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The Relationship Between Net Migration Patterns and Selected Demographic and Socioeconomic Factors in South Dakota, 1970-1980

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THE
RELATIONSHIP BETWEEN NET MIGRATION
PATTERNS AND SELECTED
DEMOGRAPHIC AND SOCIOECONOMIC
FACTORS IN SOUTH DAKOTA, 1970-1980.

BY

LINDA L. BAER

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1983

THE RELATIONSHIP BETWEEN NET MIGRATION PATTERNS AND SELECTED

DEMOGRAPHIC AND SOCIOECONOMIC FACTORS IN SOUTH DAKOTA 1970-1980

This thesis is approved as a creditable and independent investigation by a candidate for the degree, Doctor of Philosophy, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Abstract

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This study investigated the process of net migration in counties of South Dakota from 1970 to 1980. Census Bureau and Vital Statistics data were employed to answer the basic question of how major demographic and socioeconomic characteristics of counties of South Dakota were related to patterns of net migration.

A description of net migration was presented and from this specific patterns of net migration from 1970 and 1980 were determined. The net migration patterns were (1) in-migration over both decades; (2) turnaround migration: out-migration in 1970 and in-migration in 1980; (3) reverse turnaround: in-migration in 1970 and out-migration in 1980; (4) out-migration: under 15 percent out-migration for 1970 and/or 1980; (5) high out-migration: 15 percent out-migration and over for both decades.

Selected demographic and socioeconomic variables were tested to see the extent to which patterns of migration were related. Age composition variables and economic factors were found to be most significant. The counties within the migration patterns were then analyzed to determine which of the selected characteristics were most alike within the categories. Those variables were total businesses,

child dependency ratio, birth rate, death rate, fertility ratio, sex ratio, general dependency ratio, index of aging, young adult ratio, median age, teachers per student, employment, unemployment, agricultural employment, poverty, per capita income, average daily membership and cost per average daily membership. the first two variables were most significant.

Finally, the pattern of net migration typology was tested to determine the extent of the differences between the net migration categories. Of specific interest were declining counties, the high out-migration pattern and the growing counties, the turnaround pattern. Differences were found between the categories for age dependency ratio, index of aging, median age, employment, agricultural employment and total businesses.

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CHAPTER I

STATEMENT OF THE PROBLEM AND OBJECTIVES OF THE STUDY

Introduction

This study focuses on population changes that have been
taking place in the North Central Region of the United States, and
more particularly the State of South Dakota. It examines the role
of the basic demographic process of migration in population change,
and, the consequences these changes have for the demographic and
socioeconomic structures of the county populations at risk.

This study builds upon the work done recently for the North
Central Regional Research Committee on Population (NC-97) in which
the direction and level of migration of the counties in the 13 North
Central States, 1950-80, is described (Riley, et al. 1982). By
omitting the State of Kentucky from our consideration it is possible
to utilize the data from that report to present a population picture
of the U.S. Census Bureau's North Central Region. (This includes
12 states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota,
Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin).
It also enables us to place South Dakota's population and its changes
in terms of the larger perspective of the North Central Region.

North Central Region and South Dakota

This section describes the population change and net
migration for the 1055 counties of the states in the North Central

Region, 1950-80. In considering population change it is noted that there has been a decline in the rate of growth for the region over the three decades. The trend in natural increase (births minus deaths), which has been a key factor in population growth, has been downward since the peak of the baby boom in the late 1950's and the amount of natural increase has been reduced by 50 percent in the 1970's. The total amount of net out-migration from the region has more than doubled since the 1950's. However, when the net migration is examined in terms of levels of magnitude, the number of counties with high out-migration (15 percent or more) has declined from 414 in the 1950-60 period to 45 in the 1970's. "Turnaround" counties (population loss 1960-70 with population gain 1970-80) numbered 264 in the North Central Region, whereas the same type of turnaround pattern on net migration involved 337 counties. Although one-third of the counties (33.7 percent) had continuous out-migration for the three decades, only 30 counties (2.6 percent) had a continuous high out-migration pattern (Riley, et al. 1982:7-10).

In focusing attention on the state of South Dakota, it was found that the basic population trends for the North Central Region were also recorded for this state. Some of these trends, particularly those affecting agricultural states and rural areas such as rural to urban migration, were even more pronounced. Continuous high rates of out-migration (over 15 percent) have been character- istic of two-thirds of the counties of South Dakota from 1950 to 1970. Even for the most recent decade (1970-80), when total

out-migration rates for the state were reduced from 14 percent to
four percent, one-fourth of the counties still had high out-migration
constituting the largest number of any state in the North Central
Region (Riley and Baer, 1981). What more suitable conditions could be
available for the study of the impact of and relationship between,
continuous high out-migration and the demographic and socioeconomic
structures of counties? Furthermore, the conditions needed for a
comparison of out-migration with in-migration counties were also
available in as much as South Daktoa had 12 counties that experienced
"turnaround" migration.

Previous Work

Most scholarly efforts in population research have
concentrated on changes in metropolitan areas. Demographic changes
in the decade of the 1970s were characterized by surprising trends,
one of which was growth in the nonmetropolitan areas. Reflective of
the gap in knowledge is that many population experts did not foresee
or project the growth of the nonmetropolitan population (Beale, 1982;
Wardwell, 1980). Calvin Beale stated that:

> Perhaps the most surprising trend of the 1970s was the
> revival of rural and small town population growth. No one
> seems to have been on record as forecasting the nonmetro-
> politan growth rate to be higher than the metropolitan rate
> in the 1970s. Yet in fact, metropolitan counties grew by 9.8
> percent but nonmetropolitan growth was 15.8 percent (Beale,
> 1982:33).

The direction of migration has historically been one of
people moving from rural to urban areas. The trend in America is now
a reversal of what only a few years ago was thought of as the

inevitable flow of people from small towns and rural areas to cities and metropolitan centers. The 1970s reflected a pattern of migration from urban to rural areas. Many of the rural counties that are now gaining population had previously recorded losses. These were the turnaround counties of the state.

Out-Migration: a Continued Concern

Although interest has shifted to the turnaround pattern, there still remains the basic characteristic of migration in rural agricultural America. This trend is the continual and prolonged out-migration in several geographic regions of the U.S., particularly in the Dakotas.

In an executive summary paper from the Population Reference Bureau it was stated that, "Metropolitan areas grew by only 1 percent from 1970 to 1976, compared to a growth of 13 percent from 1960 to 1970. Rural areas, however, have grown rapidly, except in those counties having the highest percentage of agricultural employment" (Population Reference Bureau, 1981:1). Those counties which have high agricultural employment continued to lose population.

Schwarzweller (1979) stated that much of the work of rural sociologists prior to the 1970s revolved around:

> ---the gloomy language of rural depopulation; flight from the land, lack of jobs, exodus of young people, erosion of community institutions, difficulties in maintaining a minimum level of necessary public services, and the withering of morale in our small towns and rural hamlets. (Schwarzweller, 1979:7)

Further, Clawson established that "the psychological attitude underlying this migration, affecting not only those who leave but many of those who stay behind, is perhaps the most serious aspect of population loss" (Clawson, 1975:186).

Schwarzweller presented a lengthy discussion of the impact of turnaround migration--which seems to have replaced the preoccupation with depopulation. Yet for some areas, particularly those dependent upon agriculture, the turnaround had not yet occurred except for some isolated areas in Kansas, Iowa and Indiana. "Indeed, where commercial farming is still the main industry, net out-migration still tends to be the norm, although rates have declined appreciably since the 1950s and 1960s" (Schwarzweller, 1979:12).

The Present Study

This study focused on the relationship between changes in migration patterns and selected demographic and socioeconomic variables in the counties of the state of South Dakota. South Dakota can be characterized as a state that has had continuous out-migration over the past three decades with many counties recording high losses for thirty years. Under these conditions, South Daktoa stands as a prime example of a "place left behind."

In addition to out-migration, the state also recorded turnaround migration in the 1970s in 20 percent of the counties. The purpose of this work is to examine the trends in migration patterns with special emphasis on the continual decline and the turnaround counties in South Dakota in the decades of the 1960s and 1970s.

Analysis of the relationship between these migration patterns and the changes in demographic, socioeconomic and social institutions was the main objective of this research.

Zuiches and Brown (1978) stated that "consequences of unanticipated growth can be as jarring as those associated with long-term uninterrupted decline. In both cases, community institutions must adapt to changing size and composition of populations" (Zuiches and Brown, 1978:72).

Examples of the consequences of growth on communities would include the increase of young families which would create demands for housing. A younger population results in an increased demand for education, health, and recreational services. A growing community due to the influx of retirement population would require other specific goods and services in the community. The changing age composition of an area contributes to further demographic and nondemographic changes (Zuiches and Brown, 1978:72).

Likewise, continued out-migration results in specific impacts and consequences. In the "Places Left Behind," Fuguitt stated that in terms of population decline, there is a deterioration of services and an aggravation of social problems (Fuguitt, 1971:464). Consequences of continued out-migration may include consolidation of schools, merging medical facilities and social service agencies, and changes in the focal places of retail trade. Economic factors are related to migration patterns. Of the ten poorest counties in the U.S., four were in South Dakota. Three of those four counties had

experienced over 12 percent out-migration from the 1960s to the 1970s
(U.S. News and World Report, 1982:18; Riley and Baer, 1981:7).

The major thesis underlying this study dealt with the
relationships between changes in population size and composition on
the one hand and the social and economic situations on the other.
Here is where rural sociologists can and do make significant
contributions to policy planning and implementation (Fuguitt,
1971:464).

Statement of the Problem

This study investigated the following problem:

What are the major demographic and socioeconomic
characteristics of the counties of South Dakota and specifically what
characteristics distinguish high out-migration counties from those
counties with recent in-migration in South Dakota from 1970 to 1980?

This problem addressed three key issues in the field of
migration. First, what were the characteristics of the population
in high out-migration counties and turnaround counties? Second, did
out-migration counties have anything in common? Did turnaround
counties have any characteristics in common? Third, how did
demographic and socioeconomic characteristics of high out-migration
counties compare with those characteristics in turnaround counties?

This research tested the adequacy of a classification system
used to categorize counties in terms of migration patterns. What
characteristics most distinguished the high out-migration counties?

Which most characterized the turnaround counties? What variables
were found to be significantly different between the migration
pattern classification? These and other questions were addressed in
the objectives of this study.

The Importance of the Problem

This work was of strong sociological significance. Demogra-
phers have investigated the impact of migration on metropolitan areas
but the research has not sufficiently dealt with the impact of out-
migration on an area.

> A most compelling rationale for concentrating our attention
> on nonmetropolitan counties is that the bulk of demographic
> and ecological research has focused on metropolitan centers.
> As a consequence, our knowledge of population dynamics and
> patterns outside metropolitan centers is somewhat limited.
> This is unfortunate in that approximately thirty percent of
> the American population resided in nonmetropolitan areas
> (Frisbie and Poston, 1978:1).

Furthermore, little research has dealt with the actual change
in the characteristics of counties with high population loss. Beale
(1964) stated that:

> The demography and sociology of decline are not attractive
> subjects for most researchers. The power and the glory and
> the action are in megalopolis. But if 70 percent of the U.S.
> population is urban, and 99 percent of the land area is
> rural, then the need for additional attention to the
> demography of depopulating rural areas and for the insights
> that such research can provide seems to be rising (Beale,
> 1964:272).

Due to the lack of analysis of nonmetropolitan regions, the
dramatic turnaround patterns were not anticipated and the change went
relatively unnoticed until the mid-1970s. The new trend of turn-
around warrants further investigation. What are the demographic,

social and economic impacts of this migration trend? Zuiches and

Brown stated that further research is required into population

redistribution. The process through which population composition is

transformed over time should be systematically investigated as it

affects the structural system of society. "Only on the basis of such

research can adequate policies for coping with future changes be

developed" (Zuiches and Brown, 1978:72).

Theoretically, we have a long way to go in understanding the

relationships between population size and composition on the one hand

and the social and economic situations on the other (Fuguitt, 1971).

Schwarzweller stated that finding theoretical guidelines for the

investigation of migration patterns is not easy.

> Despite the enormous volume and import of population
> movements in the world today, the sociology of migration
> remains a relatively unattended, immature field. Existing
> theories of social change and societal or community
> development, on the other hand, rarely consider the relevance
> of population exchanges (or variations in the rates of such
> exchanges), and those that do are prone to treat the
> phenomenon in social pathological terms, either as a system
> disturbance or as a manifestation of capitalist exploitation
> (Schwarzweller, 1979:9).

Schwarzweller called for an investigation and further

expansion of the theoretical knowledge regarding migration. There is

a need for a comprehensive analysis of the consequences of turn-

around; the strains and changes that might be anticipated from "the

interplay between volume and selectivity of migration, population

growth and existing structural circumstances in rural America" (Ibid).

Methodologically, this study added a relatively new dimension

in that previous research has dealt primarily with the causes of

migration.   This work analyzed the relationships and consequences
of migration, which, though more difficult to research, is also
especially valuable to policy makers (Ibid).

<div align="center">Objectives of the Study</div>

The central objective of this study was to analyze the
relationship between the net migration patterns and changes in the
selected demographic and socioeconomic characteristics of the
population of South Dakota by county from 1970 to 1980.   There were
five specific objectives:

1.   To determine the level and direction of net migration for
     the counties of the state of South Dakota, 1970-80.

2.   To identify those counties with:
     a.   High levels of net out-migration 1970-80.
     b.   Turnaround migration 1970-80.

3.   To identify:
     a.   Selected demographic and socioeconomic
          characteristics for all the counties of South Dakota
          for 1970 and 1980.
     b.   Changes in the selected demographic and socioeconomic
          characteristics for all the counties of South Dakota
          from 1970 to 1980.
     c.   Which of these selected variables were significantly
          related to patterns of net migration.

4.   To compare counties within the migration patterns:
     a.   High out-migration counties in relation to changes in
          selected demographic and socioeconomic
          characteristics.
     b.   Turnaround counties in relation to changes in
          selected demographic and socioeconomic
          characteristics.

5.   To determine whether there is a significant difference
     between high out-migration counties and turnaround
     counties in relation to the selected demographic and
     socioeconomic characteristics.

Organization of the Dissertation

The remainder of the dissertation was organized as follows:

1. Chapter II reviews the selected literature pertinent to the subject and includes the research hypotheses which develop out of that research.

2. Chapter III includes the theoretical framework and research propositions.

3. Chapter IV presents the research design and methodology.

4. Chapter V presents the findings of the research.

5. Chapter VI presents the summary, conclusions, and implications of the study, and suggestions for future research.

6. Chapter VII includes the bibliography and appendix.

CHAPTER II

REVIEW OF THE LITERATURE AND RESEARCH HYPOTHESES

I. PAST RESEARCH AND FINDINGS

This chapter includes a review of the past empirical studies
that pertain to the research problem of this study as well as the
statement of the research hypotheses that emerge from this
literature. The research cited includes analyses of the effect of
out-migration on the areas left behind as well as the impact of turn-
around migration on the areas of destination. The relationship of
these migration patterns are viewed in terms of changes in demo-
graphic, economic, education, health and welfare indicators as well
as changes in selected social institutions.

Migration Patterns

Internal migration is the permanent movement of persons
within the boundaries of a single nation (Wrong, 1967:82). This is
in contrast to international migration which is movement of people
between nations. According to Bogue, international migration plays
only a modest role in changing a nation's basic characteristics. This
is not the case in reference to internal migration. It is the most
important single factor that explains why some communities grow
faster than others. Birth rates and death rates between communities
in the same nation are often rather small in comparison with
migration rates. As a result, the principal mechanism for redistri-
buting the population within a nation is internal migration (Bogue,
1969:752-53).

One of the more precise statements that can be made regarding
migration is that it is selective by basic characteristics in the
population. "The study of migration selectivity is the analysis of
the tendency for persons with particular traits or residency in
particular environments to be more migratory than is the general popu-
lation" (Bogue, 1969:758).

Selectivity by particular traits is further clarified:
"Migration tends to be selective of persons with particular character-
istics (the young, the better educated, the unmarried, etc.)
Selective migration, therefore, helps to determine the spatial
pattern of differences between communities in population composition
and in the change in population composition that communities undergo
(Ibid: 753).

Selectivity by residency includes three basic patterns in
the United States. The oldest and broadest of trends is the
continued movement of the population towards the West. This has been
a strong trend throughout the historical settlement in the U.S.
Second has been the familiar rural to urban migration stream. In
this trend movement has been out of rural areas to urban areas of
residence. In fact Bogue states that, "When migrants in the U.S.
depart from one region for another at the present time, all but a
tiny fraction arrive at an urban or suburban destination. By far the
greatest share arrive in urban areas" (Bogue, 1969:765). Included
in this trend is the movement from farms. Because so much of the
migration has been to urban areas, much of the research has dealt
with the areas of destination. "However, the impact on rural areas

probably has been greater than on urban areas" (Ibid:767). Closely

tied to this trend has been the mechanization of agriculture. The

third distribution trend is the local deconcentration of urban

agglomerations. As cities grow they tend to move toward the periph-

eries thus forming suburbs (Hawley and Mazie, 1981: 3-4).

This research concerns the patterns of migration in rural

America. One of the basic problems of dealing with these patterns is

the lack of precision in the use of the term "rural."

> Confusion is often associated with the use of the term
> "rural" whether referring to areas or populations. Rural
> is often used in a generic sense to mean those bucolic and
> less settled areas outside cities and suburbs. However, the
> term rural also has the more precise meaning of open country
> and places of less than 2,500 as defined by the Bureau of the
> Census (Hawley and Mazie, 1981:5).

Another definition states that the word "rural" lacks

accuracy in every day use because it is so comprehensive yet so

imprecise.

> It is much easier to speak of rural America than to define
> it. In general, rural America...refers to the people and
> communities in the nation's nonmetropolitan counties--the
> counties that have no cities with as many as fifty thousand
> people (Dillman and Hobbs, 1982:3).

Because of the basic characteristics of the population of

South Dakota, the Census Bureau definition of rural is most appro-

priate for this study; that is any county that does not have one

incorporated place of 2,500 or more inhabitants. In fact, two-thirds

of the counties in South Daktoa are then rural by definition.

Another term used to describe rural America is nonmetropolitan which

is an area with cities of less than 50,000 inhabitants. There is a

tremendous gap between the definition of rural (2,500 or less) and

nonmetropolitan (50,000 or less). Though the review of literature

includes both rural and nonmetropolitan references, for South Dakota

the term rural is most appropriate.

Rural America

What does rural America look like? Willits states that the

general characteristics of rural can be classified under ecological,

occupational and sociocultural:

> Ecologically, rural areas have low population density, settle-
> ments of small absolute size, and communities that are
> relatively isolated from other segments of society. Occu-
> pationally, rural areas involve extractive-types of
> industries. Agriculture is the most widespread such industry
> in rural America, although mining, forestry and fishing are
> also included. Socioculturally, rural areas are charac-
> terized by a predominance of personal, face-to-face social
> relationships among similar people and a comparative slowness
> in altering traditional cultural heritage (Willits, et al.
> 1982:70).

Hobbs and Dillman present another view:

> In popular culture, the concept of "rural" mixes sizable
> portions of myth and nostalgia with reality... The "rural" of
> popular culture is the bosom of virtue, honesty, hard work,
> loyalty, and friendliness.... But popular images also
> include negative generalizations: rural schools are poor
> schools, rural health care is poor health care, and rural
> people are simple in lifestyle and thought (Hobbs and
> Dillman, 1982:2).

Over four hundred nonmetropolitan counties are still exper-

iencing losses in population. Still declining counties are located

primarily in the Great Plains and the Mississippi Delta (Wardwell

and Brown, 1980:8).

Demographically, rural areas as compared with urban areas

have a higher ratio of males to females; incomes are lower and

proportionately more families live in poverty, women are less likely

to work outside the home, adults tend to have less formal schooling
and older persons are overrepresented in the population (Willits, et
al. 1982:71).

On the other hand, rural America has been undergoing a
revitalization; a renaissance in growth particulary during the last
decade compared with metropolitan counties that grew by 5.4 percent
between 1970 and 1977. Nearly three-fourths of all nonmetropolitan
counties in the U.S. gained population during the 1970s (Wardwell and
Brown, 1980:8).

The new trend of gaining population would suggest changes and
impacts on the areas which are now being resettled (Sofranko, et al.
1981:109). This new image of rural America as the place to go for a
better quality of life has had an impact. Ploch (1978) states that
the population dynamics occurring in rural areas in the mid and late
1970s are likely to have significant and continuing rural develop-
mental consequences. The consequences of the trend differ with the
composition, direction and magnitude of the migration. Generally,
places experiencing turnaround are facing stresses and strains on
the existing services and facilities.

The remainder of this section will deal with empirical
studies that have investigated the impact and relationship between
out-migration in the "places left behind" as well as the impact on
the newly growing areas experiencing turnaround.

Out-Migration

Migration is selective. In fact, Lee (1966) has observed
two of the more enduring generalizations that can be made about

migration. They are first, "migration is selective (that is, not everyone migrates, only a selected portion of the population actually move). Second, the heightened propensity to migrate at certain stages of the life cycle is important in the selection of migrants." (Weeks, 1982:152).

