Who's calling Iowa home?

A study of inmigrants to select rural Iowa counties since 1993

by

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Signatures have been redacted for privacy
DEDICATION

This is dedicated to my family - Dad, Mom, Kimberly, and Michael. Thank you for inspiring, loving, and encouraging me in everything I do. Never will you know how much your unconditional love, patience, and understanding has meant to me. You have always brought me smiles and laughter, and have been my role models. I love you all very much.
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ABSTRACT

As nonmetropolitan migration becomes a more common occurrence for households across the United States, a need to address both societal and economic issues associated with this movement arise. The issue of “push-pull,” or the examination of both what was expected as a result of the move to a new state and then what will contribute to the desire of the recent immigrants to remain in the state is an important area of study. Data from the pilot study conducted by the Department of Human Development and Family Studies at Iowa State University, entitled “Living in Iowa”, was used to explore characteristics of recent immigrants to nonmetropolitan areas in Iowa since 1993. The purpose of this study was threefold, and examined 1) basic demographic characteristics of recent immigrants 2) the pull factors tied to the immigrant’s decision to move and 3) direct and indirect identification of the expectations and findings of recent immigrants to the state of Iowa.

Nested model logistical regression tests were conducted using groups of independent variables in four models. The dependent variable was the desire of immigrants to remain in their current communities of residence for the next ten years. The independent variables explored in this study included the vitality level of the county settled in, previous Iowa residency status, demographic characteristics (age, education, income, and gender), pull factors (desire to move to state and employment issues), and finally, economic attractiveness of the community. Findings imply that significant factors affecting the desire of recent immigrants to remain in the same Iowa community were the vitality level of the county, level of education, age, desire to move to Iowa, and the cost of living.
CHAPTER 1

INTRODUCTION

“Rural rebound,” “rural revitalization,” and “rural renaissance” – in the last five years, all of these terms have been used to describe the resurgence of immigration in rural or nonmetropolitan counties throughout the United States. The advancement of technology, paired with the relocation of businesses, both large and small, is making it easier to work in nonmetropolitan areas. At the same time, the proximity to family and friends, the idea of a “slower pace,” and the “small community” feeling are all contributing to the desirability of rural living. Researchers indicate the growth of nonmetropolitan America is not perceived to be a waning trend (Fuguitt & Beale, 1996; Johnson & Beale, 1994). Percy, Hawkins, and Maier (1995) note that changes in society and in technology will soon provide rural residents with “greater mobility to seek a new home in a community that offers them a preferable mix of public services, taxes, and living environment” (p. 17). These specific advances have made nonmetropolitan living more appealing than ever.

In any migrational research and especially in this study, there is a need to clarify the terminology used. Migration is an all-encompassing term used to discuss movement of households from one place to another, and involves the crossing of established boundaries (i.e. state, county, labor markets). More specifically, the terms inmigration and out-migration are two terms developed for use when discussing either specific movement to a particular location (inmigration) or away from a particular location (out-migration). Also found in migrational literature is the term immigration, which is defined as the movement of a household from one country to another. This particular study of Iowa residents will look most specifically at inmigration and out-migration.

While the inmigration of new residents into rural or nonmetropolitan states and counties would appear to have a number of positive effects, there’s a need to examine the characteristics of new
inmigrants, along with their motivations and expectations. There also needs to be an opportunity to examine any negative effects which might be the result of a change in the rate of immigration to nonmetropolitan areas. This idea is supported by Swanson and Luloff (1990), who stated that the most important part of community development is the people in the community. Age, education, employability, socioeconomic status, household composition, and reason for moving, are all pivotal factors used to make projections about the affect of immigration in nonmetropolitan areas. Knowing how immigration will alter the overall make-up of a county or state is necessary for many small communities because of the potential changes which may result in the economy, the social structure, the educational system, and the service sector.

Mookherjee (1992) provides unspoken support for nonmetropolitan living by reporting no differences in the perception of well-being of metropolitan and nonmetropolitan residents. Despite the findings of Mookherjee, Fitchen (1995) and Brown and Hirschl (1995) identify rural residents at high-risk of falling into poverty, thus affecting the well-being of these individuals and families. Mixed messages such as these contribute to the need to study the characteristics of new inmigrants to rural or nonmetropolitan areas.

