turnaround." *Population and Development Review* 14(3) 433-450.

Marx, K. 1904. *A Contribution to the Critique of Political Economy*, translated by Zur Kritik der politischen Oekonomie. Chicago: Charles H. Kerr & Company.

Mieszkowski, P and E.S. Mills. 1993. "The Causes of Metropolitan Suburbanization." *The Journal of Economic Perspectives* 7(3): 135-147.

Mitchell, C.J.A. 2004. "Making Sense of Counterurbanization." *Journal of Rural Studies* 20: 15-34.

Molotch, H. 1976. "The City as a Growth Machine: Toward a Political Economy of Place". *The American Journal of Sociology* 82(2): 309-332.

Noyelle, T.J. and T.M. Stanback, Jr. 1984. *The Economic Transformation of American Cities*. Totowa: NJ: Rowman and Allanheld.

Office of Management and Budget (OMB). 2000. "Standards for Defining Metropolitan and Micropolitan Statistical Areas; Notice". *Federal Register* 65(249):82228-82238.

Rogers, A. 1982. "Sources of Urban Population Growth and Urbanization, 1950-2000: A Demographic Accounting." *Economic Development and Cultural Change* 30(3):483-506.

Schwartz, B., ed. 1976. *The Changing Face of the Suburbs*. Chicago: Univ. Chicago Press.

Schwirian, K. P and J.W. Prehn. 1962. "An Axiomatic Theory of Urbanization." *American Sociological Review* 27(6): 812-825.

Scott, A. J. and M. Storper. 1986. "Industrial Change and Territorial Organization: A Summing Up." Pp. 301-311 in *Production, work, and territory: The geographical anatomy of industrial capitalism*, edited by A.J. Scott and M. Storper. Boston: Allen and Unwin.

Smith, J., D. Bromley, and K. Manton. 1979. "Changes in the Coincidence of the Boundaries and Populations of Central Cities." *Social Forces* 57(3): 931-951.

Tiebout, C.M. 1956. "The Urban Economic Base Reconsidered**."** *Land Economics* 32(1): 95-99.

Tisdale, H. 1942. "The Process of Urbanization." *Social Forces* 20(3): 311-316.

Vining, D.R., Jr. and A. Strauss. 1977. "A Demonstration That the Current Deconcentration of Population in the United States Is a Clean Break With the Past." *Environment and Planning A* 9: 751-758.

Wardwell, J.M. 1977. "Equilibrium and Change in Nonmetropolitan Growth". *Rural Sociology* 42(2): 156-79.

Weeks, J.R. 2001. *Population: An Introduction to Concepts and Issues. 8th Edition.* Wadsworth Thomas Learning.

Wilson, F.D. 1978. "The Organizational Components of Expanding Metropolitan Systems." In *Social Demography*, edited by K.L. Taeuber, L.L. Bumpass, and J.S. Sweet. New York: Academic Press.

Wilson, F.D. 1984. "Urban Ecology, Urbanization and Systems of Cities." *Annual Review of Sociology* 10: 283-307.

_____. 1986. "Temporal and Subnational Variations in the Reversal of Migration Flows between Metropolitan and Nonmetropolitan Areas: 1935-1980." *Social Forces* 65(2): 501-524.

_____. 1987. "Urban Revitalization on the Upper West Side of Manhattan: An Urban Managerialist Assessment**.**" *Economic Geography* 63(1): 35-47.

Wood, J.S. 1988. "Suburbanization of Center City." *Geographical Review* 78(3): 325-329.

Zimmer, B.G. 1975. "The Urban Centrifugal Drift." Pp. 23-91 in *Metropolitan America in Contemporary Perspective 1975,* edited by A. Hawley and V. Rock. New York: Halsted.

VITA

Name:	Xiaodong Wang
Address:	15509 Whistling Straits Dr, Austin, TX 78717
Email Address:	winterone@gmail.com
Education:	B.A., English, Nanjing Normal University at Nanjing, China, 1991
	M.S., Agricultural Economics, Beijing Agricultural University at Beijing, China, 1998