Lee further specifies the relationship:

Taking all migrants together, selection tends to be bimodal. For any given origin, some of the migrants who leave are responding primarily to plus factors at destination and therefore tend to be positively selected, while others are responding to minus factors and therefore tend to be negatively selected. Therefore, if we plot characteristics of total migrants along a continuum ranging from poor to excellent, we often get a J-shaped or U-shaped curve. Such curves are found where the characteristics are either occupational class or education (Lee, 1966:56).

This states then that specific people tend to move. Actually, different people move away from rural areas than those who move away from urban areas. Likewise, different people move to rural areas than those who move to urban areas. The specific characteristics for these four groups of people differ. Therefore, the impact of their moving away or to an area changes depending on whether we analyze the areas of origin or the areas of destination (Lichter, et al. 1979).

Beale (1964) states that it is important to focus on the scope of depopulation resulting from loss in rural areas and to point out some of the structural changes brought about in the residual population--that is those people left behind (Beale, 1964:265).

Beale ties the continuous loss of rural population to agriculture. The rural areas experiencing loss are those areas tied solely

to agriculture. "The revival of rural growth is associated with factors seldom related to the traditional rural primary industries of farming, mining, and lumbering." (Beale, 1964:265).

In addition, Brown and Beale further state that:

> Continuous population decline is largely found in very rural settings. One-half of the counties in this category have no villages or towns of 2,500 population or more. The average population size is just 1,200; 23 percent are adjacent to metropolitan areas and 19 percent have an interstate highway. Two-thirds of these counties are found in the Great Plains and Corn Belt region (Brown and Beale, 1981:51).

Twenty percent of the counties in South Dakota have recorded at least two decades of high out-migration (over 15 percent). Two-thirds of the counties recorded out-migration from 1970 to 1980 (Riley et al. 1982). With this magnitude of out-migration, an analysis of the relationship between out-migration and various factors of these counties are important and will result in a specific profile.

Demographic Factors in Out-Migration Areas

In this section, the specific factors of age composition and sex composition are discussed. Changes in these factors have an important impact on the population. Both are interrelated to aspects involving education, occupation and other socioeconomic factors.

Age. Age composition is a direct result of the selectivity of migration. More young adults move than do older people or children. This results in a concentration of elderly in certain areas and is one of the most characteristic aspects of nonmetropolitan America. In the Great Plains and Midwest, decades of uninterrupted

out-migration of young adults have left a disproportionately high

number of elderly persons in many communities. In fact many counties

now have one-sixth or more of their population at age sixty-five and

over with the proportion often reaching one-fifth of the population

(Brown and Beale, 1981: 34-35).

Young Adults. Beale further clarifies the situation when he

states that migration is rarely nonselective by age. Most of the

reduction in the farm population has occurred through the heavy out-

migration of young adults.

> One aspect of rural migration that is often overlooked when
> the question of selectivity is raised is the fact that in
> areas where the total rural population has declined by as
> little as 5-10 percent in a decade, the net out-migration of
> young adults is typically more than 50 percent in the decade
> (Beale, 1964:269).

Davis states that a disproportionate share of those who leave

agricultural areas are young adults. In the U.S. in 1970, only 39.7

percent of the males employed in agriculture, forestry, and fishing

were aged 20-44 whereas 54.2 percent of the total labor force were in

these ages. As a consequence, the median age of males employed in

agriculture was 46.1 years, whereas for those employed in all

industries it was 40.2 years (Davis, 1977:158).

Birth Rates and Natural Decrease. The effect of out-

migration on the age structure, however, is further modified and some-

times counterbalanced by the influence of natural increase; and

influence of migration itself is partly indirect, coming through its

effect on births. By selecting out young adults, out-migration

lowers the rural crude birth rate, which then results in fewer children and hence an older population. On the other hand, a high rate of natural increase creates a younger population with a higher proportion of potential migrants (Ibid).

In general, in rural areas, the typical process of decline is for young adults to leave the community after finishing high school and not return. As successive classes leave, the average age of the community rises and the age structure becomes distorted so that there are more older people. The birth rate begins to fall because of the shortage of young adults and the population ages even faster. If the median age of the population passes thirty-five years, deaths are likely to begin to exceed births and then population declines due both to out-migration and natural decrease (Beale, 1974:15).

Dependency Ratio.

Related to the age and birth rates is the dependency ratio.

Changes in the community's age-sex structure will affect the dependency ratio. Everywhere young persons dominate among the rural out-migrants. Only migration of the elderly or the very young reduces the dependency load and these groups are least likely to migrate (Findley, 1982:356).

As a result of the prolonged and increasingly high net out-migration of young rural adults, a condition of natural decrease has become evident. This occurs when the number of births does not exceed the number of deaths. As the population of childbearing age continues to migrate out, more older people are left. Thus the number of deaths exceed the number of births. This excess occurs

solely due to the distorted age structure (Beale, 1964:269).

Heil (1971) found that in analyzing the counties of South Dakota that those counties with the highest net out-migration tended to have the lowest percent increase in their fertility and a lower proportion of children. He attributes this to the possible out-migration of whole families including the children. Heil also found that there was an increase in the proportion of older people in nineteen of the counties of South Dakota between 1960-70. On the other hand, 41 percent of the counties experienced a decrease in the proportion of older people. Further, he found that the index of aging which measures the potential for growth in a population rose in those counties recording net out-migration. Finally, Heil found that the proportion of young adults was lowest in the counties with the highest out-migration (Heil, 1971:61-67).

Thus, out-migration results in population loss of the young people because they are most likely to move. These are the potential childbearers. As they migrate, the birth rate decreases. Those people left behind tend to be older. This increases the dependency ratio as well as the median age. Natural decrease results when the number of deaths exceeds the number of births.

Sex composition. Migration also impacts the sex composition of an area. In the Western world, migration out of rural areas char-acteristically involves more females than males leaving a masculine sex ratio in the working ages. This difference becomes more accentu-ated as the population becomes older. This point is supported in the

research on nonmetropolitan population migration in the U.S. (Davis, 1977; Zuiches and Brown, 1978). Davis states that because rural areas retain men more than women, the result is an increase in the average productivity per person. But because migration is also selective for the young adults, male and female, rural areas retain more young children and older people thus decreasing the average productivity.

The actual ratio of males per 100 females in nonmetropolitan areas declined from 100.4 in 1950 to 96.9 in 1970. The sex ratio has also declined in metropolitan areas from 97.7 to 93.8 during the same time period. This is primarily due to the growing disparity between the length of life between the sexes (Zuiches and Brown, 1978:60).

Hathaway, et al. (1968) conclude that because of the selectivity of more women migrating out of rural areas, there is a reduction in birth rates. The surplus of males on farms and the general scarcity of young adults between the ages of 15 and 35 are consequences of migration. A further effect is a surplus of dependents (children and aged persons) relative to the gainfully employed.

Zuiches and Brown (1978) found that more females migrated than males and that the nonmetropolitan out-migration stream had slightly more females than the counterstream though these relationships were not found to be significant. Heil also found no significant relationship between net out-migration and the sex ratio for young adults (Heil, 1971).

Socioeconomic Factors in Out-Migration Counties

Socioeconomic status can also be analyzed on a continuum as

a consequence of the selectivity factor of migration. Again, there
are characteristics of migrants in general. But in addition, there
are differences between metro migrants and nonmetro migrants. In this
section the characteristics of education, economic factors, health and
welfare are viewed in reference to out-migration areas.

Education. In a study of the characteristics of migrants and
residents, Sofranko and Williams found that turnaround migrants have
considerably higher levels of formal education than the residents.
Over one-third of the males in the migrant groups had completed at
least some college while only 17 percent of the resident males had
attended college (Sofranko and Williams, 1980:25).

Actually, migration is selective of both the most educated
as well as the least educated. Those moving for positive reasons are
the better educated and more skilled people. People also move due
to negative or push factors. These people may not have enough skills
or education for the jobs available where they are so they move. Over-
all, migration is more selective of the most educated than the least
educated in the early youth age category. After the early twenties,
migration patterns shift from the most educated youth to the least
educated. This continues through middle age and to older age groups
(Hamilton, 1965:23).

Lichter et al. found that all mover streams are characterized
by individuals with thirteen years or more of education. This pattern
of educational selectivity is more pronounced in the nonmetro sectors
(Lichter et al., 1979:646). In addition, the nonmetro out migrants are

better educated than those who remain behind with 44 percent of the
inmigrants to nonmetro areas having this educational background.
(Zuiches and Brown, 1978:67).

The bulk of those migrants who leave rural areas seek a college
education or a specialized occupation. Many of the careers open to
college graduates are disproportionately located in urban areas.
Throughout the Midwest, the major current educational difference be-
tween urban and rural adults of less than fifty years of age is the
proportion who have completed high school. In fact, high school enroll-
ment rates for 16-17 year olds, are generally higher in rural areas
than urban. But out-migration is not limited to the more ambitious.
It has taken so large a proportion of young people, especially West of
the Mississippi River that all economic and ability classes are repre-
sented in the out-migration exodus. This means that migration is most
selective by age, whatever the education or abilites (Beale, 1974:17).

Yet, it is clear that the educational attainment of rural
populations has risen rapidly regardless of the effects of out-
migration.

In fact, the median years of school completed in nonmetro areas
for people 25 years of age and older increased from 8.7 years in 1950
to 11.4 years in 1970. This was a 2.7 year increase compared with a
2.1 year increase in metro areas. The differential in formal educa-
tional attainment between nonmetro and metro sectors diminished from
1.4 years in 1950 to only 0.8 in 1970 (Zuiches and Brown, 1978:62).

It has been reported that on the whole, rural people have less
formal education than their urban counterparts. In 1975, the median

number of school years completed by males 25 years and older in urban areas was 12.5 versus 12.2 years for rural nonfarm males and 11.0 for rural farm males. Similar differences were found in urban/rural female education. Further, the dropout rate is higher for rural areas. Urban people are twice as likely to graduate from college as are those people from rural areas (Tremblay, et al.; 1982:5).

Occupational Status. Employment and occupational status are related to migration. Again, migrants are represented on both ends of a continuum; employed and unemployed as well as high status and low status occupations. Employment is interrelated with age and education. Thus people who are highly educated move for higher status occupations. Lower educational levels may also migrate to find employment.

Much of the discussion regarding occupation in declining areas revolves around the extent to which the area is dependent upon agriculture. Zuiches and Brown record, ironically, that the highest fertility in nonmetro America has coincided with periods of contraction of labor force needs of agriculture, mining and other traditional rural and nonmetro industries. Thus, out-migration was necessary to adjust the imbalance between supply of and demand for labor resources in nonmetro areas (Zuiches and Brown, 1978:56).

The sociodemographic and employment characteristics of continuous decline counties emphasized the rural nature of these areas. Brown and Beale found that one-quarter of all jobs were in agriculture. This was the highest percentage in an occupational category.

Only 14 percent were in manufacturing (Brown and Beale, 1981:51).

> In general, continuous decline is found among Great Plains
> and Corn Belt areas that lack accompanying urbanization or
> nonfarm job alternative. In-migration at retirement is
> charcteristically low in declining counties (Ibid).

"In many ways the earlier out-migrant was an institutional
feature of American rural life and a necessary mechanism for main-
taining the integrity of family homestead and the local culture"
(Schwarzweller, 1979:16).

Numerous authors have reflected on the relationship of out-
migration and percent employed in agriculture. "Net migration of the
total population during 1960 to 1970 was related to the percentage
of workers in the county engaged in agriculture--the higher the pro-
portion in agriculture the higher the net out-migration rate"
(Larson, 1981:157).

In the North Central Region, the counties with 50 percent
or more of workers in agriculture in 1960 had net out-migration of
19 percent of the total population; but 66 percent of the males ages
20-24 migrated. Counties with less than 10 percent in agriculture
had virtually no loss by net migration of the total population and
only 6 percent loss of the males ages 20-24 (Ibid).

Beale (1976) found that the influence of out-migration from
areas most dependent on farming was reflected in loss of total popula-
tion--a 10.7 percent loss from 1960-70 for counties with 30 percent
or more employed in agriculture. With the population reversal of the
1970s, the net out-migration and population loss were greatly reduced

in farming areas. The counties with 30 percent or more of the work force in agriculture had net out-migration drop to less than 1 percent from 1970-74 (Ibid:158).

Employment status also varies due to differential migration. Sofranko and Williams found that metro origin migration inflow contains a sizeable number of retired persons (32 percent of the male metro origin migrant household heads). As a result of this, male in-migrants from metro counties have the lowest level of full-time employment. Likewise, the youngest migrant group shows the highest level of full-time labor force participation (Sofranko and Williams, 1980:26).

When viewing the blue-collar classification, Sofranko and Williams reported that for males and females employed full-time, both metro and nonmetro migrants were more likely to be in upper white collar jobs than residents. Nonmetro origin migrants have the lowest proportion of blue-collar jobs (16 percent); nonmetro residents the highest rate at 27 percent (Ibid). Lichter et al. also reported that migrants were more likely to be in upper white-collar jobs if they were in that migratory stream (Litchter et al., 1979:657).

Bogue (1969) found that rates of migration are far higher for white collar workers than blue collar. "Professional workers are more migratory by far than any other occupational group. Second position is held by managerial-proprietory occupations. Laborers (nonfarm) tend to be the least mobile" (Bogue, 1969:770).

Average income and poverty. Average levels of income and

also average number of families below the poverty level are related

to migration. There would appear to be interrelationships between

the age, education and occupational levels of migrants and non-

migrants. Bogue (1969) states that migration rates are highest among

family heads earning $7,000 per year or more; and lowest among those

earning less than $2,000 per year (Bogue, 1969:771).

> "The median family income is related to education and
> occupation. In 1950 in nonmetropolitan America the median
> family income was $2,300, only two-thirds of the metropolitan
> median. By 1970 median family income increased over $7,800
> in nonmetropolitan areas, nearly three-fourths of the metro
> figure" (Zuiches and Brown, 1978:62).

> Heil found that in South Dakota, the greater the rate of net

out-migration the greater the percentage increase in the proportion

of families below the poverty level (Heil, 1971:87).

> More recent information supports these findings.

> The poverty rate in nonmetro America (13.9 percent) is still
> one-third higher than the poverty rate in metro areas (10.4
> percent), and the poverty income gap (the difference between
> income and the poverty threshold) is greater for the nonmetro
> poor than for the metro poor (Seninger and Smeeding,
> 1981:368).

There is in fact an inverse relationship between community

size and the incidence of poverty. Family incomes in greater metro-

politan areas was found to be nearly double those in the totally

rural counties studied. "The lowest rate of white (6.5 percent) and

nonwhite (21.9 percent) poverty appears on the fringes of the greater

metropolitan areas and increases consistently to a high of 27.4

percent (whites) and 59.2 percent (nonwhites) in totally rural

counties not adjacent to an SMSA" (Chadwick and Bahr, 1978:185).

Paradoxically, the higher incidence of poverty in rural areas is accompanied by the availability of a lower quality of public assistance. Reasons for this include the fact that rural areas do not have a tax base sufficient to support a well-developed system of public assistance. Rural people also seem to be conservative and opposed to "liberal welfare" and many of the needy in rural areas refuse to accept aid even when it is available (Ibid:185-186).

Three basic considerations are deemed important in relation to poverty in rural areas. These include employment, age of workers and minority group status. As minimum wages and other benefits have been applied to agricultural workers, the percentage of low income families has declined. Also, due to the concentration of poverty among the elderly and more elderly in rural areas, this results in more poverty for rural areas (Hassinger, 1978:360-361).

Unemployment and underemployement are affected by out-migration. If the migrant was unemployed prior to leaving, unemployment rates may fall in the area of origin; but if the migrant was a student or not in the labor force then there will be no observable changes. Likewise, changes in per capita income or productivity levels depends on the contribution of the migrant before and after migration (Findley, 1982:356).

> Study of the rural impacts of out-migration shows that it can result in productivity increase for the remaining workers only if such migration removes redundant labor, causes remaining workers to intensify their labor, or induces technological changes in response to changing labor-force conditions (Ibid).

Institutions and Social Services

Due to the selectivity of migration in terms of age, education and occupation, it would follow that certain changes occur in the areas of destination and origin in reference to service needs. Because the people who leave are different from the people who stay, services and needs may differ.

Morrison studied persistent and severe migration from St. Louis and concluded that it had altered the structure of the population. The changes have affected the city's capacity to meet the needs of the increasingly disadvantaged population that remains and they have also affected the population's capacity to regenerate itself. Migration changed the composition of the population, resulting in a disproportinate number of citizens who are disadvantaged or need special services. Problems of dependency and poverty are key consequences of this out-migration pattern in St. Louis (Morrison, 1977:250).

Beale notes that the social and economic consequences of out-migration are severe and perplexing. Rural areas are characterized by low density settlements. When this is combined with small total populations and steadily declining population, the impact can be staggering (Beale, 1964:272).

> Historically, rural people have been disadvantaged in regard to the quality and quantity of public services that contribute to their well-being or full life; fire and police protection; educational, religious and transportation facilities; welfare activities, health care; water, refuse, and sewage systems. Such rural disadvantage stems largely from relatively small, scattered populations that contribute to a high cost per person of providing services (Willits, 1982:71).

In 1967, the President's National Advisory Commission on Rural Poverty report, The Places Left Behind, observed that the decline in population in rural areas has brought

"some creative as well as some not so creative adaptations. In fact, material poverty is more wide-spread, overcrowding in housing more prevalent, suicide rates and rates of crime against property, morbidity and mortality rates higher and the services poorer in rural areas than in urban places" (Wilkenson, 1978:119).

There is in fact a synergistic effect between population and services provided. Coelen and Fox state that whereas population affects services, so services affect populations and there is an inter-active effect developed (Coelen and Fox, 1981:606-607).

Rogers (1982) also states that population decline affects services.

"The typical pattern of change with population is that youth leave, the average age rises, the birth rate falls and income declines. This selectivity movement of people increases the burden on remaining residents through extra costs and lower levels of service. As the number of persons employed declines, the number of persons to be serviced and the number of persons who share in the cost of the service also decline. Research is needed to identify the impact of population shifts on sources and the alternatives available to local governments for dealing with these shifts. Research is also needed on the cost of supplying public services in sparsely populated areas" (Rogers, 1982:149-150).

This research investigates three basic services: education, health and welfare, and retail trade.

Education. The cost of education is the primary problem of this institution. Consolidation of schools has been one answer. Yet it is difficult to gain support for rural school programs when local people see their "investment in education" leaving the community.

In addition, the special services such as remedial reading and teacher
workshops are difficult to maintain in rural areas (Ellenbogen, 1974).

Betrand contends that:

> Schools in a declining community also exhibit characteristic
> patterns of organizational atrophy. Since school financing
> is a local matter to a considerable extent, reductions in the
> tax base are reflected immediately in salaries, supplies build-
> ing repair, and extracurricular activites....When enrollments
> eventually begin to drop, school administrations become apa-
> thetic and the formal educational function becomes more a token
> effort than anything else (Bertrand, 1980:198).

Consolidation of schools has been one of the mechanisms for
coping with declining rural populations. "The argument against the
small school is that an adequate range of subjects taught by well
trained teachers cannot be offered with few students" (Hassinger, 1978:
303).

Hassinger lists at least four factors which have been instru-
mental in the consolidation of school districts. These include a
decline in the rural population which left many small school districts
with few children of school age. Better roads and the use of bus trans-
portation has made larger school districts feasible. In addition, the
aspirations of rural people for quality education have increased and
the technical demands of quality education have required larger schools
(Ibid).

Consolidation has been the source of bitterness and problems
in the community. "Citizens see loss of the school as a threat to
the integrity of their community and to its very existence." The
economic impact is considerable as the school may have represented
the community's largest public expenditure. More serious may be the

shift in loyalties upon consolidation and local businesses and other institutional aspects of the community may suffer (Hassinger, 1978: 303).

Welfare. As The People Left Behind documents, a high percentage of rural people are poor, disabled, aged and otherwise in need of welfare and social service programs. In 1975, the Census Bureau reported less than 10 percent of the metropolitan population were below the poverty level while 14 percent of the nonmetropolitan were classified as poor (Rainey and Rainey, 1978:138). Put another way, whereas one-in-nine urban residents live below the poverty level, one-in-six rural residents are in this situation (Tremblay et al., 1982:5).

In comparison of rural versus urban families, Tremblay found that rural median family income was lagging. In fact, for 1976, the median family income was $13,952 in the central cities; $17,101 in the suburban areas and $12,831 in the rural areas (Ibid:4).

Looff reports that there is a clustering of physical and social pathologies in dying communities.

> "most of these communities, in time, become poverty-striken areas, which, are usually marked by disease, substandard housing, inadequate education, broken homes, and chronic unemployment. Poverty and disease are often inseparable... there are more pregnancies with little or no prenatal care, and the infant mortality rates are two or three times as high as that in more affluent sections" ...and a host of other preventable and correctable conditions may prevail" (Looff, 1980:232-233).

Yet Beale (1974) states that:

> It cannot be said that decline of population has prevented income increase. Though losing population areas had lower average family incomes than those gaining, this related to

the typical heavy dependence on agriculture. But as a class,
the declining counties experienced more rapid rates of income
growth from 1959-1969 than did those where population was in-
creasing (Beale, 1974:17).

Health. A general paradox is evident regarding health care
in rural America. "Despite a greater need for health care services,
nonmetro Americans have fewer health care resources and are less a
part of the health care system" (Rosenblatt, 1981:625).

> Rural society is characterized by low density of settlement
> this sparseness of population is paralleled by a relative
> paucity of social services....In a rural setting very often
> the entire spectrum of health services is dependent on an
> aging physician or obsolescent hospital (Ibid:614).