Also contributing to the changes brought about by rural immigration are characteristics of the nonmetropolitan county of destination. In 1992, the U.S. Department of Commerce, Economic and Statistic Administration and the Bureau of the Census (U.S. Census Bureau) reported the United States consisted of 735 metropolitan counties and 2,398 nonmetropolitan counties. Those counts today will be remarkably similar. Recognizing differences and similarities of rural counties is of great value, especially when making comparisons of push and pull factors influencing immigration. Counties within one state may have greater variance than counties in two different states. This information will also provide a greater understanding of both causes and effects associated with nonmetropolitan immigration.
Iowa, like other states, has seen increased rural population stemming not only from natural increase, but from out of state immigration as well. Because Iowa has 89 of its 99 counties classified as nonmetropolitan and 76 of its 99 counties classified as rural (McCormick, 1997), knowing who’s coming into the state and where they’re settling becomes more important than ever, especially to the communities who are faced with substantial changes in the make-up of their population. Additionally, knowing if the new residents have lived in Iowa before may be a key to understanding part of the trend in immigration and may contribute to the understanding of why immigration is occurring at the rate that it is. The information generated in this survey can provide invaluable information to government and private organizations alike.

Significance of Study

The significance of this particular pilot study entitled Living in Iowa is three-fold, providing valuable information for a number of audiences, both inside and outside the state of Iowa. Because there is no longer an accurate universal picture of rural living, it is necessary to closely examine the diverse people, economies, and societies which make-up the rural communities of today (Swanson & Luloff, 1990). Due to the extreme diversity in the nonmetropolitan United States, this study was specifically conducted to examine the immigration process, satisfaction level, and retention predictions of new immigrants within the state of Iowa. The key issues explored in this survey include the following:

1) Basic demographic information about new residents

   - This includes basic information such as age, gender, education level, employment status, and income level; the purpose of this information is to look at the characteristics of people migrating into nonmetropolitan or rural counties and the relationship to retention of the immigrants.

2) Pull factors of nonmetropolitan Iowa counties for recent immigrants
Information pertaining to pull factors will be used to promote a better understanding of what “pulls” or draws new residents into the state and evaluate the strength of the pull factors in relation to retention of the new Iowa residents.

3) Direct and indirect identification of the expectations and findings of new inmigrants

- This information provides details relating to the expectations and actual findings of inmigrants in their new home; and how they relate to retention.

The three issues mentioned above join together to support Brown’s (1993) belief in the need to examine the functions of rural communities and determine what contributes to a positive community experience. More importantly is the examination of what affects the future migration decisions of these new Iowans. Based on the concept of a migration continuum, it becomes clear that there are three stages which have bearing on the community of destination, the first of which is the push from the previous community, the second which is the pull to the new community, and the third which is the push from the new community. Simply put, this could be defined as the push, the pull, and the retention, each of which makes an impact on the community of destination. Whether the individual or family plans to remain in the community or whether they plan to leave within a given amount of time has a bearing on the community itself. Brown specifically recognizes a need to completely understand all realms of rural areas, and the residents of these areas, by stating, “Understanding that many rural residents are consumers first and residents of their community second is a beginning” (p. 400).

In addition to the information mentioned above, the study also sought to bring two issues together that have rarely been addressed in previous immigration research - previous residency in the state and the economic development classification of counties within the state. Together, these two characteristics, one being a characteristic of the inmigrant, and the other a characteristic of the county, provide a new perspective on immigration to nonmetropolitan areas, and lend value to the examination of push factors, pull factors, and the retention of recent inmigrants.
Another obvious reason for a study such as this lies in the county-specific information seen in newspapers across the state. In Iowa, reports pertaining to the changing face of nonmetropolitan counties includes the peril of low-wage jobs, poor housing quality, product marketing issues, record levels of new-farmer loans, and falling county per capita income. When considering the labor market as a major issue being faced, Hamrick (1997) specifically states, “The rural labor market is more sensitive to exchange rate movements and appears more export dependent than urban areas” (p. 4). Each of these issues are a result of changes taking place within the community as a result of forces such as changes in population, economy, society, etc. Because of the multiple changes, it is necessary to closely examine what can be done within the community to retain a population which contributes to the growth and sustainability of the county.

Parties finding this study useful may include local business owners, county governments, state leaders, policy makers, and potential Iowa residents, just to name a few. Additional information found in this particular study will aid in better understanding Iowa’s position in the rural renaissance of the 1990’s. Since inception of this pilot project, its ultimate goal has been to increase the size of the study to include recent Iowa immigrants in counties throughout the state. The implementation and analysis of this population would provide a comprehensive view of rural growth due to immigration. This data would prove useful in policy development for Iowa, as well as other predominantly nonmetropolitan states. The information would also prove to be useful in comparing Iowa with other states.

**Theoretical Background**

The key components of the study are supported by Ravenstein’s Push/Pull model, Tiebout’s Theory of Local Expenditures, and Economic Concept and Theory (specifically Cost-Benefit Analysis and Human Capital Theory); each of which is examined in relation to how it can be applied to the process of immigration. The theoretical base for migration is founded upon a number of ideas, constructed in and supported by disciplines such as geography, sociology, economics, and
anthropology. While use of community economic development theories (which often are identified as
either supply-oriented or demand-oriented) might also provide valuable insight, the specific data
collected through the Living in Iowa survey was not specifically focused on those market economies
which are necessary to closely examine those issues in a more thorough manner.