Because of the demographic composition of nonmetro areas,
especially the larger numbers of elderly and disadvantaged, there
is a greater relative need for medical care services. "But medical
care services are distributed along gradients other than need and
the resulting disparity is particularly acute in nonmetro areas"
(Ibid:623).

Though the decreasing supply of doctors and dentists in rural
areas is a major problem.

> Hospital beds, paradoxically, are distributed much more
> equally with respect to population, largely as a result of
> massive federal investment in nonmetro community hospitals...
> These hospitals are considerably smaller, offer fewer services
> and are less financially stable than their metro counterparts
> (Ibid:620).

In summary, it appears that rural areas have less access to
health care services and physicians. The gap betwen rural and urban
health care has grown. While rural areas have a disproportionate
number of elderly people and low income families with greater health

care needs than the average, they also have poorer access to services.

Summary of Out-Migration

Age. Because young adults are most likely to migrate, this has an impact on the age composition of the areas left behind. The average median age tends to be older.

Dependency ratio. The dependency ratio is higher. The productive age group migrate leaving fewer to support the dependency group.

Birth rate. Because younger people are the more reproductive age group, when they migrate this results in the birth rates dropping.

Fertility ratio. The fertility ratio is lower because their are fewer women in the childbearing years.

Mortality rate. Likewise, as older people are left in a population, they are more likely to die than younger people, on the average. Thus the mortality rate will increase.

Sex ratio. Traditionally, the nonmetro economy has demanded male labor. Consequently the sex ratio has been higher than in metro areas.

Educational factors. Educational attainment has been lower for nonmetro areas than for metro areas but the gap between educational attainment has been decreasing.

Economic factors. Type of industry is one indicator of economics. Rural areas have predominatly been areas with high concentration of agriculture and extractive employment. As agricultural

jobs have declined due to mechanization, few alternative industries have replaced previous agriculturally related jobs. Unemployment and underemployment tend to be higher in rural areas.

Average income and poverty are two other economic factors. The greater the level of out-migration the greater the percentage of families below the poverty level. The median family income is also lower for nonmetro areas.

Institutions and social services. Social services are related to the population they serve. As the population changes or declines, so the services change.

Education. Education in rural areas has undergone consolidation as the one-room school house has given way to larger town schools. There are fewer schools and fewer teachers per student in rural areas.

Welfare. Welfare is a paradox in rural areas. Though rural areas have a higher proportion of poor, disabled and aged people, resources and welfare services are less available.

Health. Likewise, health and poverty are interrelated. Medical personnel are less available to rural areas and hospital facilities are smaller and less well equipped in rural areas.

TURNAROUND MIGRATION

"Renaissance," "revival," and "rebirth" have been used to describe what has been happening in nonmetropolitan America. This growth of nonmetro areas has taken demographers by surprise. Fuguitt

(1979) states that for perhaps the first time in American history, nonmetro areas are growing faster than metro areas. The most rapid growth in the countryside is in the most rural counties with the smallest or no growth occurring in the urban places. Open-space areas are growing faster in rural counties than the towns and cities in these same counties. This growth pattern in nonmetro areas is uniformly found in all of the U.S. census regions.

> Perhaps the most dramatic and unexpected change in migration patterns in the U.S. in recent decades was the "turnaround" in population growth in nonmetro areas in the 1970s. Histori- cally rural areas almost continuously have had net out- migration to urban areas, as young people left farms and small towns to go to the jobs and other attractions of the cities and their suburbs. Throughout the 1970s, however, more persons moved from urban areas to rural areas than in the opposite direction (Long, 1982:364).

"This change in pattern was the result of fewer persons leaving nonmetro areas as well as more persons moving to nonmetro areas from ciites and suburbs. In a sense, this new pattern entails both a back-to-the-countryside aspect and a stay-in-the-countryside aspect" (Ibid).

In an analysis of the change in mobility rates from 1965-70 to 1970-75, Zuiches and Brown found two complementary demographic forces operating to produce net in-migration for nonmetropolitan areas during the early 1970s. First the number of migrants to non- metro areas increased by 23 percent from the figures in late 1960s. In addition, out-migration from nonmetro decreased about 12 percent from the late 1960s. These areas have therefore retained many people who earlier might have migrated to the cities (Zuiches and Brown, 1978:65).

Three-fourths of all nonmetro counties registered population gains from either natural increase or migration or both. This is in comparison to one-half in the 1960s and two-fifths in the 1950s. More specifically, net migration gains (more migrants moving in than out) occurred in nearly two-thirds of all nonmetro counties compared with only one-fourth in the 1960s and one-tenth in the 1950s (Morrison and Wheeler, 1976:3-4).

In America, the revival of nometro growth has been dramatic. The nonmetropolitan counties together registered a net out-migration of 300,000 per year during the 1960s are now gaining about 380,000 migrants per year. Net migration in nonmetro areas reversed from -0.6 to +0.7 percent annually (Morrison and Wheeler, 1976:11).

An intriguing issue in the nonmetro population growth is its effect on the character and image of "rural America." Demographically speaking, metro decline and nonmetro growth are the reverse of each other and of the long-standing trend toward metro growth and nonmetro decline; but they are culturally asymmetrical. Country migrants who move to the city for the opportunities inherent in bigness are further enhancing that bigness. But city migrants who move to the country for the charm of smallness only add to the growth. If they demand urban amenities, the rural character they prized is lost (Ibid).

Reasons for Turnaround

Reasons for this turnaround are still being investigated. Four are suggested by Long:

        1) decentalization of employment opportunities.
        2) growth of local government services.
        3) renewed energy extraction creating nonmetro jobs.
        4) increased retirement and recreational pursuits (Long,
           1981:364).

Calvin Beale discusses why there has been a turnaround. Since 1970, it has gradually become apparent that rural areas have indeed turned a corner in their ability to retain or acquire population. This should have been obvious since the main source of exodus has been flight from the farms. With the farm population at one-third of its former size by the late 1960s, the outflow would be expected to taper off (Beale, 1978:49).

Beale lists three major reasons for rural growth. First is the spread of retirement areas and recreation areas. Second has been the growth of colleges and universities often located in more rural areas. Third is the growth of manufacturing in nonmetro areas during the 1960s (Ibid. 50-52).

Schwarzweller states that "the heavy out-migration of people from rural communities over the years, although without doubt posing a severe economic drain on those communities, was probably not as disruptive of the prevailing social organization as the arrival of large numbers of newcomers is bound to be" (Schwarzweller, 1979:16). In other words, turnaround will result in a greater impact on the social system than has heavy out-migration.

Who Are the Turnaround Migrants? Sofranko and Williams ask who are the migrants moving to nonmetropolitan America? "Perhaps the most general and accurate observation one can make about the new

migrants is that they cannot be characterized easily" (Sofranko and Williams, 1980:19). They feel that the current stereotypical notions of who the migrants are will have to be modified. More clearly, the research can reflect who the migrants are not. They are not upper middle class professionals escaping the confines of city living; they are not elderly migrants going back to their childhood home; they are not environmentalists or homesteaders engaged in a "back-to-the-land" movement (Sofranko and Williams, 1980:19).

The literature has related that migrants are not the same as nonmigrants in particular characteristics. "The fact that migrants are not representative of the general population they leave or to the population to which they move has obvious implications. Essentially it suggests that movement has patterned social, economic, and demographic determinants and consequences" (Goldscheider, 1971:299). Demographically speaking, metropolitan decline and nonmetropolitan growth are the reverse of each other and of the long-standing trend toward metro growth and nonmetro decline. But in fact, there are specific differences between those who move from metro areas and those who move from nonmetro areas (Zuiches and Brown, 1978: 65-68).

There is, in effect, an unequal interchange between the migration streams which has an impact on the population of both the sending and receiving areas. As Morrison and Wheeler have observed:

> The people that the nonmetropolitan areas gain, although younger and better skilled than the resident population, are nevertheless older and less skilled than those who leave. Thus, it can be said that migration tends to reduce 'human capital' and the potential for natural increase in nonmetropolitan areas (Morrison and Wheeler, 1976:1).

This means that though nonmetro areas appear to be gaining
population, the migrants to the areas are different than the people
who have moved out of the area over the years. Nonmetro areas have
more outmigrants in the younger age category and more inmigrants who
are retired people. Turnaround migration cannot be viewed as
replacing population with identical characteristics as the population
that has previously moved out. There are specific implication from
this that require more thorough research.

The characteristics of turnaround counties are "intermediate
between continuously growing and declining areas in terms of popula-
tion size and location...In population size, they are much closer to
the declining category. Moderate turnaround counties are much more
highly urbanized then extreme turnaround areas." In general, turn-
around counties have relatively low per capita income and a high
initial proportion of employment in agriculture (Brown and Beale,
1981:51).

Demographic Factors of Turnaround Counties

Age. Roughly equal portions of nonmetro destination migrants
are older, middle-aged and young. Overall, the tabulations show the
migrants to be younger than residents. This is consistent with the
findings of Sofranko and Williams which state that there is an
inverse relationship between age and propensity to move. The in-
migrant from metro areas to nonmetro have a higher proportion in the
fifty-five plus age groups than the nonmetro residents (Ibid:23).

"Retirement-related migration is certainly in evidence, but

it is considerably offset by gains in population at younger ages and, thus, at a regional level does not by itself threaten to further skew the age composition of the nonmetropolitan Midwest toward the aged" (Ibid).

In fact, in Poston's analysis of continuous growth, reverse turnaround, continuous decline and turnaround nonmetropolitan counties, it was found that turnaround counties consisted of 13.8 percent retirement counties whereas continuous decline had only 3.2 percent retirement counties (Poston, 1983:30).

Sex composition

Specific data on the sex composition of nonmetro destination migrants is sparse. From Sofranko and Williams data it appears that slightly more females than males are migrating to nonmetro areas. Further, Zuiches and Brown found that more females migrated than males and the nonmetro out-migration stream had slightly more females than the counterstream though these relationships were not found to be significant (Sofranko and Williams, 1980:27; Zuiches and Brown, 1978).

Further evidence of the demographic characteristics of non-metro destination migrants is lacking in the research. This study will fill in some of the gaps in knowledge concerning, birth rates death rates, and dependency ratios of the nonmetropolitan turnaround population. It would be expected that birth rates would be higher, death rates lower, and the dependency ratio lower due to the in-migration of younger people as compared to the residents.

Socioeconomic Factors of Turnaround Counties

The factors of education, economics, health, and welfare will be discussed in this section.

Education. In their study of migrants and residents of non-metropolitan areas, Sofranko and Williams found that migrants have considerably higher levels of formal education than the residents. Over one-third of the males in the migrant groups had completed at least some college while only 17 percent of the resident males had attended college (Sofranko and William, 1980:25).

Lichter et al. found that mover streams in general are characterized by individuals with thirteen years or more of education. This pattern of education selectivity is most pronounced in the nonmetro origin sectors (Lichter et al., 1979:646).

The nonmetro out-migrants are better educated with 44 percent having completed one or more years of college. Only 34 percent of the inmigrants to nonmetro areas have this educational background (Zuiches and Brown, 1978:67).

In general, in-migrants are contributing to the educational levels of nonmetropolitan counties (Sofranko and Williams, 1980:25).

Economic Factors

Employment status. "Migrants to nonmetro areas tend to be employed in upper white collar occupations in greater proportions than residents. Both male and female migrants seem to be an occupational asset to nonmetropolitan, high out-migration areas of the Midwest." In keeping with the higher employment status is the factor

of income. A majority of migrant households (53 percent) earn more

than $10,000 a year (Sofranko and Williams, 1980:26).

Poston (1983) found that turnaround counties had 14 percent

of the population employed in agriculture compared with 20.5 percent

in continuous decline counties. On the other hand, turnaround had

21.8 percent employed in manufacturing compared with 17.1 percent

in continuous decline counties (Poston, 1983:30).

Further, supply and demand for unskilled labor can be met

within the local labor market; but the more highly skilled the occu-

pation, the more likely supply and demand for the skill will extend

away from the local to regional or national levels (Shaw, 1975:24).

Besher (1961) found that professional and skilled persons

are more likely to migrate while farmers and farm managers were least

likely to migrate (Ibid:25).

Information regarding the extent of poverty, or underemploy-

ment of the turnaround population is not available. It would be

expected that the rates in these categories would be lower than those

of the nonmetro residents.

Unemployment. Unemployment is an interesting factor in that

"a fundamental component of the economic push-pull theory is that

increasing levels of unemployment at a place of origin stimulates

out-migration and increasing levels of unemployment at possible

places of destination deters in-migration" (Shaw, 1975:72). This

research will determine whether there is more unemployment in the

areas of origin or the area of destination.

Social Institutions

More literature is available on the impact of turnaround on the areas of destination. This is primarily due to the dramatic effects of high in-migration on areas that have been called boom-towns. These areas may be rich in resources and emerge almost over-night. Services and facilities require time to develop to meet the needs of new residents. Considerable controversy may arise between "oldtimers" and the new residents as perceptions of needs for the community may conflict.

Rogers (1982) describes the process that takes place with turnaround or rapid growth.

> "Rapid growth overburdens existing facilities and programs, creates new expectations from in-migrants, and produces a lag between new service demands and the new tax base needed to pay for expansion. Many local governments are not equipped to handle the impact of growth coming after decades of decline...new residents may press for new services. ...Research is needed on what service needs will develop with community expansion and what new service needs should be anticipated" (Rogers, 1982:149).

Thus, turnaround migration may result in benefits and burdens. One of the basic assumptions of the demographic aspects of the impact issue is that the composition of the people moving in is different than those already there. Migrants are younger, better educated and more likely to be employed in higher occupational status jobs. What difference does it make that these new people, who are somewhat different from local residents, move in? Part of the answer depends on how many people move in and how quickly they come (Sofranko et at., 1981:108).

Education

Ploch also states that the consequences of the turnaround trend depends on the composition, direction and magnitude of the population. In his study of Maine, Ploch found that turnaround migration had an impact on several institutions. First, the high educational attainment of the inmigrants lead them to support improvements in the educational system of their chosen communities. There in fact have been several conflicts in Maine primarily between recent in-migrants and residents over educational policy (Ploch, 1978:302).

Rathage studied a turnaround county in Michigan and concluded that there was a direct impact on the educational institution. The school population increased creating severe overcrowding. School bond requests became difficult to pass. New or improved services were demanded by new residents (Rathage, 1982:25-26).

Price and Clay concluded that the consequences of population growth in rural areas may upgrade the skill level of the labor force, proved support for previously unavailable services and generate the necessary income for commercial and business enterprises. The impact can be jarring as was evidenced in the conflict between the values and needs of in-migrants and "oldtimers" (Price and Clay, 1980).

Health and Welfare Services

A sizable increase in the proportion of persons in a rural community or area with experience in the professions and managerial occupations is likely to have profound developmental and policy consequences. The demands for services vary from the resident population. The kinds of services the in-migrants can provide are quite

often in short supply, such as physicians. Ploch found for the first
time in many years that a number of rural Maine communities had an
adequate number of health practitioners (Ploch, 1978:302).

Thus, because of their value orientations and potential use-
fullness as employees, employers, and public office holders, in-
migrants may well be a rural development resource. Because of their
youth, high levels of advanced education and upper white collar
training, these inmigrants can positively impact their communities
(Ibid).

Rathge cites further studies in Washington's Puget Sound,
northern California, and northern Arkansas where an influx of popula-
tion initiated heightened anxiety among oldtimers and newcomers and
erupted into bitter conflict. Rathge found that there is a direct
impact on four specific social institutions: education, government,
economy, and health and social services in a turnaround county in
Michigan. New or improved services were demanded by inmigrants and
health care and welfare facilities were strained (Rathge, 1982:25-26).

Summary of Turnaround

Age. Migration varies inversely with age and the greatest
propensity to migrate is in the age group 20-29 years. There is also
a selection of migrants at retirement in the age group of 65-75 which
has an impact on turnaround counties.

Sex. There appears to be little selectivity according to
sex.

Education. Migration is highly selective with respect to

education. The higher the level of education the more likely people are aware of different opportunities and amenities elsewhere.

Occupation. More highly skilled persons are more likely to migrate into areas. Turnaround counties are likely to have less employment in agriculture but more employment in manufacturing.

Services and Institutions. Services and institutions may expect overload, stresses and strains. It takes time for an area to adjust to large or sudden increases of people because it takes time and funding to build and equip new institutions.

II. RESEARCH HYPOTHESES

The literature review presented migration patterns and the relationship between those patterns and selected demographic and socioeconomic variables.

The hypotheses are written in reference to patterns of net migration. Viewing migration on a continuum, it was expected that certain relationships changed as the pattern of net migration moved from in-migration patterns to high out-migration patterns. It was anticipated that the characteristics of out-migration counties were the opposite of the characteristics of in-migration counties.

The specific patterns of net migration for this study were as follows:

    (1)   in-migration, 1970 and 1980
    (2)   turnaround migration, out-migration 1970 and in-
          migration in 1980
    (3)   reverse turnaround, in-migration 1970 and out-migration
          1980
    (4)   out-migration, below 15 percent migration 1970 or 1980

(5) high out-migration, 15 percent out-migration and over for both decades.

The greater the pattern of net migration refers to the greater the out-migration.

It was hypothesized that the characteristics of turnaround counties would be found between the out-migration and the in-migration. But Brown and Beale (1981) stated that turnaround counties in their study were closer in characteristics to out-migration counties. This may be due to two specific factors. Though turnaround is technically in-migration, the turnaround pattern is historically new. Therefore the impact of it was expected to be different than continuous in-migration. In addition, the magnitude of turnaround varied within the counties of South Dakota. This may also result in differences in the selected demographic and socio-economic variables. The following research hypotheses emerged from the literature:

Demographic Factors

It was hypothesized that:

Fertility

1. The greater the pattern of net migration the greater the percent decrease in the crude birth rate.

2. The greater the pattern of net migration the greater the percent decrease in the fertility rate.

Mortality

3. The greater the pattern of net migration the greater the

percent increase in the crude death rate.

4.   The greater the pattern of net migration the greater the percent increase in the infant death rate.

Age Composition

5.   The greater the pattern of net migration the greater the percent decrease in the proportion of young children as measured by the child dependency ratio.

6.   The greater the pattern of net migration the greater the percent increase in the proportion of young adults as reflected in the young adult ratio.

7.   The greater the pattern of net migration the greater the percent increase in the proportion of older adults as reflected in the index of aging.

8.   The greater the pattern of net migration the greater the percent increase in the general dependency ratio.

9.   The greater the pattern of net migration the greater the percent change in the age dependency ratio.

10. The greater the pattern of net migration the greater the percent change in the median age.

Sex Composition

11. The greater the pattern of net migration the greater the percent increase in the sex ratio.

<h2 style="text-align:center">Socioeconomic Factors</h2>

It is hypotesized that:

Education

12. The greater the pattern of net migration the greater the percent increase in the proportion of adults 25 years old and over with a high school education.

13. The greater the pattern of net migration the lower the percent increase in the number of schools per resident.

14. The greater the pattern of net migration the lower the percent increase of the number of teachers per student.

15. The greater the pattern of net migration the lower the percent increase in the number of students.

16. The greater the pattern of net migration the lower the percent increase in the average daily membership of students.

17. The greater the pattern of net migration the lower the percent increase in the cost per average daily membership.

Economics

18. The greater the pattern of net migration the greater the percent increase in the percent employed in agriculture.

19. The greater the pattern of net migration the greater the percent increase in the percent unemployed.

20. The greater the pattern of net migration the greater the percent change in employment.

21. The greater the pattern of net migration the lower the percent increase in the percent employed in selected nonagricultural industries (wholesale, retail, service and manufacturing).

22. The greater the pattern of net migration the greater the percent increase in the proportion of individuals below the

poverty level.

    23. The greater the pattern of net migration the lower the percent increase in the per capita income.

Health

    24. The greater the pattern of net migration the lower the percent increase in the proportion of hospitals per resident.

    25. The greater the pattern of net migration the lower the percent increase in the personnel employed in the hospitals.

    26. The greater the pattern of net migration the lower the percent increase in the proportion of hospital admissions.

    27. The greater the pattern of net migration the lower the percent increase in the payroll in the hospitals.

Business

    28. The greater the pattern of net migration the lower the percent increase in the proportion of business.

    29. The greater the pattern of net migration the lower the percent increase in the number of business employees.

    30. The greater the pattern of net migration the lower the percent increase in the business payroll.

Institutions

    The institutions were those reported as total schools, total businesses and total hospitals. The greater the pattern of net migration the lower the percent increase in these institutions.

Definition of terms

Migration is the movement of population; the movement of people

across a specified boundary for the purpose of residing (Shryock, 1976:349).

Net migration is the net effect of inmigration and out-migration on an area's population expressed in positive or negative terms (Ibid:363).

Migrant one who changes residence between communities (Ibid:349).

Nonmigrant one who does not change residence (Ibid).

High net out-migration defined for this study as a negative rate of migration at 15 percent or higher (McNamara, 1974:14).

Turnaround migration occurs over a two decade period when an area that gains population after previously losing population (Sofranko et al. 1981:109).

Urban is a Census designation that includes all cities of 50,000 or more inhabitants and settled areas around them, plus all incorporated and unincorporated places with at least 2,500 inhabitants. (Population Reference Bureau, 1978:39).

Rural an area with a population of less than 2,500 (Ibid).