Each discipline embraces a unique approach to the theoretical base, providing insight into a
multifaceted issue. Miller (1973) notes, “Much of migration theory assumes the potential migrant has
sufficient information to make a rational comparison of two areas and considerable interest is attached
to an examination of behavior under these conditions” (p. 3). This holds quite true for the discussion of
theory as it relates to nonmetropolitan inmigration. The nature of the study, “Living in Iowa,” was that
of post-migration. This reduced the value of specific models which dealt more specifically with the
issue of migration prediction from a previous state of residency to a new state of residency. This is due
to the fact that migration predictions often utilize information relating to the specific characteristics of
the state moved from, issues contributing to the desire to move (push), and other such factors not
measured through the Living In Iowa survey. In addition, migration theory is of little or no value when
variables are excluded on the basis of convenience or perceived importance (Judson, 1990), especially
in the generation of a prediction model. Because of the specific information required, no prediction
models were used to measure migration into Iowa from other states.

The three theoretical assumptions presented in this paper include the Push-Pull Laws,
Economic Concept and Theory (specifically Cost-Benefit Analysis and Human Capital Theory), and
Tiebout’s Theory of Local Expenditures, followed by a brief summary of the theories presented.
Together, these theories support and aid in the explanation of decisions made in relation to
nonmetropolitan migration and retention.
Ravenstein’s Push-Pull Laws

The inception of the Push-Pull Laws occurred late in the eighteenth century when Ernst Ravenstein reported his “Laws of Migration” to researchers in London (Dorigo & Tobler, 1983). Since that time, researchers have continued to explore the core ideas presented by Ravenstein. Central to these laws is the basic idea in which the features of an environment causing a person or a household to want to leave are not the same as the features of an environment causing a person to want to move to another place. Understanding the differences in these forces allows for the aggregation of reasons given for migration. Common examples of these concepts applied include economic problems and marital dissolution as the push factors, and low-cost housing and lower crime rate as the pull factors.

The defining of push factors and pull factors entails a very literal interpretation. Ryff and Essex (1992) define push as the factors influencing “why” a person decides to move, while identifying pull as factors influencing “where” people choose to move. Their research focusing on relocation and well-being involved a ranking of factors within five domains, and the application of those scores to an index. Findings from that procedure reflected greater importance being assigned to factors applying to pull rather than factors affecting push (Ryff & Essex, 1992). In a similar definition, Dorigo and Tobler (1983) identify push factors as those “life situations that give one reason to be dissatisfied with one’s present locale; the pull factors are those attributes of distant places that make them appear appealing” (p. 3). These definitions contributed to the creation of a linear mathematical model based on Ravenstein’s laws during the early 1980’s. Taking push and pull factors one step further, Dorigo and Tobler (1983) also defined the attractiveness of a location within the mathematical model as the difference between the push and the pull factor. In an effort to decipher between the two forces and to maintain a clear understanding of the independent forces each of the factors possess, separate equations were created. This supports the fact that a negative push is not the same as a positive pull.
Using the Push-Pull laws, Bach and Smith (1977) pulled information from their study on community satisfaction as it relates to moving and migration. Their findings indicate there is a need for more than just dissatisfaction with one’s current location (push factors) to prompt actual migration. Building on the previous findings, they indicated the need for push and pull factors to work together, providing both incentive to move and an identified location to migrate (pull). Though it is very possible to have push factors occurring independently of pull factors, and vice versa, the two forces will often work together to foster actual migration.

In the study of retirement migration, Haas and Serow (1993) recognize push and pull factors, along with information sources, as “the underlying factors affecting both remote thoughts and serious consideration phases of the decisions making process” (p. 214). In the implementation of a decision making model, Haas and Serow also denote that “destination-specific” migrants already possess the push factors, but must be informed of the pull factors in order to motivate them to migrate. In support of Ryff & Essex (1992), Haas and Serow (1993) also found the dominant power lies in the pull factors as opposed to the push factors. In many cases, when research is done in retrospect, pull factors may be more easily identified than push factors. Also applied to the Push-Pull theory is work conducted by Ryff & Essex (1992) who examined these factors in relation to psychological well-being in a new place of residence. This type of study, as well as others related to push and pull factors, provides continued support for the research being conducted on inmigration in rural areas, as well as strong support for the underlying factors affecting the decision to migrate to another state.

Focusing on the Push-Pull Laws and Ravenstein’s Laws of Migration provides a foundation for hypothesis 1D (model III), which is that there is a relationship between the desire of the inmigrants to remain in the current Iowa community of residence for ten years from the time of the survey and the desire of the inmigrant to move specifically to the state of Iowa. In particular, this hypothesis suggests a relationship between pull factors which drew the inmigrant to Iowa, and as the push factors which
might influence their decision to remain in the state are of particular interest. This will prove to be especially valuable to planners, developers, and county officials in nonmetropolitan Iowa counties.