Metropolitan area is a Census designation of a large concentration of population usually an area with 100,000 or more inhabitants and containing at least one city with 50,000 or more inhabitants and those administrative areas bordering the city which are socially and economically integrated with the city (Ibid).

Nonmetropolitan area is a Census designation of an area smaller that the metropolitan area (Ibid).

Out-migrant is one who leaves the area of origin (Weeks, 1982:151).

In-migrant is in reference to the area of destination (Ibid).

Birth rate indicates the number of live births per 1,000 population in a given year (Population Reference Burea, 1978:17).

Death rate is the number of deaths per 1,000 population in a given year (Population Reference Bureau, 1978:27).

Natural increase is the surplus of births over deaths in a given population in a given time period (Ibid:56).

Natural decrease is the deficit of births over deaths in a population in a given time period.

Sex ratio is the number of males per 100 females in a population (Ibid:58).

Age-dependency ratio is the ratio of persons in the ages defined as dependent (under 15 and over 64 years) to those in the ages defined as economically productive (15 to 64 years) in the population (Ibid:51).

CHAPTER III

THEORETICAL ORIENTATION

Kerlinger states that the ultimate aim of science is theory.
He defines theory as "a set of interrelated constructs (concepts),
definitions and propositions that present a systematic view of
phenomena by specifying relations among variables, with the purpose
of explaining and predicting the phenomena" (Kerlinger, 1973:9).

Migration as a Theory

To what extent does migration theory "fit" into this defin-
ition? Actually, "Migration, in the sense of "a permanent or semi-
permanent change of residence" (Lee, 1966:49) is one of the most
significant yet one of the least understood of all human behaviors.
At least since the late nineteenth century when Ravenstein formulated
his "laws of migration" social scientists have made periodic attempts
to develop a more adequate theory of migration" (Frisbie and Poston,
1978:6).

> The question has been debated in the field of migration
> studies as to whether it is possible to formulate an
> explanatory theory general enough to cover the whole process
> of emigration and immigration. Charles Price thinks it is
> doubtful that we are ready for a general account couched in
> terms of formal theory (Price, 1966). On the other hand,
> Everett Lee has attempted to present a general theory (Lee,
> 1966). (Mangalam and Schwarzweller 1970:5).

It has become increasingly apparent that there is a lack of
theoretical orientation in migration. Typologies of migration have
been constructed and many efforts at model-building have been
attempted regarding various aspects of migration. Much of the

research has dealt with the reasons for migration but few have investigated the relationships between migration and other aspects of the social system.

Shaw analyzed the difficulties in migration theory. He stated that there was a "surprising lack of systematically accumulated knowledge on the subject." What knowledge was available dealt with characteristics of migrants and the factors that influence migration. Yet this information remains fragmented and largely unintegrated (Shaw, 1975).

Further, Mangalam and Schwarzweller stated that:

> A sociological theory of migration which meets the strongest demands of formal theory is not likely to materialize in the near future. For, despite a long history of empirical inquiry, researchers are only beginning to do the hard work of conceptualizing of the phenomenon, systematically positing causal sequences and testing relevant hypothoses, all of which must necessarily precede a formal statement of theory (Mangalam and Schwarzweller, 1970:6).

Stone summarized the major difficulty in migration theory in the following manner:

> Almost all of what has passed for substantive theory in the literature about migration lists factors believed to be relevant in explaining migration but there is no theory about simultaneous interaction of the factors, and no attempt is made to formulate general causal models (Stone, 1971:76).

Shaw (1975) emphasized five basic reasons for the difficulties found in migration theory.

First, was the difficulty in actually conceptualizing what migration means. Is it recurring or nonrecurring, is it a unique event or a process; is it a flow or stream? Should it be expressed as a rate and if so, which one; net in-migration, net out-migration

or as gross migration?

Second, a basic confusion resulted from the fact research designs in migration are discipline bound. That is, there are demographic studies, economic studies or psychological studies, all of which have their own interpretations of migration and purposes. This situation does not lend itself to strong integration in migration theory.

Third, the information regarding scientific explanations of migration have been sidestepped in lieu of establishing levels of prediction or even control over the migration phenomenon. In this case, migration was viewed more as a sociopolitical problem.

In the fourth case, Shaw determined that due to the need of speedy accumulation of data, specific theory building concerns such as concepts, testable networks of propositions and even the building of models has been overlooked. On the other hand, some have tried to fit everything together in terms of migration. This often resulted in a morass of descriptive detail and an inability, in the long run, to infer any statements of theoretical worth (Shaw, 1975:4).

Finally, Shaw stated that the empirical variables used in migration studies have seldom been clearly measurable and therefore have been difficult to fit into theoretical constructs. This results in a difficulty in showing interrelationships.

It was Shaw's view that the most immediate task in contemporary migration research was the need to systematize knowledge on migration

He presented three prerequisites to formulating theory:

1) Establishing a general association between a migration
   event and one or more phenomena

2) Determine conceptual differentiation and also conceptual
   synthesis and

3) Utilization of quantification techniques towards estab-
   lished rules of correspondence for relating a construct
   to observable data and to provide a more manageable repre-
   sentation of the complex relationships between variables
   (Shaw, 1975:11).

These prerequisites were at the very basis of ascertaining repeatable

patterns of dependency in the overall picture of migration theory.

This work specifically addressed the question of the relation-

ship between the migration pattern and changes in demographic charac-

teristics and also changes in educational, economic, and health

variables.

Migration in the Social System

Theoretically, the determination of the relationship between

migration patterns and changes in the demographic socioeconomic

characteristics was not an easy task. Much of the research to date

has dealt with the explanations of who migrates, why people migrate,

and where they migrate. These relationships were more clearly

discernable and related very often to economic choices. But the

question of what were the consequences of migration in terms of

social reorganization and/or adjustment was a far more difficult

problem to research.

One of the reasons for this difficulty was the interre-

lationship that is apparent between migration and other variables.

At times it may not be possible analytically to isolate
whether a particular element is an independent or a dependent

process-- all we will know is that the elements are
correlative. When viewed in some time perspective, the
population system elements tend to have a chain reaction,
each becoming a determinant and subsequently a consequent of
the other (Goldscheider, 1971:15).

It has been suggested that there is an actual synergistic or

combined effect between changes in the population and subsequent

adjustments or changes in the social system. Because the social

process is in constant flux and change, an action in one segment such

as the migration process has a reaction in the social system which

thereby feeds back into the migration process (Coehen and Fox,

1981:606-607).

GENERAL THEORETICAL ORIENTATION

To determine a clear perspective of migration it was

important to clarify the general orientation of this research.

Models of internal migration express theories of causation,
usually in quantitative terms, in order to estimate and
predict volume and other characteristics of migration flows.
Migration may apply to groups of people, to individual
migrants, or to a dimension of migration such as net
migration or in-migration. Some models incorporate change in
operating characteristics over time and others are static. A
model may be deterministic, in that precise relationships
between migration and preceding conditions or events are
defined, it may be probabilistic and deal with likelihoods of
migration for specific populations or it may combine these
perspectives (McNamara, 1982:351).

This research was concerned with the dimension of migration

that included net migration. The analysis involved changes in charac-

teristics over time. In fact, the analysis dealt with patterns of

migration, particularly high out-migration and turnaround migration.

The context in which this occurs was the primarily rural setting of

South Dakota. This work did not look at what preceded migration but rather what followed migration.

Macroanalytic vs. Microanalytic Orientation

One of the summary classifications of the theoretical models of population is that of macroanalytic versus microanalytic. The macroanalytic models focus on individual behavior and the social and psychological determinants of mobility. The unit of analysis is the individual(Goldscheider, 1971; Matras, 1973).

This research was of the macroanalytic model since it was con-cerned with the aggregate of the county level in South Dakota. It investigated the process and consequences of migration. In doing this, a clearer understanding of the migration process was the end result.

Population Studies vs. Formal Demography

Many authors have discussed the formal demography vs. population study classification (Petersen, 1975; Matras, 1973; Goldscheider, 1971; Ford and DeJong, 1970; Bogue, 1969 and Kammeyer, 1971).

Petersen discussed three different models of population analy-sis. First was a self-contained process which analyzed trends in population. Population was the dependent variable in this case. The second model looked at the population processes as the dependent variable related to natural resources, economic growth, social mobility or family norms. Finally, population may be viewed as an independent variable that was a cause of change in the economy or in society (Petersen, 1975).

When the process was viewed as self contained, as in the first model, the emphasis was on the "formal demography field, that is the gathering, collating, statistical analysis and technical presentation of population data" (Ibid:3). A population study, on the other hand, dealt with the systematic study of population trends and phenomena in relation to their social setting.

A further distinction was made regarding the classification of formal demography and population studies by Kammeyer. "...the formal demographer works entirely within the realm of population facts. Population composition, age-specific fertility and mortality, and migration are all demographic factors. The most distinctive feature of formal demography is that the factors which are viewed as 'casual,' or 'independent,' variables and the factors which are the 'effects,' or 'dependent' variables, are exclusively from the province of demography." Data of formal demography come largely from census or vital registration systems (Kammeyer, 1971:1-2).

In contrast to formal demography was the "population study". "The key to the population study was that nondemographic factors were used to explain and predict variations in demographic variables. Thus the phenomena to be investigated remained the same as in formal demography" (Kammeyer, 1971:2-3). The explanation of the factors were much different in that social, psychological, cultural and historical variables among others, were used to investigate the demographic events. A study in which a nondemographic factor was the independent variable used to explain some demographic fact was a

population study Type I (Ibid).

A second kind of population study (Type II) was used when the population factors were the explanatory or independent variables and were used to explain variations in nondemographic variables. The objective of Type II studies was to explain variations in phenomena other than demographic factors (Ibid).

This study was a macroanalytic study using aggregate data on the county level. Because, in fact, it analyzed in part, the impact of demographic variables on nondemographic factors it was a population study Type II.

Due to the interrelationships within the population system, the social system perspective was a valuable orientation for this research. It was through this approach that the interrelationships between the changes in patterns of migration were viewed within the action and reaction within the system as a whole. The next section more specifically focuses on the key conceptual framework that this research follows as it attempts to explain and describe differences in migration patterns and the relevance of migration patterns to demography and socioeconomic factors.

CONCEPTUAL FRAMEWORK

This section identifies the basic elements of a population system. Ford and DeJong specify the actual relationship between the basic elements and processes within the social system. They state that the major concern of social demography is the analysis of how general social and cultural factors are related to population

structure and process (Ford and DeJong, 1970:4). In addition, the migration system of Schwarzweller will be analyzed.

Social Demography

Ford and DeJong developed a major analysis of the social demography of a system. This analytical system was defined as "a set of elements related to each other in some specified manner. The aggregate system, viewed as a total unit may be described in terms of system properties. Two properties of basic interest were the structural traits and the processes that is the composition and change features of the system (Ford and DeJong, 1969:7). For purposes of this research, the changing features of migration patterns were of key interest.

The three basic components of Ford and DeJong's over-all system included: the demographic system which includes the principal elements of population: size, composition, distribution, fertility, mortality and migration. The second major component is the social aggregate system which includes the elements of marital status, residency, race, labor force, occupation, education, and income. The final component is the social action system. This includes the elements of informal groups, associations, communities, religious institutions, educational institutions, welfare institutions, health and political institutions as well as the marriage and family institutions (Ibid:3-14).

The basis for the definition of these analytical systems was given by the set of elements which were related to each other in some

specified manner. The systems approach developed the idea of inter-

relationships between the components themselves. The demographic

system included elements which impact other demographic variables.

For example, migration affects the age and sex composition which is

related to births and deaths. Further, a basic conceptual framework

emerged from the realization that the principal elements of the

demographic system, which for purpose of this paper were the in-

migration and outmigration elements, were directly related to the

social aggregate system. Those elements included marital status,

labor force participation, occupation, education, and income.

Finally these components were further related to the social action

system in terms of the communities, and various institutions which

were established to meet the needs of the aggregate population (Ford

and DeJong, 1971:13). See Figure 1.

In addition to the particular element traits and processes

discussed, Ford and DeJong continued by discussing the system traits

and system processes which emerged in the social system. Within the

demographic system were the system traits of population size affected

by fertility, mortality, migration and also the sex and age

composition. The social aggregate system included the system traits

of residential distribution, racial composition, composition by labor

force participation, composition by occupation, education, and

composition by income. The social action system traits included

those sub-systems that developed to meet basic human needs and are

the institutional systems such as schools, hospitals, welfare

Principal Elements:

    Population Size
    Composition
    Distribution
    Fertility
    Mortality
    Migration

Demographic System

Social Action System

Social Aggregate System
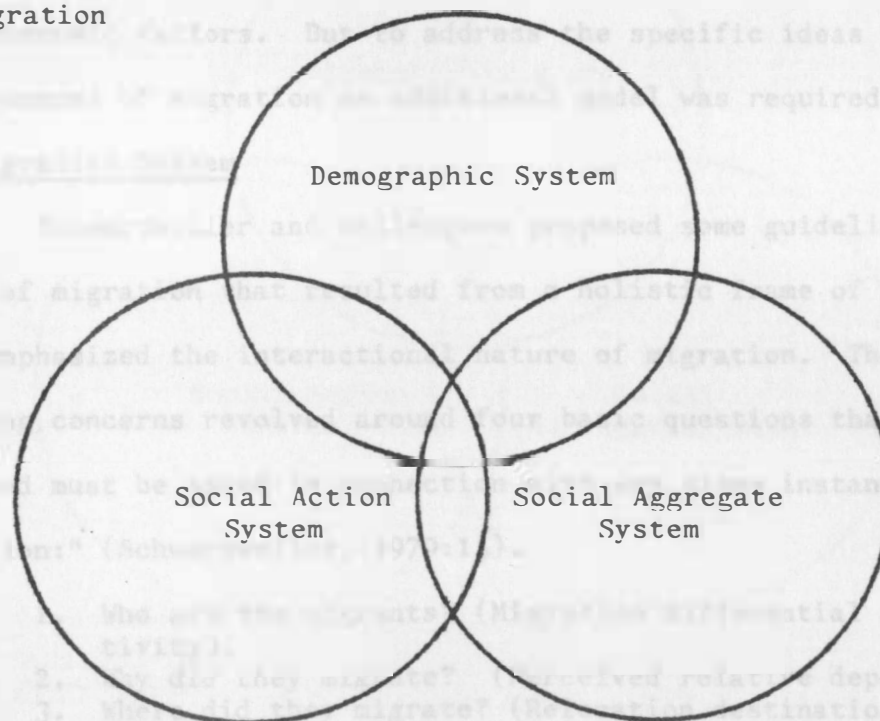
Principal Elements:

    Informal Groups
    Associations
    Communities
    Marriage and Family institutions
    Economic Institutions
    Health and Welfare Institutions
    Educational Insititutions
    Religious Institutions

Principal Elements:

    Marital Status
    Residental Distribution
    Race
    Labor Force Participation
    Occupation
    Education
    Income

Figure 1. Major analysis systems in social demography. Source: Ford and DeJong 1970:13.

systems, the family and marriage, and the churches (Ford and DeJong, 1971:13). See Figure 2.

This was the overall conceptual model used to explain the relationship between migration patterns and selected demographic and socioeconomic factors. But to address the specific ideas of the consequences of migration an additional model was required.

The Migration System

Schwarzweller and colleagues proposed some guidelines for the study of migration that resulted from a holistic frame of reference that emphasized the interactional nature of migration. Their "theory building concerns revolved around four basic questions that they believed must be asked in connection with any given instance of migration:" (Schwarzweller, 1979:15).

1. Who are the migrants? (Migration differential and selectivity).
2. Why did they migrate? (Perceived relative deprivation).
3. Where did they migrate? (Relocation destination).
4. What are the consequences of migration? (Social reorganization and/or adjustments) (Ibid).

In this conceptual framework, Schwarzweller merged both a microperspective of individual concerns of migration as indicated in the first three basic questions and macro orientations in the impact of migration on the social system as reflected in the fourth question.

The particular value in Schwarzweller's model was in fact the combination of two important processes that previously have been separated and even isolated from each other, as McNamara states:

Principal System Traits:

    Population Size
      Fertility
      Mortality
      Migration
    Sex Composition
    Age Composition

Demographic System

Social Action System

Social Aggregate System
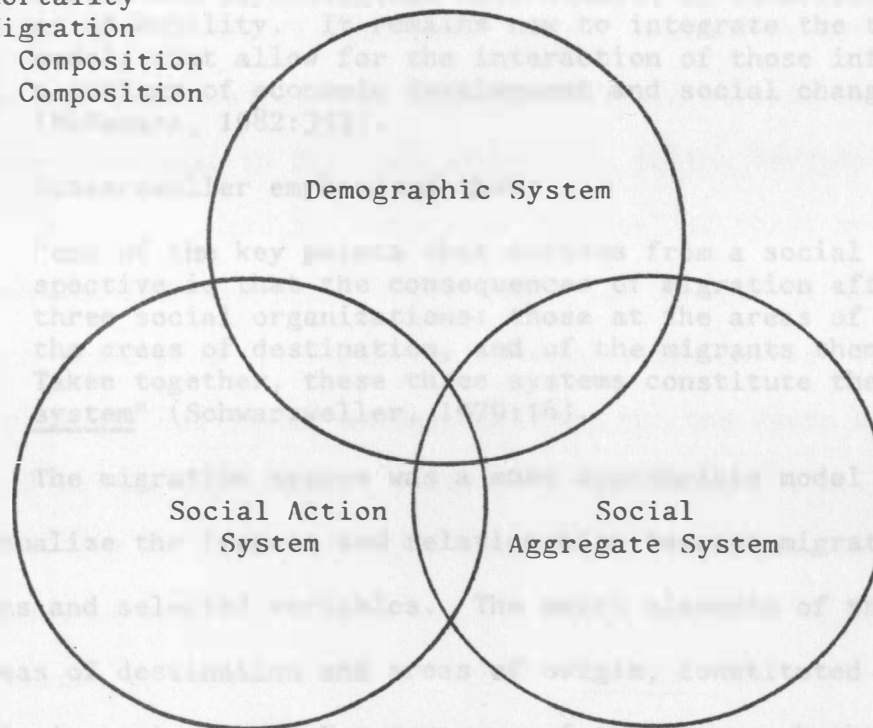
Principal System Traits:

    Informal Groups
    Associations
    Communities
    Churches
    Schools
    Social Services
    Retail trade centers
    Political parties
    Marriage and family

Principal System Traits:

    Racial Composition
    Residential Distribution
    Marital Status Composition
    Composition by Labor Force
      Participation
    Composition by Occupation
    Composition by Educational
      Attainment
    Composition by Income

Figure 2. The conceptual frame of reference for the process of the
        social system. Sources: Ford and DeJong, 1971:11;
        Butterbrodt, 1979:41.

"The macroanalytic models focus on the ecological
determinants of population flows, like size and distance.
The microanalytic models focus on individual behavior and
social and psychological determinants of immobility as well
as of mobility. It remains now to integrate the two in
models that allow for the interaction of those influences in
a context of economic development and social change
(McNamara, 1982:353).·

Schwarzweller emphasized that:

"one of the key points that derives from a social systems per-
spective is that the consequences of migration affect all
three social organizations: those at the areas of origin, at
the areas of destination, and of the migrants themselves.
Taken together, these three systems constitute the migration
system" (Schwarzweller, 1979:16).

The migration system was a most appropriate model to further

conceptualize the impacts and relationships between migration

patterns and selected variables. The macro elements of this process,

the areas of destination and areas of origin, constituted the basis

for this investigation. For purposes of this research the areas of

destination were the turnaround counties while the areas of origin

were the high out-migration counties. Bogue (1969) summarizes some

of the characteristics and the processes involved in the areas of

origin and areas of destination.

KEY CONCEPTS AND PROPOSITIONS OF MIGRATION

Area of Destination

A key factor in this study was that migration is selective.

First it is selective in destination. Based upon research in

England and several other nations, Ravenstein determined seven laws

of migration occurring in the 1800s. These laws still apply today.

First, migration was related to distance. As the distance from a

certain place increases, fewer will migrate. Second, migration

occurred by stages exemplified by the movement from a city center and

slowly outward to the "hinterland." Third, there were definite

streams and counterstreams in migration. These streams in the U.S.

have been from East to West and from South to the Northeast and North

Central states. There has been some reversal of these trends in the

U.S. between 1950 and 1960, where there was an upsurge in migration

into the South from the northern and midwestern states. The West

still receives one of the strongest flows but the South has now taken

the lead in the U.S. (Weeks, 1982:159). Further, the migratory

stream in the U.S. has been from rural to urban areas. This has seen

a reversal in the last decade wherein there has been a movement from

metropolitan to nonmetropolitan areas. Fourth, there were urban-

rural differences in propensity to move. Typically the urban

populations were less migratory than rural populations. Fifth,

females tended to be short-distance migrants. Sixth, technological

development tended to promote greater rates of migration. Seventh,

there was a dominance of the economic motive. People moved to

improve their economic condition and this was the most potent force

in migration decisions (Bogue, 1969, 755-756).

Each of these seven "laws" were related to the impact of

migration on areas of destination. Of special importance was the

understanding of streams and counterstreams. The literature review

indicated there were differences in the selectivity within these

streams, hence differences in the impact. This also accentuated the

importance of further study of the turnaround pattern in essence a counterstream in the typical rural to urban migration pattern.