**Economic principle concept and theory**

Use of one key concept and an important theory drawn from basic economic principles aid in understanding the numerous issues encompassed in the migration process. Specifically examined and applied to migrational research in this section are cost-benefit analysis and human capital theory.

**Cost-Benefit Analysis**

A key concept pulled from basic economics is that of cost-benefit analysis. Garman (1991) defines cost-benefit analysis as a “technique of comparing the costs and benefits of risk reduction when one chooses a decision, policy, or action that yields the highest net benefit given limited time and money” (p. 117). When applying the concept of cost-benefit analysis to state-to-state migration studies, the use of “unmarketed goods” is of great importance (Sugden & Williams, 1978). The value of unmarketed goods, though not established in monetary units, may be the value people place on being close to a good school, or on living within an hour of close family or friends; it is what people are willing to give up in order to acquire these specific “goods.” While there is no market price or marginal price on unmarketed goods which can easily be adapted for use in cost-benefit analysis, there is a great value assigned to this type of goods (Sugden & Williams, 1978). In their book, Sugden and Williams suggest that “the idea of ‘willingness to pay’ does not require there to be markets in which people actually pay for goods” (p. 149). The authors go on to suggest that the market analyst must examine how people would act if there was a market, and more specifically, what people would perceive to be the costs and benefits of products within such a market. Migration is one of the decisions in which unmarketed goods are an important factor. In order to have a clear picture of what influences individuals and families to move into or out of a state at any particular time, the value of
unmarketed goods must be examined. Knowing what contributes more or less significantly to this decision undoubtedly involves acknowledging unmarketed goods.

Inherent in cost-benefit analysis is the consideration of opportunity costs, especially when people are considering changes which might occur in their consumption of goods, and more importantly, what they are giving up in order to acquire a particular good (Sugden & Williams, 1978). Opportunity costs is defined as “the cost of a decision measured in terms of the value of its foregone alternatives, and it is reflected by the highest value alternative cost of what one has to do without or what one could have done instead” (Garman & Fargue, 1991, p. 17). In migration decisions, there are many opportunity cost issues to contend with, some of which might include the cost of changing jobs, selling or buying a home, leaving an area close to family, and again, a number of unmarketed costs. The value of something given up in lieu of another option plays an important role in cost-benefit analysis.

Another issue important to cost-benefit analysis is pareto change. This is defined as a change which strives to make one or more members of society better off without making anyone else worse off (Mishan, 1972). This particular component of cost-benefit analysis carries a great deal of value with it when considering the impact immigration could have on states or counties serving as areas of origin or destination. If moving to another community would cause the community residents to experience negative consequences, pareto changes are not being played out; however, if moving to a community provides benefits outweighing the costs for both the inmigrant and for the community, it is considered to be a pareto change. This issue is not one that comes into play in every decision to move, but it is one that has as bearing on the individuals involved in the migration, as well as the individuals in the affected communities. An example of the application of pareto changes could play out in the changes in the administration of social services within a community due to an increase in population. An
inadequate number of case workers creates a negative situation for the entire community; this indicates an absence of pareto changes.

In summary, cost-benefit analysis is a method of identifying both the cost of a decision, as well as the benefits which might result from that decision. If the benefits outweigh the identified costs, the decision to move will often be carried out; however, if the benefits do not meet or exceed the identified costs, the possibility of migration would theoretically be less likely. When applied to migration, cost-benefit analysis plays an important role in the initial decision to move, as well as in the decision to remain in the new community. This is a tool useful in deciding both whether or not to move, and where to move. In the event that more than one community offers greater benefits than costs, or vice versa, the concept of cost-benefit analysis supports the measurement and comparison of either only the benefits or only the costs associated with each of the communities. This procedure would aid in the decision-making process as to where to migrate, focusing on specific pull or push factors and holding the other factor constant.

**Human Capital Theory**

Human Capital Theory is also founded in basic economic theory, encompassing the idea of maximizing one's satisfaction by consuming or acquiring more or less of a good or service (Browning & Browning, 1992). More specifically, utility is a subjective measure of the usefulness, or want satisfaction that results from consumption” (Browning & Browning, 1992, p. 66). Utility goes hand in hand with the issue of migration. It allows the consumer to look at the satisfaction level attained upon moving to a new state. The result of migrating could be increased wages, proximity to family or friends, or even greater piece of mind. This specifically ties in with push and pull factors, both of which intertwine with the level of satisfaction identified by new immigrants. Becker (1993) remarks, “In human capital theory, people rationally evaluate the benefits and costs of activities, such as education, training, expenditures on health, migration, and the formation of habits that radically alter
the way they are” (p. 402). Immigration could be considered one of the activities in which the benefits of relocating to another state would outweigh the costs of remaining in the current state.

When specifically defining human capital, economists have called it “people resources that affect future income” (Deacon & Firebaugh, 1988, p. 56). In applying the definition of human capital to the family or household, it is “the total stock of human capacities at a point in time for affecting future resources and their use” (Deacon & Firebaugh, 1988, p. 56). Human capital investment is seen as a major contribution to economic growth by the likes of Schultz (1963), Denison (1962), and (Becker, 1993). Continued comments made by Gary Becker during his Nobel Lecture supported the idea of human capital as a valuable measure of growth and development. He stated, “Human capital analysis starts with the assumption that individuals decide on their education, training, medical care, and other additions to knowledge and health by weighing the benefits and costs” (p. 392). The value of this theory renders strong support from both mobility and migrational researchers, which makes it valuable in the explanation of growth stimulation and productivity (Becker, 1993).

Studying human capital as it relates to the labor market, the idea of both general and specific human capital is addressed. Bryant (1992) suggests that the value of an employee, as seen by all employers, is increased through contributions to general human capital; however, specific human capital makes one more valuable to one specific employer. Because many immigrants relocate for reasons related to employment, knowing what type of capital is being brought into the county or state will contribute to the understanding of a labor market. Since human capital cannot be identified as only general or specific, the type of human capital developed varies by activity, type of household, and person(s) involved (Bryant, 1992).

As households or families seek to increase their human capital, an alternative of moving to another state may be the best decision. Clark and Cosgrove (1990) identify the motivation behind a household or family’s decision to migrate as tied with the anticipated return on human capital,
specifically higher wages. “Human capital models suggest that the primary influence is the result of disequilibrium in the labor market” (Clark & Cosgrove, 1990, p. 311). Additional explanation lies within the fact that a household or family may have a demand (not being met in the current location) for non-traded goods, thus migrating in order to find a location with the supply necessary to fulfill the demand. Application of the human capital theory in state-to-state migration provides a better understanding of why people might opt to move to another state. The theory also draws labor market issues into the realm of existing and potential human capital.

**Tiebout’s Theory of Local Expenditures**

The third theory supporting the study of inmigration deals with consumer choice as used to indicate areas of preference by “voting with one’s feet” (Percy, Hawkins, & Maier, 1995). In the development of this theory, Tiebout used the Musgrave-Samuelson analysis, a public finance theory which is applied to federal expenditures rather than to local expenditures, the latter of which would contribute more fully to the crux of this particular study. In the presentation of the theory, Tiebout (1956) explains that goods, as discussed in this particular theory, are those not restrictive in consumption. If a good is consumed by one person, and the consumption in no way affects the ability of another person to consume, but in fact, allows for consumption of the goods in another manner (i.e. the purchasing of property in a rural area then allows others to be consumers of the benefits of the increased tax base), the good is not considered to be restrictive in consumption, and are the goods Tiebout discusses in his theory. Included as the main assumptions in the theory are the following:

1) Consumer voters are fully mobile and will locate in communities where set preference patterns are best satisfied

2) Consumer voters supposedly have full knowledge of differences in expenditures and revenues, and are able to react to the differences

3) The number of communities a consumer-voters may choose from is great
4) Employment opportunity restrictions are not considered; it is assumed that all persons and households are living on a share of the available earnings (dividend income).

5) There are no economies or diseconomies of scale between communities for public services.

6) Current inhabitants set services, based on preferences.

7) Communities below average size strive to increase population and communities above or at average size strive to keep population constant.

Tiebout’s theory of local expenditures explains selection of one’s place of residence as a vote for the area (state, county, etc.) best meeting the preferences of the household or family (1956). Identified by Tiebout as the “ultimate indicator of preference” for public goods, is whether one moves or not. Given in this theory is the idea of the more options or packages of public goods with the most variability, the clearer the decision on behalf of the consumer (1956). In reality, the “market” vying for the immigrants will remain stable as the communities with similar revenues and expenditure continue to exist (Tiebout, 1956). Supporting Tiebout’s theory is E. G. Ravenstein’s quote from “The Laws of Migration,” (as cited in Nagabhushana Rao, 1980) in which he wrote, “bad or oppressive laws, heavy taxation, an unattractive climate, uncongenial social surroundings, and even compulsion, all have produced and are still producing currents of migration, but none of these currents can compare in volume with that which arises from the desire inherent in most men to ‘better’ themselves in material respects” (p. 18).

Cebula (1974) specifically examined the impact of income taxes and transfer policies in relation to interstate net migration of states. Findings supported Tiebout’s theory, recognizing the fact that people are drawn to areas which are more likely to meet their established needs. The idea that desirability differed by race, sex, and age merely supported the need to have many options to select from. This theory is especially attractive when dealing with returning immigrants. If they have lived in
the rural area before, they are more aware of what the public goods are, and will be more apt to participate. In relation to the examination of returnees, there will also be assumptions made about their level of satisfaction with the area as compared to previous places of residency.