That rural people were more likely to migrate also explained a further characteristic in the migration patterns. One would have expected more people in the rural to urban stream which was reflected in the high out-migration patterns. We found an exception to this with the turnaround pattern of urban to rural. Are those turnaround migrants actually rural origin people? This would require further research.

The next key statement dealt with the economic motive to migration. Economic gains or opportunities have typically been an important determinant in migration decisions. The literature reflected that people tended to move from farms and agriculture to nonfarm types of employment. Hence this further clarified the areas of destination and origin, in terms of agricultural employment. Further clarification on areas of origin was discussed by Bogue.

Area of origin

Historically in the U.S., the general pattern of migration has been one of moving from rural areas to urban areas. The area of origin or place that people leave may be affected in several ways depending upon the number of people leaving and the types of people who leave. If surplus population migrate, it may result in better economic circumstances for those left behind due to a decrease in overcrowding. The case has more generally been that the places left behind lose the younger, brighter, more innovative people (McNamara, 1982:356-57).

Thus a key to the theoretical understanding of migration was a clarification of the selectivity of migration and the impact this had on the social system. Bogue discussed the following categories: Sex. Males and females were equally residentially mobile but males tended to be slightly more mobile and move over longer distances. Residence. Urban and rural-nonfarm populations were more mobile than rural-farm populations. Migration has been from rural areas to urban and more specifically, migration has been away from farms. Age. This was one of the especially important factors in migration. The peak mobility takes place as adulthood is attained. The rates were highest for people 18 to 34. Color. Nonwhites were substantially more mobile than whites. Education. Migration was particularly selective of the better educated. The rate of migration varies directly with the level of educational attainment. Occupation. As the educational differentials reflect, the rates were higher for white-collar workers than for blue-collar workers. Professionals were most mobile, followed by managerial-proprietors. Nonfarm laborers were least mobile. Males and females not in the labor force also had high mobility (Bogue, 1969:760-771).

To summarize this, we expected a differential impact of migration on area of origin due to the selective nature of migration. Those who stayed behind were more likely farm people, of older age groups, white, of lower educational attainment and blue collar or nonfarm laborers.

Application of Theory in This Research

Technically, this research was interested in what was happening to the areas of origin or destination where migration occurred. From the standpoint of a contribution to demographic theory and research, either of two variables could have been chosen as the independent variable of the study--overall population change or migration. Researchers such as Brown and Beale have selected overall population change as the key variable for categorizing nonmetropolitan counties on the basis of population dynamics. On the other hand, migration appeared to offer the greater opportunity for a careful consideration of the basic dynamics of the demographic changes in the populations at risk.

Migration types. As a contribution to demographic theory, this study employed a classification of migration. What was developed was the formulation and explanation of the basic types of migration in South Dakota in order to assess the characteristics of such categories. Although the major types of migration developed for this study, high out-migration and turnaround, were created independently from the work of Brown and Beale and Poston, these categories permitted a comparison with their work.

In using this typology of migration, the research was in essence employing one of the basic formats of theory as described by Turner (1981). He considered classification and the development of typologies to contribute to theory construction in as much as they provided one way to understand the relationships among the phenomena

by seeing them as parts of a larger whole (Turner, 1981:4). Turner further maintained "that typological explanations are often stimulus for other types of scientific explanations. Until one knows the pattern or configuration of phenomena, it is often impossible to know what requires further explanation" (Ibid:5).

The utilization of typologies in this kind of research was supported by Poston when he comments on the migration typology developed by Brown and Beale (1981). He stated that the use of typologies in migration research was innovative and ingenious. In fact, he said that information was gained through the classification system that would have been lost had the nonmetropolitan counties studied been left in an undifferentiated status.

In developing the migration patterns in South Dakota counties five categories were employed to better describe and explain net migration patterns: countinuous in, turnaround, reverse turnaround, moderate out-migration and high out-migration. Using a typology developed by McNamara (1974), out-migration was categorized as high out (over 15 percent), moderate out was below 15 percent for one of the two decades.

To summarize what has been said thus far, Ford and DeJong presented a clear conceptual model of how the different subsystems within the total social system interacted and reacted on each other. Schwarzweller more clearly specified a model for the interaction in the migration system of the total social system.

From Ford and DeJong's view of the interrelationships between

the demographic system and the social aggregate system, there emerged

a relationship between migration patterns and the composition by

labor force participation, composition by occupation, educational

attainment, and income. As changes occurred in these characteristics

subsequent changes or reorganization occurred in the social action

system. Those changes were reflected in changes in structures,

facilities, and personnel of the educational, health and economic

institutions. This was in line with population studies Type II with

the independent variable being demographic, migration, and the

dependent variables being at least in part, nondemographic in the

socioeconomic portion of the analysis.

Schwarzweller's model contributed a context in which to view

the Ford and DeJong model. We focused on the area of origin:

primarily reflected in the high out-migration counties which are

charactistic of the places left behind. Areas of destination were

represented by the turnaround counties--that is this impact on the

counties to which migrants move.

Finally, the incorporation of typologies of counties by

migration patterns, presented a clear context in which to analyze the

relationships between types of migration and selected demographic and

socioeconomic factors over a two decade time period.

Specific Conceptual Model

The specific conceptual model that emerged for this theo-

retical orientation was represented in Figure 3.

Propositions

Figure 3. CONCEPTUAL FRAMEWORK

OF THE RELATION OF SOCIAL DEMOGRAPHIC SYSTEMS

GENERAL
DEMOGRAPHIC SYSTEM

GENERAL
SOCIAL AGGREGATE SYSTEM

GENERAL
SOCIAL ACTION SYSTEM

MIGRATION PATTERNS   DEMOGRAPHIC   SOCIAL AGGREGATE CHANGES   SOCIAL ACTION CHANGES
                         CHANGES

SPECIFIC DEMOGRAPHIC   SPECIFIC   SPECIFIC   SPECIFIC
       SYSTEM   DEMOGRAPHIC   SOCIAL AGGREGATE SYSTEM   SOCIAL ACTION SYSTEM
                   CHANGES

HIGH OUT-MIGRATION

CHANGES AT ORIGIN

                   AGE AND SEX COMPOSITION   RESIDENTIAL COMPOSITION   INSTITUTIONAL
                                                                           COMPOSITION
                   FERTILITY AND MORTALITY   COMPOSITION BY LABOR FORCE   EDUCATION

                   DEPENDENCY RATIOS   COMPOSITION BY OCCUPATION   ECONOMICS

                                            COMPOSITION BY EDUCATIONAL   HEALTH AND WELFARE
                                            ATTAINMENT

TURNAROUND MIGRATION

                                            COMPOSITION BY INCOME

CHANGES AT DESTINATION

The following propositions were derived from the literature

review and theoretical orientation:

1. The relationship of elements within a social system are such that changes in one part of the system affect changes in the other parts.

2. Changes in the population due to migration affect the demographic characteristics in the population.
   a. Out-migration
   b. Turnaround migration

3. Changes in demographic characteristics affect social characteristics of the population.
   a. Out-migration
   b. Turnaround

4. Changes in the demographic characteristics of the population affect economic characteristics in the population.
   a. Out-migration
   b. Turnaround

5. Changes in the demographic, social and economic characteristics of the subsequent social services developed to perform certain functions in the system.
   a. Out-migration
   b. Turnaround

CHAPTER IV

RESEARCH DESIGN AND METHODOLOGY

This chapter reviews the methodology to be used in the research of the dissertation. This includes the definition of the unit of analysis, the operational definitions of the independent and dependent variables, definition of other basic terms and concepts pertinent to this research and the mode of analysis employed in the research design.

Basic Data

Unit of Analysis. The unit of analysis employed in this study was the governmental unit known as the "county." Data at the county level were provided by U.S. Census, vital statistics and additional summary reports of agencies in the state of South Dakota.

The county was the basic unit of analysis though information was presented on a state and a regional basis as well. "Many scholars have used the county as an analytical unit for research. While it is true that the counties are political entities, counties do possess functional coherence over and above their political definition (Frisbie and Poston, 1978:21).

There are sixty-six counties in the state of South Dakota. This reflects the change in the status of Washabaugh county which merged with Jackson on January 1, 1979. The basic demographic and socioeconomic characteristics of all counties of South Dakota are presented for both 1970 and 1980. These were compared for extent of

change occurring over the ten year period.

Demographic changes in a population occur in two basic ways; first through the processes of fertility and mortality and second through net migration, either in-migration or out-migration. Changes resulting from fertility and mortality were termed population change. Alterations due to migration were designated changes as a result of net migration.

Which of these two modes of change i.e., population changes or net migration, should be used in this particular study? Brown and Beale (1981) studied diversity in nonmetropolitan counties using population change. In reviewing their work, Poston (1983) stated that their research was very innovative and creative but he felt they missed important information because they did not use net migration as their indicator of demographic change. In his replication of their study, Poston compared net migration with their population change data. He concludes that net migration is a better indicator of the demographic process as it related to changes in his selected socioeconomic variables. In fact, Poston states that "perhaps the diversity in population trends might have been better indicated--or at least differentially portrayed-had the authors focused on change due to net migration rater than on total population change" (Poston 1983:28).

This finding lent support to the mode of demographic change selected for this study, i.e. net migration. The contention was that population change was the broader concept that included changes due

to increases and decreases in the number of births or deaths as well as migration. On the other hand net migration focused on the one demographic process that had a selective effect on the population and thereby was a source of change in the sociodemographic composition of that population.

In fact when Poston replicated the Brown and Beale study, he found that by using net migration, the magnitude of the importance of the variables was increased dramatically. Because of this finding--and because of the distinctively high rates of net migration in South Dakota over the past decades, net migration was employed as the measure of change in demographic trends.

Net Migration

Net migration for the counties was estimated in the following way:

> Census counts of the total county population were first employed to obtain the net change in the population for the decade. Estimates of births and deaths were reported through the vital statistics office. Net migration was then estimated by subtracting births and adding deaths to the net population change. The net migration estimates reflect the number of net migrants (positive or negative) for each county between 1970 and 1980. To standardize for size, percentage net migration change scores were obtained for each county by dividing the net migration estimate by the county's 1970 population for the 1980 percent change (Frisbie and Poston, 1978:20).

The following formula is of the residual method which uses the vital statistics process.

Net Migration= $(P_1 - P_2)$ - (Births - Deaths) (Bogue, 1969:759).

Net migration equals population change during the intercensal period where P_1 is the censal period just ended and P_2 is the censal year where measurement begins minus the natural increase or births minus deaths during the time period. The result is the difference between the total number of persons moving into an area during a given intercensal period and the number moving out. Thus it reflects both the in-migrants and the out-migrants (Ibid).

Several words of caution are in order when using migration data. First net migration was determined by a residual method in this study. This means that the figures were obtained by employing population counts from 1970 and 1980 and also the number of births and deaths in the same time frame. These migration calculations thus "incorporate any errors resulting from differential underenumeration in the censuses and any errors in the birth and death components. In spite of this, the Census Bureau has shown that the migration estimates are fair approximations of the actual level and pattern of migration" (Ibid).

Further, in interpreting the net migration numbers, these did not reflect the volume of the in-migration or the volume of out-migration, but only the balance or difference between the two migration streams. Migration data of movement in each direction would have been preferred, but these data were difficult to obtain.

Patterns of Net Migration

In addition to the use of net migration rates, this study further investigated patterns of net migration that have occurred over two decades. Using the net migration rates it was determined

which counties were classified as in-migration counties (in-migration in 1970 and 1980); turnaround counties (out-migration in 1970 and in migration in 1980); reverse turnaround (in-migration in 1970 and out-migration in 1980); low to moderate out-migration (less than 15 percent out-migration during one decade); and high out-migration (15 percent out-migration and over, 1970 and 1980).

Why use these categories? Poston contends that "a single analytical model does not provide the best explanation for the post-1970 population trends of the nonmetropolitan counties of the United States." (Poston, 1983:29). This means to classify all counties as either urban or rural or nonmetropolitan or metropolitan loses some of the important explanatory power available with further categorization.

In essence, all of nonmetropolitan America is not alike--just like all counties of South Dakota are not alike. To aid in better understanding the uniqueness of the counties the categorization into five categories was useful.

In addition, the "pattern" of migration was used to describe two decades and reflected the change that occurred between two censal time periods. Rather than looking at only one time period, 1970 or 1980, by using patterns of migration we constructed an indicator of the process that took place from 1970 through 1980.

Ecological Correlation

This study used the "ecological correlation" techniques of research. This technique was "identical to correlation as it is

generally understood, except that as aggregates, populations or areas are used as the units of observation instead of individual persons" (Bogue, 1969:537). Though migration is, in actuality, an individual act, because individuals interacting together result in the aggregate change of migration which affects a whole system, we term migration an aggregate change.

Dependent Variables

Because this study was interested in the association between net migration and other variables it was necessary to determine what selected demographic and socioeconomic variables were to be utilized. There have been numerous studies relating to quality of life (QOL) in America and more specifically in rural America. QOL measures would logically be variables to use in analyzing what characteristics which are related to change. One such study was conducted by Dillman and Tremblay (1977). In selecting the variables that were most important in QOL they stated that: "Opinions on the quality of life (QOL) being experienced by rural Americans are far from unanimous" (Dillman and Tremblay,1977:116).

What is the quality of life? It was first used to refer to economic well-being. Later it expanded as a concept to include many areas of life including educational achievement, health services, political participation, leisure time, crime rates and a seemingly indeterminate number of other conditions that somehow express the wants of humankind (Ibid:118-119). "Selecting areas of concern on which to base an assessment of objective QOL requires some degree of

arbitrariness, as there is no agreed upon list of which constitutes an adequate set of topics" (Ibid:121).

Some view rural life as one of considerable deprivation as the "people left behind." This phrase depicts the conditions under which large numbers of rural people are seen as living; that is, fewer jobs, lower incomes, fewer educational facilities, poorer health care sources...and basically too little of most important services (Ibid).

The list employed in this study parallels those of Dillman and Tremblay and those used in an analysis of social indicators in the state of South Dakota conducted by the Social Science Research Center, University of Denver, in 1973 and 1974. These variables were often used in quality of life studies or impact assessment research. Further justification for the selection of these variables comes from the Ford and DeJong model in Chapter II whereby selected demographic and socioeconomic variables are incorporated. In addition, numerous other studies have used these variables as key indicators in the social system.

The specific dependent variables in this study were measures of selected demographic and socioeconomic characteristics of the population of the counties of South Dakota. The research problem was to analyze the association between changes in these selected characteristics between 1970 and 1980 and the net migration rates. A percent change value was computed for each dependent variable from 1970 to 1980 by taking the 1980 value; subtracting the 1970 value; dividing by the 1970 value and multiplying by 100. These variables

were categorized as demographic and nondemographic. The demographic factors included birth rates, death rates, sex ratio, and age composition factors. The nondemographic factors included economic factors such as employment status, per capita income, poverty status, and business employment. Educational factors were number of pupils, teachers, schools, average daily attendance, and cost per average daily attendance. Health factors included number of hospitals, personnel in the hospitals and payroll of hospitals.

The dependent variables were operationalized as follows:

Demographic Factors

1. Crude birth rate. Percent change in the crude birth rate, 1970-1980, by county (Y_1). Crude birth rate was determined by calculating the number of live births per 1000 in a population in a given year (Population Reference Bureau, 1978:17). These figures were from vital statistics records and the U.S. census.

2. Fertility ratio. Percent change in the general fertility rate 1970-1980, by county (Y_2). The fertility rate was the number of live births per 1000 women aged 15-44 years in a given year. These figures were from vital statistics records and the U.S. Census.

3. Crude death rate. Percent change in the crude death rate 1970-80, by county (Y_3). Crude death rate was the number of deaths per 1000 population in a given year (Ibid:27). These figures were from vital statistics records and the U.S. Census.

4. Infant mortality. Percent change in the infant mortality rate 1970-80, by county (Y_4). Infant mortality rate was the number

of deaths to infants under one year of age per 1000 live births in a given year (Ibid:28). These figures were from the U.S. Census.

Age Factors

5. Dependency ratio. Percent change in the general dependency ratio, 1970-80, by county (Y_5). The general dependency ratio was the ratio of persons in the ages defined as dependent (under 15 and over 64 years) to those in the ages defined as economically productive (15 to 64 years) in the population (Population Reference Bureau, 1978:51).

6. Child dependency ratio. Percent change in the child dependency ratio, 1970-80, by county (Y_6). The child dependency ratio was the ratio of persons in the ages under 15 (Shryock, 1976:132).

7. Young Adults ratio. Percent change in the young adult ratio, 1970-80, by county (Y_7). The proportion of young adults was defined as the total number of persons in the category of 15-34 age group (Ibid:130).

8. Index of aging. Percent change in the index of aging, 1970-80, by county (Y_8). The index of aging was defined as the number of persons age 65 and over per 100 children under 15 years of age (Ibid).

9. Median age. Percent change in the median age, 1970-80 by county (Y_9). This was the age which divides a population into two equal groups with half younger and half older (Population Reference Bureau, 1978:55).

Sex Factors

10. Sex ratio. Percent change in the sex ratio, 1970-80, by county (Y_{10}). The sex ratio was defined as the number of males per 100 females in a population (Ibid.:58).

Nondemographic Factors-Education

11. Number of students. Percent change in the number of students, 1970-80, by county (Y_{11}). The number of students was determined from the Educational Statistics Digest for 1970 to 1980.

12. Number of teachers. Percent change in the number of teacher, 1970-80, by county (Y_{12}). The number of teachers was determined from the Educational Statistics Digest for 1970 and 1980.

13. Number of schools. Percent change in the number of schools, 1970-80, by county (Y_{13}). The number of schools was determined from the Educational Directory of the schools of South Dakota, 1970 and 1980.

14. Average daily membership. Percent change in the average daily membership, 1970-80 by county (Y_{14}). The average daily membership was the average number of days per student. This information came from the Educational Statistics Digest for South Dakota 1970 and 1980.

15. Cost per average daily member. Percent change in the cost per average daily member (Y_{15}). This information was obtained from the Educational Statistics Digest for the state of South Dakota 1970 and 1980.

16. High school degree. Percent change in the percent of people over 25 with a high school degree, 1970-80, by county (Y_{16}).

This was obtained from the Census of South Dakota for 1970 and 1980.

Nondemographic-Economics

17. Unemployment. Percent change in the percent of people unemployed, 1970-80, by county (Y_{17}). This information was from the Census for 1970 and 1980.

The employment by industry by county was from the Department of Commerce.

18. Agricultural employment. Percent change in the number of people employed in agriculture, 1970-80, by county (Y_{18}). This information was obtained from the Department of Commerce by compiling the number employed as agricultural proprietors and agricultural wage earners for 1970 and 1980.

19. Manufacturing employment. Percent change in the number of people employed in manufacturing, 1970-80 by county (Y_{19}) (Ibid).

20. Retail trade employment. Percent change in numbers employed in retail trade, 1970-80, by county (Y_{20}) (Ibid).

21. Wholesale trade employment. Percent change in numbers employed in wholesale trade, 1970-80, by county (Y_{21}) (Ibid).

22. Service employment. Percent change in numbers employed in services, 1970-80, by county (Y_{22}) (Ibid).

23. Below poverty level. Percent change in the proportion of people below the poverty level, 1970-80, by county (Y_{23}). This was defined as the number of persons below the poverty level in proportion to the total number of persons in the county. This was obtained from the Census data 1970 and 1980.

24. <u>Per capita income</u>. Percent change in the per capita income, 1970-80, by county (Y_{24}). This information was obtained from the Census for 1970 and 1980.

Nondemographic-Business

25. <u>Number of Businesses</u>. Percent change in the number of businesses, 1970-80, by county (Y_{25}). This was the number of businesses in the county as defined in the County Business Patterns 1970 and 1980.

26. <u>Business employment.</u> Percent change in the number of employees, 1970-80, by county (Y_{26}). This was the number of employees in the county as defined in the County Business Patterns 1970 and 1980.

27. <u>Payroll of businesses.</u> Percent change in the quarterly payroll of businesses, 1970-80, by county (Y_{27}). This was defined as the quarterly payroll as recorded in the County Business Patterns 1970 and 1980. Though annual payroll would be preferable, the annual data were not available in the 1970 report.

Nondemographic-Hospital

28. <u>Hospitals</u>. Percent change in the number of hospitals per resident 1970-80, by county (Y_{28}). This was defined as the number of hospitals recorded in the American Hospital Association Guide 1970 and 1980.

29. <u>Hospital admissions</u>. Percent change in number of hospital admissions per resident 1970-80, by county (Y_{29}). This was defined as the number of admissions to hospitals as recorded in the American Hospital Association Guide 1970 and 1980.

30. <u>Hospital payroll.</u> Percent change in the hospital pay-roll per resident 1970-80, by county (Y_{30}). This was defined as the payroll recorded in the American Hospital Association Guide, 1970 and 1980.

31. <u>Hospital personnel.</u> Percent change in the hospital personnel per resident as recorded in the American Hospital Association Guide, 1970 and 1980, by county (Y_{31}).

Additional variables that were considered dealt with welfare factors such as number of recipients of food stamps, aid to dependent children and old age assistance. Further investigation, however, determined that rules and regulations directing these programs have been altered sufficiently between 1970 and 1980 to make comparability difficult and even misleading.

<u>Independent Variables</u>

The independent variable in this study was pattern of net migration by county in South Dakota for the decade 1970 to 1980. Net migration in a population is the balance of out-migration offset by in-migration (Shryock, 1976). The data for this variable are from a study of net migration in South Dakota by Riley and Baer, (1981).