More specific application of Tiebout’s theory to migration decisions is made by Percy et al. (1995). Their study gives support to the value of having well-informed residents, especially in the area of public goods. The article focuses on the migration from a jurisdiction due to the local government policies, specifically taxes and services. Results of logistic regression found lower taxes and good public schools to be significant stimulants to interjurisdictional relocation. This same research project reported the overriding idea held by households moving both out of the metropolitan area and into the metropolitan area, was that the government would be more responsive to the needs of the citizens (Percy et al., 1995).

Overall, Tiebout’s theory provides a framework for decision making in the area of migration, based more specifically to the area of public goods. Inherent in Tiebout’s theory is the key concept that while people are “voting with their feet,” land continues to be immobile. For this reason, those choosing to migrate are doing so for a variety of reasons, often citing a fiscal bundle of goods as the reason (Epple & Zelenitz, 1981). This theory provides functioning power for the study of inmigrants locating in rural areas based on their preferences for public goods and the use of their consumer voting power.

Tiebout’s theory lends support of the synthesis of hypothesis IE (model IV). This particular hypothesis is that there is a relationship between the desire of the inmigrants to remain in the current Iowa community of residence for ten years from the time of the survey and the differences experienced between the expectations and findings as related to cost of living, quality of education, housing costs, and taxes. These are also referred to as measures of economic attractiveness of the county of residence. This hypothesis also pulls support from the cost-benefit analysis technique which
specifically deals with what recent inmigrants expect the costs and benefits of moving to a new Iowa county to be and what recent inmigrants find the costs and benefits of moving to this particular Iowa community to be, especially in terms of economic issues.

**Summary of theories**

Each of the above theories holds an important stake in the issue of state-to-state migration. In pulling these theories together, it becomes clear that immigration is affected by the presence or absence of particular goods, the personal tastes and preferences of an individual or family, the associated costs and benefits of moving to another state, the value of potential growth and development for individuals, and finally, public goods or services available to individuals. Each of these are intertwined to provide a complex theoretical base of study for migration decisions in the nonmetropolitan areas of the United States. The theories and concepts presented in this section are drawn from varying fields of study, creating an understanding of the multiple facets of immigration in the United States.
CHAPTER 2

REVIEW OF LITERATURE

Migrational Issues in Literature

Researching the topic of rural inmigration has provided a better understanding of the various approaches taken in addressing this issue. From economic development, to social service provision, to neighborhood satisfaction, rural inmigration is a consequential issue in the United States today. This matter not only is an issue for those residing in rural areas, for it has interwoven effects within the entire population of the United States.

The use of the word “rural,” is often seen as interchangeable with the term, “nonmetropolitan.” The U.S. Census specifically defines rural as “places of less than 2500” in territories, populations, and housing units (U.S. Census Bureau, 1992, p. A-11). Process of elimination also makes rural, those that are not urban (U.S. Census Bureau, 1992). Literature reviewed on this topic often chooses to use the word “nonmetropolitan” (Frankena & Koebernick, 1984; Fuguitt & Beale, 1996; Johnson, 1993; Johnson & Beale, 1994; Sofranko & Fliegel, 1984). Nonmetropolitan is a very broad term used for anything that is not considered to be metropolitan; specifically, it is defined as those territories, populations, and housing units not located in metropolitan areas (U.S. Census Bureau, 1992). Metropolitan is defined as those territories, populations, and housing units which are part of a large population nucleus encompassing adjacent communities of high economic and social integration or involvement with the nucleus (U.S. Census Bureau, 1992). The U.S. Census Bureau (1992) does denote that there are generally urban and rural territories within both metropolitan and nonmetropolitan areas. Using “nonmetropolitan” increases the size of the population from which information may be collected. In this review of available literature, the words “rural” and “nonmetropolitan” will be used
interchangeably, but when discussing a particular study, will adhere to the wording used by the original researcher(s).

In an effort to fully understand the spectrum of rural immigration, the presentation of literature has been broken into six specific sections. The first of these sections dealt with the study of migration versus mobility, defining the terms and providing a brief explanation. Second is a section which dealt with the procedures used to measure migration, and looks at the use of collected migration data in the past. A third section examined who is migrating and the factors associated with state-to-state migration. This section cuts deep into the issue and examined who is choosing to move into rural areas across the United States. The issue of new immigrants and returning immigrants is addressed in the fourth section. An observable increase in the number of immigrants returning to a state once referred to as “home” sparks this discussion. The fifth area discussed dons a “public eye” approach. This section will look at implications of high net immigration for communities, counties, states, and the nation as a whole. Finally, the last section will briefly summarize the review of literature and will provide a brief look at other research conducted within this particular area.

**Migration and mobility**

Migration has always played a role in the development and sustainment of communities and of states; however, Fuguitt & Beale (1996) indicate that migration was not identified as an area of major importance or concern until the late 1960’s. When looking at the issue of migration, it is very important not to assume that it is synonymous with either mobility or with population change. Quercia and Rohe (1993) define migration as the decision to move from one labor market to another, and notes that this may often be motivated by employment. They differentiate migration from mobility by noting that mobility is often motivated by the desire of a household to alter the specifics of a neighborhood or surrounding environment. Mobility (residential in this case), is seen as the changing of residences
within a single labor market and is viewed as a local move as opposed to a move crossing county, state, or national boundaries (Morris & Winter, 1996).

Along with Quercia and Rohe, most researchers adopt definitions similar to those of Morris and Winter (1996) for migration. Their definition of migration is “intercommunity, intermetropolitan, or long-distance moving, usually for purposes other than housing adjustment” (p. 78); it involves leaving one labor or housing market and relocating in another. Cromartie and Nord (1996) bring about the idea that “residential preferences, or more importantly, changes in the availability to act upon preference, determine rural migration patterns” (1996, p. 2). This brings in the point that resources allowing for migration must also be available before any moves or changes can actually be made. Morrill (1994) brings in a very simple definition, most often used for research purposes, stating that migration is having an individual reside in a county different from the one he/she was residing in five years earlier. This is the same measurement used by the U.S. Census Bureau to denote migration, either by county or by state.

Migration and mobility are both measures used when discussing individual households. When dealing with a larger population (territory, county, etc.), the defining of change in population needs to be set apart from both mobility and migration. In studying any type of movement, it must be realized that a change in population may be linked to other issues besides the two mentioned above. Natural increase or decrease plays a major role in population change, as does the restructuring of boundaries and the method and definition of area used in the assessment of population growth. Johnson (1993) indicates that population itself can be a very valuable dependent variable, used to gauge changes occurring in the makeup of a given area; however, population cannot dictate what changes in infrastructure may be necessary to meet demands and needs during times of demographic change.
Migrational trends

Frey (1994) notes, “The effect of migration on a state’s population depends on three things, the size of the migration stream, its direction, and its source” (p. 40). Taking that into consideration, nonmetropolitan migration may be unique due to the fluctuation in net migration that is visible, as compared to metropolitan migration. Because 75% of the population reside in metropolitan areas, changes in population or net migration are not as distinctive (Fuguitt & Beale, 1996). Interestingly enough, while three-fourths of the population lives in metropolitan areas, the land area accounted for by metropolitan counties is only 19%. The 81% of land area remaining is accounted for in 2,304 nonmetropolitan counties (Johnson & Beale, 1995). For that reason, as nonmetropolitan growth continues, some research suggests that the two (metropolitan and nonmetropolitan) are striving to reach a point of equilibrium (Johnson & Beale, 1994). During the late 1980’s, the annual population growth for metropolitan areas was 1.1% and .3% for nonmetropolitan areas (Johnson & Beale, 1994). Between 1992 and 1994, annual population growth was steady in metropolitan areas at 1.1%, but nonmetropolitan areas were growing at a rate of .9% (Johnson & Beale, 1995). With the differences in the growth rates of these two areas being minimized, there is a need to look more closely at what is pulling people into rural areas.

Migration has both established new paths and reflected those of earlier times during the past thirty years. Cromartie and Nord (1996) cited Galston and the three phases of identified rural advantage, including the fact that economies were built on place specific natural resources in the beginning; production factors led to rural renaissance and manufacturing growth in the 1960’s and 1970’s; and finally, the natural amenities of the rural or nonmetropolitan area. In addition, Fuguitt and Beale (1996) have identified three unforeseen shifts in the population of small towns and rural areas over the last thirty years.
Beginning in the late 1960's and early 1970's, there was net migration gain and an increase in population. This even reflected greater growth than the metropolitan areas. Very little growth in the population was attributed to the natural increase during this period (Johnson, 1993). This era is denoted as “the nonmetropolitan turnaround, the rural renaissance, or the new migration” (Fuguitt & Beale, 1996; Sofranko & Williams as in Williams, 1997), all referring to the demographic revival of nonmetropolitan or rural areas. Kenneth Johnson (cited in Fitchen, 1991) stated that the nonmetropolitan turnaround was historically, the first time rural American grew at a faster rate than the metropolitan areas. O’Malley (1994) cites the healthy economy, the completion of the interstate highway system, and the movement towards increased environmental awareness as the major reasons for the influx. While this increase in both immigration and population continued throughout the 1970’s, there were some who believed this was a temporary change (Williams, 1997).