In determining how to categorize the net migration for two time periods, 1970 and 1980, patterns of migration were developed. The methodology of Brown and Beale (1981) was useful, in that they developed a similar framework for describing the sociodemographic conditions in nonmetropolitan America and were primarily interested in demographic changes due to population change. In analyzing the

post-1970 population trends, these authors developed a typology of
nonmetropolitan counties, categorizing them as follows:

(1) continuous population growth
(2) reverse turnaround (gained in 1960 and lost in 1970)
(3) continuous population decline
(4) turnaround counties (lost in 1960 and gained in 1970)
(5) extreme turnaround (over 21.8 percent growth after
     decline)

In reviewing their work, Poston stated that "The Brown/Beale

analysis of the social and demographic contents of these five types

of nonmetropolitan counties illustrated vividly the diversity in

their post-1970 population trends..." Their results demonstrated

forcefully that a single analytic model does not provide the best

explanation for the post-1970 population trends of the nonmetro-

politan counties of the United States. In one category of counties,

certain variables were the foundation for the explanation, in another

category, other variables were central. Their diversity in explan-

ation would have been lost had the authors examined the social and

demographic contents of the counties in concert (Poston, 1983:29).

This typology represents an innovative and valuable device by

which counties may be analyzed. Most of the counties of South Dakota

were experiencing out-migration. Twenty percent were in fact experi-

encing high out-migration (15 percent or more). It is necessary for

the analysis of South Dakota to further classify the out-migration

pattern. Using the categorization of McNamara (1974), high out-

migration was 15 percent and over for one or both of the decades and

low to moderate out-migration was under 15 percent for one decade.

The recent trend in turnaround migration was also recorded in

South Dakota counties. Because of the dramatic shift in migration patterns, it was beneficial to determine what demographic and socio-economic differences exist in the high out-migration counties, which show the extreme declining pattern, and the turnaround counties, which show growth pattern after declines. Therefore, these two categories were selected for basic comparison purposes.

The independent variables were operationalized as follows:

(1) Continuous growth counties (gained population in 1970 and 1980).
(2) Turnaround counties (lost population in 1970 and gained population in 1980).
(3) Reverse turnaround counties (gained population in 1970 and lost population in 1980).
(4) Out-migration counties (lost under 15 percent of the population during 1970 or 1980 or both).
(5) High out-migration counties (lost over 15 percent due to migration in 1970 and 1980).

Null Hypothesis

The following null hypothesis was tested at the 0.05 level of significance.

The independent variable pattern of net migration will not contribute significantly to the explanation of observed changes in the demographic and socioeconomic variables in South Dakota counties, when the variables are defined as specified above.

Mode of Analysis

The following discussion specifies how each of the objectives were accomplished. There were five objectives employed to answer the basic research question of what were the major demographic and socio-economic characteristics of high out-migration counties and what are the differences that distinguish out-migration counties from those counties with recent in-migration in South Daktoa from 1970 to 1980.

Statistical methods employed included descriptive tables which reported a summary of the data on net migration and population change by county in the State of South Dakota and a descriptive table reporting the migration pattern categories. Simple linear correlation was used to determine the extent of the association between the independent and dependent variables. Discriminant analysis and stepwise discriminant analysis were used to determine the degree of covariance between the counties within the migration pattern categories. Finally an analysis of variance was utilized with a Duncan Waller test of means to determine the extent of variance between the various migration patterns.

After the data on the thirty-five variables had been collected for each of the sixty-six counties in the study, the data were analyzed by computer. The .05 level of significance was used to test the r^2 and F values.

Objective One

Objective one was to determine the level and direction of net migration for the counties of the state of South Dakota 1970 to 1980.

This objective was accomplished in the writing of the paper by Riley and Baer, (1981). See Table 1. The state had a net migration rate of -4.0. Thirteen counties reported in-migration while fifty-three reported out-migration. The counties ranged from a high out-migration of -28.5 in Jones county and a high in-migration of 23.7 in Custer.

TABLE 1
NET MIGRATION IN SOUTH DAKOTA COUNTIES, 1970 AND 1980

COUNTY	POP70	NETMIG70	RATMIG70	POP80	NETMIG80	RATMIG80	PTTRNMIG
AURORA	4183	-857	-18.0	3628	-725	-17.3	5
BEADLE	22977	-2607	-12.0	19195	-2617	-12.5	4
BENNETT	3088	-547	-17.9	3044	-432	-14.0	4
BON HOMME	8577	-1151	-12.5	8059	-667	-7.8	4
BROOKINGS	22158	-133	-0.7	24332	437	2.0	2
BROWN	36920	-1448	-4.2	36962	-2829	-7.7	4
BRULE	5870	-1276	-20.2	5245	-987	-16.8	5
BUFFALO	1739	-273	-17.6	1795	-212	-12.2	4
BUTTE	7825	-1506	-17.5	8372	130	1.7	2
CAMPBELL	2866	-1001	-28.3	2243	-677	-23.6	5
CHARLES MIX	9994	-3069	-26.0	9680	-995	-10.0	4
CLARK	5515	-1739	-24.4	4894	-680	-12.3	4
CLAY	12923	790	7.3	13689	-241	-1.9	3
CODINGTON	19140	-2850	-14.1	20885	376	2.0	2
CORSON	4994	-1874	-32.3	5196	-622	12.5	4
CUSTER	4698	-523	-10.7	6000	1115	23.7	2
DAVISON	17319	-938	-5.6	17820	-611	-3.5	4
DAY	8713	-2198	-20.9	8133	-682	-7.8	4
DEUEL	5686	-1513	-22.3	5289	-485	-8.5	4
DEWEY	5170	-1194	-22.7	5366	-676	-13.1	4
DOUGLAS	4569	-976	-19.1	4181	-561	-12.3	4
EDMUNDS	5548	-1170	-19.2	5159	-622	-11.2	4
FALL RIVER	7505	-3414	-31.9	8439	898	12.0	2
FAULK	3893	-877	-19.9	3327	-619	-15.9	5
GRANT	9005	-1695	-17.1	9013	-362	-4.0	4
GREGORY	6710	-1207	-16.3	6015	-876	-13.1	4
HAAKON	2802	-852	-25.8	2794	-333	-11.9	4
HAMLIN	5520	-1009	-16.0	5261	-274	-5.0	4
HAND	5883	-1476	-22.0	4948	-1130	-19.2	5
HANSON	3781	-1235	-26.9	3415	-585	-15.5	5
HARDING	1855	-710	-30.0	1700	-256	-13.8	4
HUGHES	11632	-2969	-23.3	14220	1103	9.5	2
HUTCHINSON	10379	-1474	-13.3	9350	-1050	-10.1	4
HYDE	2515	-343	-13.2	2069	-545	-21.7	4
JACKSON	2920	-686	-34.6	3437	121	4.1	2
JERAULD	3310	-885	-21.9	2929	-439	-13.3	4
JONES	1882	-424	-20.5	1463	-536	-28.5	5
KINGSBURY	7657	-1912	-20.7	6679	-845	-11.0	4
LAKE	11456	-1196	-10.2	10724	-1247	-10.9	4
LAWRENCE	17453	-1740	-10.2	18339	-264	-1.5	4
LINCOLN	11761	-1109	-9.0	13942	1649	14.0	2
LYMAN	4060	-879	-19.9	3864	-587	-14.5	4
MCCOOK	7246	-1575	-19.1	6444	-843	-11.6	4
MCPHERSON	5022	-1180	-20.3	4027	-1004	-20.0	4
MARSHALL	5965	-1178	-17.7	5404	-567	-9.5	4
MEADE	17020	3285	27.3	20717	1762	10.4	1
MELLETTE	2420	-650	-24.4	2249	-430	-17.8	5
MINER	4454	-1179	-21.8	3739	-717	-16.1	5
MINNEHAHA	95209	-4467	-5.2	109435	5396	5.7	2
MOODY	7622	-1605	-18.2	6692	-1108	-14.5	4
PENNINGTON	59349	-12498	-21.5	70361	147	2.5	2
PERKINS	4769	-1595	-26.7	4700	-239	-5.0	4
POTTER	4449	-1223	-24.8	3674	-984	-22.1	5
ROBERTS	11678	-2811	-21.3	10911	-1433	-12.3	4
SANBORN	3697	-1137	-24.5	3213	-528	-14.3	4
SHANNON	8198	-100	-1.7	11323	981	12.0	2
SPINK	10595	-1727	-14.8	9201	-1594	-15.0	4
STANLEY	2457	-2231	-54.6	2533	-196	-8.0	4
SULLY	2362	-609	-23.4	1990	-576	-24.4	5
TODD	6606	682	14.6	7328	-790	-12.0	3
TRIPP	8171	-1604	-18.3	7268	-1477	-18.1	5
TURNER	9872	-1589	-14.2	9255	-473	-4.8	4
UNION	9643	-1216	-11.9	10938	638	6.6	2
WALWORTH	7842	-1197	-14.8	7011	-1227	-15.6	4
WASHABAUGH	1387	80	7.7				4
YANKTON	19039	-319	-1.8	18952	-1379	-7.2	4
ZIEBACH	2221	-772	-30.9	2308	-303	-13.6	4

PATTERNS OF NET MIGRATION
IN COUNTIES OF SOUTH DAKOTA 1970–1980
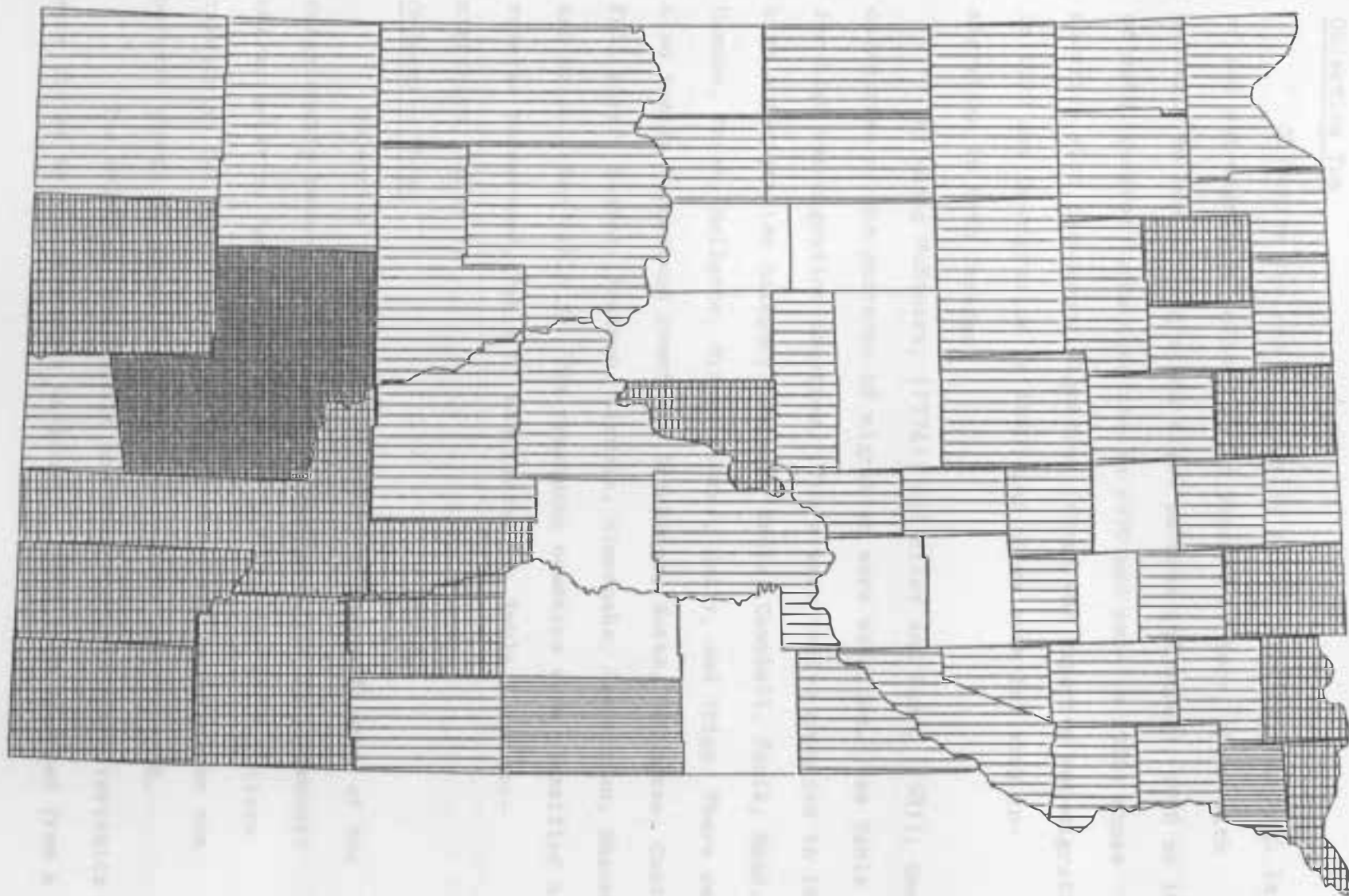
LEGEND: PTTRNMIG   IN-MIGRATION   TURNAROUND   REVERSE
        OUT-MIGRATION   HIGH OUT

Objective Two

Objective two was to identify those counties with high levels of net out-migration defined as 15 percent or more; those with moderate to low out-migration (14.9 percent and under), 1970 or 1980 or both; reverse turnaround in- in 1970 and out- in 1980; those counties with turnaround migration (those who reported out-migration in 1970 and in-migration in 1980) and those counties with in-migration in both decades.

By using McNamara, (1974); and Riley and Baer, (1981); these categories of the patterns of migration were obtained. See Table 2 for high out-migration counties. There were twelve counties in the high out-migration category: Aurora, Brule, Campbell, Faulk, Hand, Hanson, Jones, Mellette, Miner, Potter, Sully, and Tripp. There were also twelve turnaround counties: Brookings, Butte, Codington, Custer, Fall River, Hughes, Jackson, Lincoln, Minnehaha, Pennington, Shannon, and Union. See Table 3. The remaining counties were classified as reverse turnaround, Table 4; continuous in, Table 5 and out-migration, Table 6.

Objective Three

Objective three was to determine the significance of the relationship between the selected demographic and socioeconomic characteristics for all the counties and the migration pattern categories for South Dakota, 1970 and 1980 and to determine the percent change in these selected factors from 1970 to 1980.

The selected demographic and socioeconomic characteristics were listed as the dependent variables. They were selected from a

TABLE 2

In-Migration Counties in South Dakota, 1970 to 1980.*

	Net Migration Rate 1970	Net Migration Rate 1980
Meade	27.3	10.4

*Counties with in-migration for 1970 and 1980.

TABLE 3

Turnaround Migration Counties in South Dakota, 1970 to 1980.*

	Net Migration Rate 1970	Net Migration Rate 1980
Brookings	− 0.7	2.0
Butte	−17.5	1.7
Codington	−14.1	2.0
Custer	−10.7	23.7
Fall River	−31.9	12.0
Hughes	−23.3	9.5
Jackson	−34.6	4.1
Lincoln	− 9.0	14.0
Minnehaha	− 5.2	5.7
Pennington	−21.5	2.5
Shannon	− 1.7	12.0
Union	−11.9	6.6

*Counties that lost population in 1970 but gained population in 1980.

TABLE 4

Reverse Turnaround Counties in South Dakota, 1970 to 1980.*

	Net Migration Rate 1970	Net Migration Rate 1980
Clay	7.3	− 1.9
Todd	14.6	−12.0

*Counties with in-migration in 1970 and out-migration in 1980.

TABLE 5

Out-Migration Counties in South Dakota, 1970 to 1980.*

	Net Migration Rate 1970	Net Migration Rate 1980
Beadle	-12.0	-12.5
Bennett	-17.9	-14.0
Bon Homme	-12.5	- 7.8
Brown	- 4.2	- 7.7
Buffalo	-17.6	-12.2
Charles Mix	-26.0	-10.0
Clark	-24.4	-12.4
Corson	-32.3	-12.5
Davison	- 5.6	- 3.5
Day	-20.9	- 7.8
Duel	-22.3	- 8.5
Dewey	-22.7	-13.1
Douglas	-19.1	-12.3
Edmunds	-19.2	-11.2
Grant	-17.1	- 4.0
Gregory	-16.3	-13.1
Haakon	-25.8	-11.9
Hamlin	-16.0	- 5.0
Harding	-30.0	-13.8
Hutchinson	-13.3	-10.1
Hyde	13.2	-21.7
Jerauld	-21.9	-13.3
Kingsbury	-20.7	-11.0
Lake	-10.2	-10.9
Lawrence	-10.2	- 1.5
McCook	-19.1	-11.6
Marshall	-17.7	- 9.5
Perkins	-26.7	- 5.0
Roberts	-21.3	-12.3
Sanborn	-24.5	-14.3
Spink	-14.8	-15.0
Stanley	-54.6	- 8.0
Turner	-14.2	- 4.8
Walworth	-14.8	-15.6
Yankton	- 1.8	- 7.2
Ziebach	-30.9	-13.6

*Counties that lost less than 15 percent of population, 1970 or 1980.

TABLE 6

High Net Out-Migration Counties in South Dakota, 1970 and 1980.*

	Net Migration Rate 1970	Net Migration Rate 1980
South Dakota	-13.6	- 4.0
Aurora	-18.0	-17.3
Brule	-20.2	-16.8
Campbell	-28.3	-23.6
Faulk	-19.9	-15.9
Hand	-22.0	-19.2
Hanson	-26.9	-15.5
Jones	-20.5	-28.5
Mellette	-24.4	-17.8
Miner	-21.8	-16.1
Potter	-24.8	-22.1
Sully	-23.4	-24.4
Tripp	-18.3	-18.1

*Counties with over 15 percent out-migration, 1970 and 1980.

list of such variables compiled by the Center for Social Research and

Development, University of Denver (1973,1974), for a study of socio-

economic data in the counties of South Dakota. This study rank

ordered the counties of South Dakota by the various data compiled.

The data for this study was collected from various sources for 1970

and 1980 information. A percent change was calculated for each

county for each of the selected variables.

The demographic data were obtained from the U.S. Census,

South Dakota, for 1970 and 1980. Vital statistics were obtained from

the Department of Health in South Dakota in the annual report of

public health statistics for 1970 and 1980.

The nondemographic data were gathered from various sources.

The educational information came from the 1970 and 1980 Census of

South Dakota, the Educational Statistics Digest for the State of

South Dakota for 1970 and 1980, and the Educational Directory of the

Schools of South Dakota, 1970 and 1980. The economic variables were

obtained from Census information, 1970 and 1980, data from the Depart-

ment of Commerce on employment by type of industry, 1970 and 1980.

Business variables were from the 1970 and 1980 County Business

Patterns for South Dakota. Health welfare variables were obtained

from the Census for South Dakota and the American Hospital Associ-

ation Guide for 1970 and 1980.

A simple linear regression resulting in an r^2 value was

computed for each variable to determine the extent of association of

the dependent variables to pattern of net migration by category, the

independent variable. In this case, the analysis determined how much
change had occurred in the selected demographic and socioeconomic
variables and the extent to which pattern of net migration was
related to them. See Table 7.

Objective Four

        Objective four was to compare the counties for similarities
within the categories based on the patterns of net migration, that
is, to determine the extent to which the counties in each category
were alike.

        Through this analysis it was possible to determine the
profile of the various categories of counties. For example, did high
out-migration counties share certain characteristics such as similar
median age or similar birth rates? See Table 8.

        For objective four it was necessary to compute the extent of
covariance within the categories by using discriminant analysis.
This technique used the pattern of migration as the dependent
variable and the selected demographic and socioeconomic variables as
independent variables. Though this appears to be unusual, after
careful consideration and consultation it was determined that this
technique best answered the objective. Discriminant analysis tests
the homogeneity of the within group covariance by developing a
"discriminant model or classification criterion using a measure of
generalized squared distance assuming that each class has a multi-
variate normal distribution" (Ray, 1982:381). This directly
addressed the question of the relationship among variables in

TABLE 7

Correlation Coefficients for Pattern of Net Migration by Selected
Demographic and Socioeconomic Variables.

Demographic Variables	Correlation Coefficient
Young Adult Ratio	0.37211 *
Child Dependency Ratio	−0.34228 *
Age-Dependency Ratio	0.51680 *
Index of Aging	0.52595 *
Median Age	0.40744 *
Crude Birth Rate	0.22807 ***
Fertility Ratio	0.01817 ***
Crude Death Rate	0.21850 ***
Infant Death Rate	−0.11173 ***
General Dependency Ratio	0.11120 ***
Sex Ratio	−0.05922 ***

Nondemographic Variables	
Employment	−0.62897 *
Businesses	−0.57965 **
Agricultural Employment	0.52340 *
Hospitals	0.32036 **
Teachers per pupil	0.31900 **
Service	0.31171 **
Wholesale	0.28566 **
Poverty	−0.26404 *
Per Capita Income	−0.25561 *
Students	0.09525 ***
Schools	0.19865 ***
Average Daily Membership	−0.04657 ***
Cost per Average Daily Membership	0.17200 ***
Percent High School Graduates	0.07654 ***
Unemployment	−0.05983 ***
Manufacturing	0.11780 ***
Retail	−0.97728 ***
Business Employment	0.02174 ***
Business Payroll	−0.00037 ***
Hospital Admissions	−0.13242 ***
Hospital Payroll	−0.11869 ***
Hospital Personnel	−0.08028 ***

  * Significant .05 Level
 ** Significant .05 Level in Opposite Direction As was Hyposthesized
*** Not Significant .05 Level

TABLE 8

Stepwise Discriminant Analysis Selection Summary

Step	Variable	Wilks' Lambda[1]	Average Squared Canonical Correlation[2]
1	Businesses	.4016[3]	.5984
2	Teachers per Pupil	.2805	.7195
3	Child Dependency Ratio	.2190	.7810
4	Death Rate	.1812	.8188
5	Employment	.1649	.8351
6	Retail	.1491	.8510
7	Business Employment	.1334	.8666
8	Sex Ratio	.1231	.8769
9	Average Daily Membership	.1075	.8925
10	Birth Rate	.0806	.9194
11	Agricultural Employment	.0772	.9228
12	Cost per Average Daily Membership	.0755	.9245
13	Students	.0604	.9396
14	High School Graduates	.0185	.9815
15	Business Payroll	.0161	.9838

[1] = Unexplained Variance
[2] = Explained Variance
[3] = (p=.05)

different populations or samples (for purposes of this study, the counties in the two migration pattern categories of turnaround and high out-migration). From this the extent to which each of the selected variables are in fact alike among the counties in the category was determined (Kerlinger, 1973:650-651).

A further analysis, stepwise discriminant analysis (stepdisc), was computed to determine in what order the selected variables are related to the net migration patterns. That is, which variables were more explanatory than others in building the profile of the specific migration category. It should be remembered that the counties had only been typed or categorized by net migration pattern. The purpose of this analysis was to see if certain values of the selected variables were more likely to be charcteristic of high out-migration or turnaround counties.

The statistical procedure for stepdisc involves a stepwise discriminant analysis by stepwise selection of the most significant variables, progressing to the least significant. Thus, the variables that contributed to the discriminatory power in the category were determined.

> Stepwise selection begins with no variables in the model. At each step, if a variable already in the model fails to meet the criterion to stay, the worst such variable is removed. Otherwise, the varible that contributes the most to the discriminatory power of the model (as measured by Wilks' lambda) is entered. When all the variables in the model meet the criterion to stay, and none of the other variables meet the criterion to enter, the stepwise selection process stops (Ray, 1982:406).

Objective Five

Objective five was to determine whether there was a signifi-
cant difference between the migration pattern counties. Specifi-
cally, do high out-migration counties vary significantly from turn-
around counties?

This objective employed an analysis of variance to specify
whether the means of the migration patterns categories differed signi-
ficantly from each other. The Duncan-Waller test was employed to
determine which of the counties differed significantly (Helwig and
Council, 1979:191-193). This technique specified which of the
variables were most different or alike between the migration patterns
by analyzing differences between the means of the variables in each
category. See Table 9.

In summary, objectives one and two resulted in descriptive
summary tables. Objective three resulted in a summary appendix and
calculations of percent change with a simple linear regession test to
determine which of the selected variables were significantly related
to net migration patterns. The fourth objective resulted in a
discriminant analysis and stepdisc procedure to determine which of
the selected vabiables were most alike within the net migration types
Objective five resulted in an analysis of variables and a Duncan-Waller
test between the net migration types on the means to determine how
similar high out-migration counties were when compared with turnaround
counties.

TABLE 9

Duncan-Waller Analysis of Variance Betweeen Means by Patterns of Net Migration

Variable	Patterns of Net Migration				
	1	2	3	4	5
Young Adult Ratio	21.05b*	41.67a	29.67ab	30.94ab	26.80ab
Age-Dependency Ratio	10.11ab	10.11ab	-11.74c	9.95ab	17.97a
Index of Aging	49.20ab	17.61bc	12.66c	43.69abc	68.11a
Sex Ratio	-2.65ab	.07a	- 7.20b	- 1.86ab	-0.70a
Median Age	115.79a	98.32b	107.78ab	105.70ab	111.99a
Employment	18.16a	22.09a	21.46a	2.44ab	-12.42b
Agricultural Employment	-31.99b	-33.68b	-34.87b	-20.56ab	-7.63a
Businesses	23.58ab	36.81a	16.90ab	11.89b	4.01b
Hospitals	-0.11ab	-23.97ab	-54.93b	-3.02ab	45.89a

*Means with the same letter are not significantly different (p=.05).

CHAPTER V

FINDINGS

This chapter presents the findings on the five objectives of
this dessertation. The findings concerning the changes in net migra-
tion for counties from 1970 to 1980 in the state of South Dakota were
first described. From this, migration patterns were determined based
on the net migration rates for the 1970 to 1980 period. Statistical
analyses were computed to determine which of the selected demographic
and socioeconomic variables were significantly related to patterns of
net migration. Further analyses were performed to determine which of
the selected variables were most characteristic of the two types of
migration patterns, high out-migration and turnaround. Finally, the
extent to which the two groups of counties differed was computed.

Objective One: Statewide Net Migration Changes in South Dakota

Just prior to the study period, between 1960 to 1970, 53
(79%) of the counties of South Dakota lost population with some
counties registering 25-40% loss. Heavy population loss was
dramatic. The birth rate had declined in the state but out-migration
continued at a high rate. The net out-migration for the 1960-70
decade was over 92,000 persons, or a rate of 13.6 percent (Riley and
Baer, 1981).

This sets the stage for the 1970-80 net migration rates. Net
out-migration dropped dramatically from 1960-70 to 1970-80. The
state lost only 4.0 percent of the 1970 population or 26,384 people

in the 1970 decade.

In fact, where only four counties recorded in-migration in the 1960s, thirteen recorded in-migration in the 1970s. Fewer counties had high out-migration of 15 percent or more (37 in 1960s and 12 in 1970s). A dramatic change was evident. See Table 1 and Map 1.

Objective Two: Patterns of Net Migration in Counties of South Dakota.

Patterns of net migration were determined by analyzing the net migration rates for 1970 and 1980. This resulted in five patterns of net migration which described the process of migration between 1970 and 1980 in South Dakota. Those patterns were as follows:

(1) In-Migration (both decades).
(2) Turnaround migration (out-migration 1970, in-migration 1980).
(3) Reverse turnaround (in-migration 1970, out-migration 1980).
(4) Out-migration (out migration of under 15 percent for 1970 or 1980 or both times).
(5) High out-migration (over 15 percent out-migration 1970 and 1980).

In determining the patterns of net migration it was found that one county had in-migration both decades, twelve counties recorded turnaround, two counties had reverse turnaround, thirty-nine had under 15 percent out-migration and twelve counties had high out-migration. See Tables 2-6.

Objective Three: Selected Demographic and Socioeconomic Variables.

To statistically determine which of the selected variables were significant, a simple linear regression was computed using

patterns of net migration as the independent variable. These

patterns were labeled: (1) in-migration, (2) turnaround, (3) reverse

turnaround, (4) moderate out-migration, (5) high out-migration. The

higher the number of the pattern of migration, the higher the out-

migration. This pattern of migration was tested against the selected

demographic and socioeconomic dependent variables. The results are

in summary form in Table 7.

Testing of the Research Hypotheses Objective Three

The patterns of net migration were tested against selected

demographic and socioeconomic dependent variables.

The research hypotheses stated in Chapter II are not in them-

selves testable. The statistical hypothesis is the form of the state-

ment used to test the relationship. The statistical hypotheses were

stated in the null form (a statistical proposition which states that

there is no association between the variables of the problem). The

hypotheses were tested at the .05 level of significance. The

reporting of the findings which follows includes the statement of the

null hypotheses, and the correlation coefficients (r^2 values).

Demographic Variables-Fertility

Null hypothesis 1. There is no significant association
between the pattern of net migraiton and the percent change in the
crude birth rate.

The correlation coefficient was .22807 which was not

significant at the .05 level. We failed to reject the null.

Null hypothesis 2. There is no significant association

between the pattern of net migration and the percent change in the
fertility rate.

The correlation coefficient was .01817 which was not

significant at the .05 level. We failed to reject the null.

Mortality

Null hypothesis 3. There is no significant association
between the pattern of net migration and the percent change in the
crude death rate.

The correlation coefficient was .21850 which was not

significant at the .05 level. We failed to reject the null.

Null hypothesis 4. There is no significant association
between the pattern of net migration and the percent change in the
infant death rate.

The correlation coefficient was -0.11173 which was not signi-

ficant at the .05 level. We failed to reject the null.

Dependency Ratios

Null hypotheses 5. There is no significant association
between the pattern of net migration and the percent change in the
child dependency ratio.

The correlation coefficent was -0.34228 which was significant

at the .05 level. The null hypothesis was rejected. The greater the

pattern of net migration the lower the child dependency ratio.

Null hypothesis 6. There is no significant association
between the pattern of net migration and the percent change in the
young adult ratio.

The correlation coefficient was 0.37211 which was significant

at the .05 level. The null hypothesis was rejected. The greater the

pattern of net migration the lower the young adult ratio.

Null hypothesis 7. There is no significant association
between the pattern of net migration and the percent change in the
index of aging.

The correlation coefficient was 0.52595 which was significant at the the .05 level. The null hypothesis was rejected. The greater the pattern of net migration, the higher the index of aging.

Null hypothesis 8. There is no significant association between the pattern of net migration and the percent change in the general dependency ratio.

The correlation coefficient was 0.11120 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 9. There is no significant association between the rate of net migration and the percent change in the age dependency ratio.

The correlation coefficient was .51680 which was significant at the .05 level. The null hypothesis was rejected. The greater the pattern of net migration the higher the age dependency ratio.

Null hypothesis 10. There is no significant association between rate of net migration and the percent increase in median age.

The correlation coefficient was 0.40744 which was significant at the .05 level. The null hypothesis was rejected. The greater the rate of net migration the greater the median age.

Sex ratio

Null hypothesis 11. There is no significant association between the pattern of net migration and the percent change in the sex ratio.

The correlation coefficient was −0.05922 which was not significant at the .05 level. We failed to reject the null.

Nondemographic variables.

Education

Null hypothesis 12. There is no significant association between the pattern of net migration and the percent change in the proportion of adults 25 years and older with a high school education.

The correlation coefficient was 0.07654 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 13. There is no significant association between the pattern of net migration and the percent change in the number of schools per resident.

The correlation coefficient was 0.19865 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 14. There is no significant association between the pattern of net migration and the percent change of teachers per student.

The correlation coefficient was 0.31900 which was significant at the .05 level. The null hypothesis was rejected. The greater the pattern of net migration the greater percent change in the teacher per student ratio.

Null hypothesis 15. There is no significant association between the pattern of net migration and the percent change in number of students.

The correlation coefficient was 0.09525 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 16. There is no significant association between the pattern of net migration and the percent change in average daily membership of students.

The correlation coefficient was -0.04657 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 17. There is no significant association between the pattern of net migration and the percent change in cost per average daily membership.

The correlation coefficient was 0.17200 which was not significant at the .05 level of significance. We failed to reject the null.

Economics

   Null hypothesis 18. There is no significant association between the pattern of net migration and the percent change in percent employed in agriculture.

   The correlation coefficient was 0.52340 which was significant at the .05 level. The null hypothesis was rejected. The greater the pattern of net migration, the greater the percent employed in agriculture.

   Null hypothesis 19. There is no significant association between the pattern of net migration and the percent change in employment.

   The correlation coefficient was -0.62897 which was significant at the .05 level. The null hypothesis was rejected. The greater the pattern of net migration the lower the percent employed.

   Null hypothesis 20. There is no significant association between the pattern of net migration and the percent change in percent unemployed.

   The correlation coefficient was -0.05983 which was not significant at the .05 level. We failed to rejected the null.

   Null hypothesis 21. There is no significant association between the pattern of net migration and the percent change in manufacturing.

   The correlation coefficient was 0.11780 which was not significant at the .05 level. We failed to reject the null.

   Null hypothesis 22. There is no significant association between the pattern of net migration and the percent change in the percent employed in wholesale.

   The correlation coefficient was 0.28566 which was significant at the .05 level. The null hypothesis was rejected. The greater the pattern of net migration the greater the percent change in percent

employed in wholesale. The direction was the reverse of what had

been hypothesized.

Null hypothesis 23. There is no significant association
between the pattern of net migration and the percent change in the
percent employed in retail.

The correlation coefficient was −0.07728 which was not

significant at the .05 level. We failed to reject the null.

Null hypothesis 24. There is no significant association
between the rate of net migration and the percent change in the
percent employed in service.

The correlation coefficient was 0.31171 which was significant

at the .05 level. The null hypothesis was rejected. The greater the

pattern of net migration the greater the percent employed in services.

The direction was the reverse of what had been hypothesized.

Null hypothesis 25. There is no significant association
between the rate of net migration and the percent change in the
number of persons below the poverty level.

The correlation coefficient was 0.26404 which was significant

at the .05 level. The null hypothesis was rejected. The greater the

pattern of net migration the greater percent change in persons

below the poverty level.

Null hypothesis 26. There is no significant association
between the rate of net migration and the percent change in the per
capita income.

The correlation coefficient was −0.25561 which was

significant at the .05 level. The null hypothesis was rejected. The

greater the rate of net migration the lower the per capita income.

Health

Null hypothesis 27. There is no significant association
between the pattern of net migration and the percent change in the

number of hospitals per resident.

The correlation coefficient was 0.32036 which was significant at the .05 level. The null hypothesis was rejected. The greater the pattern of net migration the greater the percent change in number of hospitals. The direction was the reverse of what had been hypothesized.

Null hypothesis 28. There is not significant association between the pattern of net migration and the percent change in the number of admissions of hospitals per resident.

The correlation coefficient was -0.13242 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 29. There is no significant association between the pattern of net migration and the percent change in the number of hospital personnel per resident.

The correlation coefficient was -0.08028 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 30. There is no significant association between the pattern of net migration and the percent change in the payroll of hospitals.

The correlation coefficient was -0.11869 which was not significant at the .05 level. We failed to reject the null.

Businesses

Null hypothesis 31. There is no significant association between the pattern of net migration and the percent change in number of businesses.

The correlation coefficient was -0.57965 which was significant at the .05 level. The null hypothesis was rejected. The greater the pattern of net migration the lower the percent change in percent of businesses. This is in the reverse direction of what had

been hypothesized.

Null hypothesis 32. There is no significant association between the pattern of net migration and the percent change in the number of business employees.

The correlation coefficient was 0.2174 which was not significant at the .05 level. We failed to reject the null.

Null hypothesis 33. There is no significant association between the pattern of net migration and the percent change in the business payroll.

The correlation coefficient was -0.00037 which was not significant at the .05 level. We failed to reject the null.

Summary

The findings reported above are in accord with the statement in objective three: To determine the selected demographic and socio-economic characteristic of the counties of South Dakota and to determine which of the variables are significant in the association with patterns of migration.

Significant associations were found between the pattern of net migration and the percent change in these demographic variables: young adult ratio, child dependency ratio, age dependency ratio, index of aging, median age. The following nondemographic variables were significant: employment, percent employed in agriculture, percent employed in wholesale, percent employed in service, percent of persons in poverty, per capita income, teachers per student, total businesses and hospitals.

The associations between the pattern of net migration and the percent change in these demographic variables were not found to be significant: the birth rate, the fertility ratio, the death rate, the

infant death rate, the total dependency ratio, the sex ratio. The

nondemographic variables that were not significant included: average

daily membership in schools, number of students and schools, percent

employed in manufacturing, percent employed in retail, percent

employed in business and percent high school graduates.

Five of the nondemographic associations were in the opposite

direction as had been hypothesized: the percent employed in

wholesale and the percent employed in services, number of teachers,

total businesses, and hospitals. The following table summarizes the

major research findings of this study in relation to net migration

patterns. The next section will discuss the particular findings and

the interpretations associated with them.

Interpretation of the Findings of Objective Three. To

interpret the findings of objective three it was necessary to compare

the basic variables and percent change registered in the two key

migration patterns, high out-migration (HOM) and turnaround (TA).

Demographic Variables

Crude birth rate. There was no significant relationship

between patterns of net migration and crude birth rate. Though

research indicated that birth rates would be lower in high out-

migration counties the data show that birth rates were low and stable

in almost all counties. There were increases in seven of the

turnaround counties but decreases in five. In the high out-migration

counties nine had increases while three had decreases in the crude

birth rate.

Fertility rate. This was found to be nonsignificant. This computation is based in part on number of live births so if the crude birth rate is not significant it would be expected that the fertility rate would not be significant. The fertility rate declined in eight of the turnaround counties and increased in four. It declined in ten of the twelve high out-migration counties.

Crude death rate. This was found to not be significantly related to patterns of migration. The death rate is also at a low, stable point across categories. The crude death rate dropped in ten of the twelve turnaround counties and dropped in six of the high out-migration counties. Though there was a difference in the number of counties recording drops in the crude death rate, it was not significant.

Infant death rate. This was not significant, primarily due to the improvement of maternal and infant care in all areas. The infant death rate dropped by over 50% in six of the turnaround counties, dropped in three other counties and gained in three. In the high out-migration counties the rates were very low with drops in seven of the counties, no infant deaths both decades in two counties, stable in one county and increases in two counties. Over all, there were very few infant deaths with the range being from 0 to 6 in high out-migration counties.

Young adult ratio. This was highly significant with a correlation coefficient of -0.37211. This supported the hypothesis that the greater the net out-migration the lower the young adult

ratio. All turnaround and high out-migration counties had increases in the young adult ratio. but the increases were larger in the turnaround counties. This strongly supports the fact of the selectivity of migration in terms of young adults.

General dependency ratio. This was not found to be significant. The general dependency ratio declined in each of the turnaround and high out-migration counties. This supports the idea that younger people are leaving high out-migration areas but not as young a group is moving into turnaround areas. It could also be due to the fact that the high proportion of aged dependents expected in high out-migration counties in balanced by an increase in the child dependency category in turnaround counties.

Child dependency ratio. This was found to be highly significant with a correlation coefficient of -0.34228. The higher the out-migration pattern the lower the child dependency. This then supports the statement regarding general dependency findings. Child dependency ratios decline in all turnaround and high out-migration counties but there were larger declines in the latter category.

Age dependency ratio. This was highly significant with a cor- relation coefficienct of .51630. The greater the pattern of out- migration the greater the age dependency. This again supports the finding in the general dependency ratio. The age dependency ratio was down in eight counties in the turnaround group but down in only one high out-migration counties.

Index of aging. This was found to be highly significant with a correlation coefficient of .52595. This is related to the factors

of age in general. The index of aging was up in nine of the turn-
around counties and up in all of the high out-migration counties.
The rates were significantly higher in the high out-migration
counties. This measure is used to determine the potential for growth
in a population. As a population ages, its ability to reproduce
itself is lessened. This means that the number of elderly increased
in relation to the number of children in the high out-migration
counties, more so than in the turnaround counties.

        In general, South Dakota has an older population and the high
out-migration counties have more older people.

        Median age. This was found to be highly significant with a
correlation coefficient of .40744. Once again this is a reflection
of the age selectivity of migration. The median age dropped or
remained the same in seven of the turnaround counties. The median
age rose in all twelve of the out-migration counties. This reflected
both more young people leaving high out-migration counties and
probably more young people and people with families entering turn-
around counties.

Nondemographic Variables

        Nine of the nondemographic variables were found to be
significant. They were teachers per pupil, employment, agricultural,
wholesale and service employment, persons below poverty level, per
capita income, total businesses, and hospitals.

        Teachers. This was found to be highly significant with a
correlation coefficient of .31900. It was in the reverse   direction
of what was hypothesized. The greater the pattern of net

out-migration the higher the teacher per pupil ratio. All twelve turnaround counties had increases in number of teachers while only five out-migration counties had an increase in teachers. But the key to this is that the number of students are down also in both types of counties. This was a reflection of lower numbers of school age children as a result of the lower birth rates of the 1970s.

The correlation coefficients for the patterns of net migration and percent change in percent of people 25 and over graduating from high school (.07654), percent change in average daily membership (-.04657), percent change in cost per average daily member (.17200), percent change in number of students (.09525), and percent change in number of schools (.19865) were not found to be significant at the .05 level. This was primarily due to the increases in all areas of people graduating from high school. In addition, number of students and schools have changed in relatively the same direction and amounts for both categories probably because of federal regulations.

Economic Factors

There was a significant relationship between patterns of net migration and percent change in employment, percent change in those employed in agriculture, wholesale and services, percent change in total business, percent change in those below the poverty level and percent change in per capita income.

Employment. This was highly significant with a correlation coefficient of -0.62897. The greater the pattern of net migration the lower the percent change in employment. Numbers employed

increased in all but one of the turnaround categories. Whereas numbers employed declined in ten of the high out-migration category. Economically, jobs have been declining to some extent all over the state. But the growth of new industries have brought employment to specific areas more so than others. The decline of rural areas was further emphasized by these employment figures.

Agricultural employment. This was also highly significant with a correlation coefficient of .52340. The greater the pattern of net out-migration the greater the percent change in agricultural employment. The turnaround counties had high rates of decline in the percent employed in agriculture in all counties. The out-migration counties had lower rates of decline and an increase in one county.

This supported the findings in the literature. More people were found employed in agriculture in the declining areas than in the growing areas.

In the nonagricultural industries, percent change in service, wholesale, and total businesses were also significant.

Service. This was significant with a correlation coefficient of .31171. This was in the opposite direction hypothesized in that it stated that the greater the net migration pattern the greater the percent change in services. Service employment grew dramatically in all of the turnaround counties. It grew in all but two of the high out-migration counties, but not at as great a rate. The percent change was greater as the pattern of migration increased. This could reflect the closing of service related industries in declining areas.

Wholesale. This was significant with a .28566 correlation

coefficient. This was the reverse of what was hypothesized. The greater the pattern of net migration the greater the percent change in wholesale. This could be reflecting continued closing of wholesale industries in declining areas.

Total business. The relationship was highly significant with a correlation coefficient of -0.57965. The greater the pattern of net migration the lower the percent change in numbers of businesses. Number of businesses grew in all of the turnaround counties. There were six counties that declined in number of businesses; one remained the same and the remaining counties gained in number of businesses. Economic trends reflected that businesses were more likely to leave declining areas and this supported that fact. Other business variables, such as percent change in business employment and percent change in business payroll were found to be nonsignificant. The nonagricultural industries that were found to be nonsignificant were percent change in manufacturing, percent change in retail. Also found to be nonsignificant was percent change in unemployment. The manufacturing and service figures were lower in most cases and sometimes not recorded in smaller counties to protect the anonymity of the respondents.

Health and welfare. The factors of percent change of persons below poverty and percent change in per capita income were found to be significant. Of the health factors, percent change in numbers of hospitals was significant.

Persons below poverty. This was significant with a correlation coefficient of .26404. The greater the pattern of net

migration the greater the percent change in people below the poverty level. Turnaround counties had relatively small changes in the percent of people below poverty. Two counties increased in this percentage. All but two counties had 1980 rates below 20 percent. However, in the high out-migration counties, ten counties increased in the percentage of persons below the poverty level. Most of the high out-migration counties had rates of 20-30 percent of the people below the poverty level.

This supported the research findings of more poverty in declining areas than in growing areas.

Per capita income. This was significant with a correlation coefficient of -.25561. The greater the pattern of net migration, the lower the percent change in per capita income.

The per capita income more than doubled in ten of the turn-around counties. In the high out-migration counties, the per capita income grew in each county but doubled in only six of the counties.

Employment available in declining areas often pays less than in growing areas. This supported the literature found on income and economic factors in declining areas.

Hospitals. The relationship was found to be significant with a correlation coefficient of .32036. The greater the pattern of net migration the greater the percent change in number of hospitals per resident. This was in the opposite direction as was hypothesized. The problem with this variable was that there were very few hospitals and few changes in numbers of hospitals from 1970 to 1980 in either category. Therefore an interpretation of this could be misleading.

Other health variables were found to be nonsignificant. They were percent change in hospital admissions, percent change in hospital payroll and percent change in hospital personnel.

In summary, the nondemographic variables that were found to be significant were percent change in teachers per pupil, percent change in employment in agriculture, wholesale and service, percent change in number of businesses, percent change in number of hospitals, percent change in persons below the poverty level, and percent change in per capita income.

Basic Institutions

The basic institutions analyzed included number of schools, number of hospitals, and number of businesses. Of these three, two were found sigificantly associated with patterns of migration.

Percent Change in Number of Schools. The correlation coefficient (.19865) was not found to be significant. This is probably due to the federal control of schools with a minimum number of students required to maintain a school.

Percent change in Number of Total Businesses. Number of total business was significant with a correlation coefficent of -.57965. The greater the out-migration the lower the percent change in numbers of businesses. This was opposite of what was expected. Due to the economy and decline in businesses in general this would suggest that many of the businesses may have already gone out prior to this analysis, leaving fewer to close down during the 1970-80 period.

Percent change in number of hospital. Percent change in
number of hospitals was found to be significant with a correlation
coefficient of .32036. The greater the pattern of net migration the
greater the percent change in hospitals. This could be reflecting
hospitals closing down in high out-migration areas but a caution is
in order. There were few hospitals to begin with, thus any inter-
pretations must be made with this in mind.

This analysis of the association between patterns of net
migration and the percent change in selected demographic and socio-
economic characteristics and basic institutions completes the third
objective of this thesis as stated in Chapter I.

Objective Four: Extent of Similarity Within the Types of Migration
Patterns

This objective sought to determine if counties in the two
patterns of net migration categories shared characteristics other
than rates of net migration. Is it possible to also describe or
explain the characteristics of those counties by other variables? Do
the values or certain demographic and socioeconomic variables cluster
within patterns of net migration?

How well do the variables selected present a profile or an
adequate description of the counties within the categories? To deter-
mine this, a discriminant analysis procedure was performed to see to
what extent the selected demographic and socioeconomic variables
chosen for this study were similar within the categories.

The findings were as follows: nineteen variables fit into the
two types of migration patterns in a perfect order. That is

"membership" in either the turnaround category or the high out-
migration category was predicted exactly by certain levels of the
following variables: birth rate, death rate, fertility ratio, general
dependency rtio, child dependency ratio, index of aging, sex ratio,
young adult ratio, median age, teachers per pupil, employment,
unemployment, agricultural employment, poverty, total business, per
capita income, average daily membership, and cost per average daily
membership.

Which of the nineteen variables fit best within the two
categories of migration? Through the process of a stepwise discrimi-
nant analysis, it was possible to detect the variables with the
strongest "membership" in the first step of the analysis. Each
successive step detected the next "best" predictive variable until
appropriate variables were no longer found. The stepwise discrimi-
nant analysis findings were summarized in Table 8.

Interpretation of Findings of Objective Four

Actually, two variables were the best predictors and
accounted for 80 percent of the explained variance within patterns of
net migration. They were total businesses and the child dependency
ratio. The next variables in order of selection for the stepwise
procedure included employment, fertility ratio, sex ratio, birth
rate, teachers per pupil, agricultural employment, death rate, index
of aging, median age, unemployment, young adult ratio, per capita
income, persons below poverty level and general dependency ratio.
These were all significant at the .05 level. A total of 95 percent
explained variance was obtained with these variables.

Objective Five: Extent to Which Pattern of Migration Types Differ

Are there significant differences between the high out-migration pattern and the turnaround migration pattern? To answer this objective a Duncan-Waller test was performed to analyze whether the means of the selected dependent variables differed significantly between groups.

The findings were as follows: high out-migration counties differed significantly from turnaround counties in the demographic variables of age dependency ratio, index of aging, and median age. The nondemographic variables that differed significantly were employment, agricultural employment and total businesses.

Interpretation. These findings indicate that age composition factors were significantly different between the two groups in terms of the older age categories. This means that there is a difference in age dependency (more people over 65 to those 15-64), a higher index of aging (the population is aging faster), and in median age (an older average age) in the high out-migration pattern as compared with the turnaround migration pattern.

The nondemographic variables reflected in percent change in employment, agricultural employment and total businesses showed that there was a significant difference in these economic factors. There was less change in employment, more agricultural employment, and fewer changes in total businesses in the high out-migration pattern as compared with turnaround. This was in support of the literature in that declining counties were most reliant on agriculture. Also incorporated in these findings was a perceived stagnation in the

economy, especially evident in declining areas.

CHAPTER VI

SUMMARY AND CONCLUSIONS

From 1970 to 1980 a number of counties of South Dakota recorded dramatic changes in migration patterns. Whereas in previous decades out-migration was the overwhelming pattern, the decade of the 1970s recorded in-migration for one county, turnaround migration for twelve counties, reverse turnaround for two counties, low to moderate out-migration for thirty-nine counties and high out-migration for twelve counties. The major objective of this study was to determine what association if any existed between the patterns of migration and selected demographic and socioeconomic characteristics in the counties of South Dakota. More specifically, what are the differences that distinguish high out-migration counties with turnaround counties.

The major findings of this study are summarized in the chapter by each objective. Implications of the research, limitations and suggestions for future research will conclude the chapter.

Objectives

Objective 1: To determine the level and direction of net migration for the counties of the state of South Dakota.

The summary table describes the results of this objective. See Table 1.

1. Migration levels decreased dramatically from the 1960s to the 1970s.

2. More counties recorded in-migration in the 1970s than in
the 1960s.

3. Fewer counties recorded high out-migration (over 15
percent and over) in the 1970s than in the 1960s.

Conclusions: The dramatic exodus out of South Dakota has
slowed and even reversed itself in some of the counties. This was
due to a decrease in net out-migration which implies fewer people
moving out and/or more people moving into the state.

Objective 2: To determine the patterns of net migration from
1970 to 1980 for the counties of South Dakota.

1. One county recorded in-migration both decades (Table 2).

2. Twelve counties recorded turnaround migration (Table 3).

3. Two counties recorded reverse turnaround migration (Table
4).

4. Thirty-nine counties recorded below 15% in one or both
decades (Table 5).

5. Twelve counties recorded high out-migration (15 percent
and over) (Table 6).

Conclusions: More counties experienced in-migration and, in
general those counties with out-migration experienced a decline in
out-migration rates. The recent trend of nonmetropolitan growth has
had an impact on the counties of South Dakota though not in the same
magnitude as less agriculturally oriented states. In the U.S. it has
been determined that this is due to the increased technological
advances in communication and transportation; renewed interest in
extractive resources; a favorable economic climate for investors,
industry and businesses; and possibly the quality of life and
recreational atmosphere of rural America. The specific reasons for

turnaround in South Dakota require further research.

Objective 3: To determine which changes in the selected demographic and socioeconomic variables were associated with patterns of net migration. Those demographic variables found to be significantly related were:

1. Index Of Aging.
2. Age-Dependency Ratio.
3. Median Age.
4. Young Adult Ratio.
5. Child Dependency Ratio.

The nondemographic variables that were significant included:

1. Employment
2. Farm employment
3. Poverty
4. Per capita income
5. Teachers per pupil
6. Wholesale
7. Service
8. Total business
9. Hospitals

Conclusions: The age composition variables were significant. This supported the fact that migration is selective by age. Young people move out resulting in a higher median age, a higher index of aging, a higher age dependency ratio, a lower young adult ratio and a lower child dependency ratio. The state of South Dakota has one of the oldest populations in the United States and though out-migration has tapered off, the problems associated with an elderly population are still evident. Policy and planning should be directed towards the elderly and their needs.

Nondemographic variables were led by economic characteristics in significance. This supported the literature in that migration is very much related to economic push and pull factors. High out-

migration counties had more people below the poverty level, more employed in agriculture, lower per capita income, and lower employment. Policies and plans to aid in the economic plight of rural America need to continue. Significant changes were recorded in percent employed in wholesale, service, and total businesses. Conclusions drawn from this included that changes in the economy were transmitted through changes in these sectors for counties of South Dakota.

In summary, the simple linear regression indicated that specific variables were related to patterns of net migration. Especially important were age composition variables and economic variables.

Objective 4: In order of strength of explanatory power, the variables that best describe the counties within the pattern of migration categories were percent change in:

1. Total businesses
2. Child dependency ratio
3. Employment
4. Fertility ratio
5. Sex ratio
6. Birth rate
7. Teachers per pupil
8. Agricultural employment
9. Death rate
10. Index of Aging
11. Median age
12. Unemployment
13. Young adult ratio
14. Per capita income
15. Persons below poverty level.

These are the variables that were most similar within the turnaround category and the high out-migration category. The first two variables explained 80 percent of the total variance which with

the remaining variables added up to 95 percent of the explained variance.

Conclusions. High out-migration counties and turnaround counties had similar values within each of the two patterns of net migration in the following demographic characteristics: child dependency ratio, birth rates, death rates, fertility ratio, young adult ratio, index of aging, median age, general dependency ratio, and sex ratio. These demographic variables were the most similar within the net migration categories.

Nondemographic variables that were most similar within patterns of net migration were percent change in total businesses, employment, unemployment, per capita income, teachers per pupil, persons below the poverty level and agricultural employment. In conclusion, the fifteen variables listed above had similar values that clustered within the types of counties. Which of the variables were most different between the two categories was addressed in the fifth objective.

Objective 5: To determine the extent to which the high out-migration counties differed significantly from the turnaround counties.

These six variables were found to differ significantly between high out-migration and turnaround patterns of migration:

1. Age dependency ratio.
2. Index of Aging.
3. Median Age.
4. Employment.
5. Agricultural employment.
6. Total businesses.

Conclusions: In reviewing Brown and Beale's findings regarding their categories of migration this study concurred with their findings of high out-migration (continuous decline counties) registering high amounts of agricultural employment. They stated that continuous decline were found among the Great Plains areas that lack accompanying urbanization or nonfarm job alternatives.

Turnaround counties were found to be intermediate between continuously growing and declining areas for Brown and Beale. The statistical test performed in this study found the continuous growth county to be significantly different from turnaround counties in median age, and young adult ratio. This would suggest that in South Dakota there were specific differences between the in-migration patterns and the turnaround pattern. In fact, turnaround counties were not in between high out- and in-migration in this study. But this study recorded only one continuously growing county therefore conclusions should be made with caution.

Beale and Brown found that turnaround was more like the declining category (it should be remembered that Beale and Brown had three categories of turnaround - high, medium and low while this study had only a general turnaround category. They concluded that turnaround counties shared more characteristics with continuous decline counties. The similarities were most evident for Brown and Beale in percent of retirees, percent Black, and percent employed in agriculture. Brown and Beale do not test their findings for significance. In addition, they concluded that turnaround appeared to be

taking place in relatively rural settings.

The turnaround type in this study was significantly different
than the high-out but not the moderate to low out type of migration
pattern. Had all out-migration counties been grouped together,
results similar to Brown and Beale would have been anticipated. This
adds further significance in that not all out-migration counties are
alike. In fact, the high out-migration pattern was significantly
different from the general out-migration pattern for counties in
South Dakota.

Summary – Theoretical Model

In Chapter III, the basic theoretical orientation, conceptual
model and theoretical framework for interpreting patterns of net
migration were presented. This study dealt with the following
theoretical points:

1. The study was a macroanalysis; since the unit of analysis
   was an aggregate.
2. Population study, Type II best describes the orientation
   in that the independent variable is demographic and the
   dependent variables are both demographic and
   nondemographic.
3. Social systems approach was the conceptual framework
   with the demographic, social aggregate system and social
   action systems used as one model to develop the specific
   conceptual model. This determined what was to be
   explained.
4. To further clarify the model in terms of net migration,
   a migration systems approach was employed where the key
   interest was area of origin and area of destination.
   This determined the specific area of migration, within
   the conceptual model.
5. To determine the measures of migration over time, the
   typology or classification system was employed. This
   determined how the description and explanation of the
   migration system was to be analyzed. Area of origin was
   exemplified in the high out-migration pattern, and area
   of destination was exemplified in the turnaround pattern.

Conclusions: The statistical testing provided a basis by which to investigate the adequacy of the conceptual model. Within the social demographic system - the key elements were determined. Particular elements from this list were found to be significantly related to patterns of net migration. Further, it was determined that the areas of origin and areas of destination differ significantly in certain variables. By determining patterns of net migration, this model allowed for a description of what happened to counties over time. The study concluded that these types of counties were different in regard to specific characteristics. In addition, a profile of the counties within the typology was developed.

CONCLUSIONS

In combining the findings and conclusions of five objectives, it was possible to develop a profile of declining counties, those with a high out-migration pattern and a profile of growing counties, those in the turnaround migration category.

High Out-Migration. Age factors were most descriptive of high out-migration counties. These counties were most likely to have lower young adult ratios; that is, fewer people in the 15 to 34 age group and also fewer children under fifteen. There were more people over sixty-five. These factors resulted in a higher index of aging and a higher median age.

Economic variables showed that there was less change in employment occurring in these counties with more people employed in agriculture. There was also a greater percent change in people

employed in wholesale and service industries. High out-migration counties consistently lost employment in wholesale and service industries, though these latter variables often had information lacking for smaller counties. There were more people below the poverty level and there was a lower per capita income. The profile of high out-migration counties was one of an older population employed in agriculture with higher levels of poverty. These were the significant demographic and socioeconomic variables related to the net out-migration pattern.

Turnaround. The profile of growing counties was one of youthful population; more children under fifteen and more young adults fifteen to thirty-four. There were fewer people over sixty-five, which resulted in a lower index of aging and a lower median age.

Economic factors reflected a greater percent change in numbers employed, and a smaller percent change in those employed in agriculturally related fields, wholesale and service industries. Fewer people were below the poverty level and there was a higher per capita income.

The pattern of migration typology showed the greater differences when comparing high out-migration and turnaround counties in the following areas: age dependency ratio or people over sixty-five; index of aging, how fast the population is growing older; median age, employment, agriculutral employment and total businesses.

IMPLICATIONS

The implications of this include that populations of high

out-migration counties will continue to decline as long as there are
fewer jobs and industries present as alternatives to agricultural
employment. The population in high out-migration counties is older
reflecting a need for more services in the areas of medical and
welfare needs as well as social and emotional needs. Planning and
policy implementation should be geared towards the realization of
lower per capita incomes and higher rates of poverty which are
compounded in an aging population.

Likewise, specific policy and planning efforts of a different
nature can be implied from the turnaround counties. More educational
services, child care facilities, and structures to meet the needs of
a younger, growing population are required. More housing and govern-
mental services, such as recreation, utilities, and protection
services are needed.

An analysis of the profile of a population can do much to
determine the present needs of the population and also aid in
projecting and planning for the anticipated needs in the future.

Limitations

A major limitations in the research was the availablity and
comparability of data with reference to the dependent variables.
Obtaining 1970 data was, at time, a difficult task since records were
often not kept on file for longer that five years. The time factor
also entered into the limitations in terms of definitions, rules, and
regulations changing over the decade. This made comparability
impossible in the case of variables dealing with social service and
welfare assistance. Comparability also was considered when selecting

one set of important variables; the economic variables and particu-
larly those associated with agriculture. The literature indicated
relationships between migration and agriculture but the population
census and the census of agriculture are taken in different years
thus reducing the comparability of this data.

Even the available U.S. Census information was not comparable
from 1970 to 1980. This was due, in part, to the cut back in the
Census Bureau staff which resulted in less refined data and also
delays in disseminating information. Research was accomplished with
what was available and comparable over the two decade period.

Methodologically, the limitations included the use of the
residual method for calculating net migration. This requires infor-
mation from two sources, the U.S. Census and vital statistics regis-
tration. When using more than one source, the possibility of error
increases because the number of computations rise and also the number
of people and number of times the data are handled increases the
chance of error at each additional stage. Further, the residual
method is in effect an indirect measure of net migration. A direct
count of who migrates would have been preferable but such a method
was not feasible.

Methodologically, the "state of the art" in statistics has
not achieved a measure of process and feedback into a system. In
social science and particularly in this study of migration, much
consideration was given to "which came first, the chicken or the
egg?" Or, in other words, what was the direction of the relation-
ship. Care has been taken to not impart causation into what these

analyses have shown. But also behind this decision was the fact that there is a question as to whether migration leads to the various changes in the social structure as suggested in this study or whether the various changes in the social structure lead to migration. A mechanism for determining the feedback into the system would alleviate this problem as we could then measure the effect of migration on the social structure and the subsequent effect of changes in the social structure on migration. A statistical measure of this synergistic effect is required to more fully understand and explain this process.

The theoretical foundation to base migration research is still lacking in rigor. This necessitated developing a conceptual framework specific to this research. It is hoped that this work may add to the existing literature and increase understanding of how migration theory might be strengthened and employed. Further work in building on both the macroanalytic as well as the microanalytic approach and the merging of the two, both theoretically and methodologically would add greatly to the knowledge on migration theory.

Finally, as has been mentioned in the text of this study, out-migration has been occurring in the rural agricultural areas since the 1930s. Many institutional adjustments have been made since that time. In fact, these adjustments are an ongoing process; therefore, what has been analyzed in this study captures the importance of demographic and socioeconomic changes during the 1970s. It is acknowledged that some change, in fact in some cases even dramatic changes have already occurred prior to the 1970s and would

be lost to this analyses.

Recommendations

Recommendations include both more general as well as more specific research. A theoretical recommendation would be to study migration along these research lines with both the macro and the micro analytic spheres in mind -- resulting in a better understanding of the migration system.

The research could be expanded methodologically to take into account all the counties in the North Central Region, thereby expanding the sample and allowing for better generalizability. In this study there were only two reverse turnaround counties, only one in-migration county, only four high turnaround counties and mostly out-migration counties. A broader sample would allow a more complete analysis of the patterns of migration and the resulting charac-teristics.

In addition, further research could be done regarding net migration as the measure of demographic change and population change as the measure of demographic change. Under which circumstances might one be more valuable than the other in explaining phenomena?

Research might continue what was done in the early 1970s by the Social Science Research Center in Denver regarding the rank order of counties on the selected socioeconomic and demographic variables. This would build on past reserch and add the current 1980 situation.

In a more specific direction, any group of these variables could be studied in more depth through a case study. One could view a county (out-migration or turnaround for example) and see how the

migrants and the nonmigrants react to changes (microanalytic

perspective). One could also do an historical study of various

institutions within a specific county. Further a group of out-

migration or turnaround counties might be selected as case studies.

Further investigation of variables within the categories

might be beneficial as well. The information regarding poverty,

health or education might be investigated using other indicators or

at least additional ones to those used in this study. The analysis

of institutions requires more in-depth research as well.

Further insight would be possible with a further catego-

rization of the out-migration to high, medium, and low magnitude. In

addition, the turnaround counties could be viewed from the high turn-

around and moderate turnaround, though the number of counties in the

pattern would be few in the analysis of South Dakota.

Finally, demographers have cautioned that the turnaround

phenomena may in fact be a very temporary occurrence. Further

research in longitudinally tracing this pattern of migration would be

worthwhile.

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