Because of this boom in the 1970’s, the sudden drop in net migration due to excessive movement out of most rural areas in the early 1980’s was not anticipated. While immigration during the early part of this decade declined from what it had previously been, then dropped to negative net migration, the return to metropolitan areas became the norm once again (Fuguitt & Beale, 1996). Main “push” factors from rural areas included the farm crisis and the increase in available jobs in the metropolitan areas (Johnson & Beale, 1994). It was during this time that the economy no longer made it feasible for many households to rely on agriculture as their main source of income. Many rural residents chose to relocate, often in metropolitan areas, pursuing sources of greater income and a new lifestyle. Since that time period, the growth in rural areas has not been directly tied to the pursuit of the so-called “traditional” agricultural-related occupations.

The mid 80’s to early 90’s again saw an increase in the nonmetropolitan population. Johnson (1993) indicates that there was a 3.7% increase in net population; however, nearly all of that was accounted for by natural increase. Interestingly enough, a slight increase in population has continued
to occur throughout the 1990's, despite the fact that the natural increase was quite small compared to previous years. The decline in natural increase is attributed to the decreased fertility rates of nonmetropolitan women and the decline in an age structure supportive of fertility (Johnson, 1993). It was also during this time that the natural decrease became more common in nonmetropolitan areas due to the shifting in demographic make-up of the nation. The natural decrease, was a result of changing populations in nonmetropolitan areas, specifically, the increase in elderly in the areas and the reduced number of “potential parents” (Johnson, 1993). Information on both natural decrease and natural increase in population indicates that population growth and change in net migration are not one in the same. Knowing the distinction between the two of these types of population changes in very important when studying migrational issues.

This trend is continuing through the 1990’s, according to findings of Johnson and Beale (1994). They found that between 1990 and 1992, 64% of nonmetropolitan counties gained population. This came about due to a population gain of 879,000 in two years, compared to the 1.2 million increase in population that was seen during the entire decade between 1980 and 1990. Of this increase, 43% was due to net inmigration. Between 1990 and 1992, nonmetropolitan counties saw only a slightly smaller net migration than metropolitan areas did.

Exceptions to the increase in nonmetropolitan population were the farming dependent counties. Of those denoted as farming dependent counties, there was an increase, slight compared to other nonmetropolitan counties, with only 28% of the counties seeing an increase (Fuguit & Beale, 1996; Johnson & Beale, 1994). Manufacturing counties are also tough to gauge, especially since they often contain a large portion of a nonmetropolitan county’s population. In all, it’s not surprising to see that those counties with economic systems based on the traditional rural enterprises, are not as likely to see an increase in their population due to immigration as other nonmetropolitan counties (Johnson & Beale, 1995). Johnson and Beale (1995) show that nonmetropolitan America is growing three times as fast in
the 1990's as it did in the 1980's. Despite the fact that there are still counties experiencing population losses (about 25%), they are concentrated in the areas of the Mississippi Delta, the Western Corn Belt, and the Great Plains (Johnson & Beale, 1995).

The reasons for the upward trend of immigration are varied. Fuguitt and Beale (1996) attribute the growth to the deconcentration of the economy, including the favoring of nonmetropolitan areas over metropolitan locations that leads to a new and different distribution of the population over time. They also feel that the innovations in transportation and communication, and changes in social and economic structures which allow households to have more freedom in choosing their residence and the location of their employment is contributing to this metamorphous. Cromartie and Nord (1996) also support the use of deconcentration and people acting on long-held residential preferences. As Williams (1997) puts it, dreaming of a better life in a new land is the defining core of the rural rebound. “It is now widely recognized that nonmetropolitan America is a very diverse entity” (Fuguitt & Beale, 1996, p. 159); that recognition may continue to heighten its attractiveness to outsiders. Fulton, Fuguitt, and Gibson (1997) support research which divulges the demographic and socioeconomic characteristics of nonmetropolitan areas; specific diversification in these two types of characteristics can be seen in the population changes experienced in the 1970’s, 1980’s, and 1990’s. All these changes and evolutionary issues affect the nonmetropolitan population as it is seen today.

Johnson and Beale (1995) point out four factors involved in the increased population growth. These four factors include long-term economic changes favoring nonmetropolitan areas which involves the pull of corporate headquarters away from the big cities; the idea that small-town life rivals big-city life, looking at issues such as sense of community, transportation issues, and education; slow down of job growth in large cities, often resulting from excess supply of qualified potential employees; and finally, the concern with pollution and quality of life that is resulting in migration out of metropolitan areas. Corresponding with Johnson and Beale, O’Malley (1994) also cites retirement or recreational
activities and the bordering of suburbs as contributors to the “rebound.” McGranahan and Kassel (1995) attribute changes in rural communities to the urban economic slowdown rather than the recovery of the rural economy. Rural comparative advantage was a phrase coined during the prospering times of nonmetropolitan counties. According to Cromartie and Nord (1996), this means that the growth is “increasingly based on the residential and recreational attractiveness of its natural amenities rather than the extractive values of its natural resources or its production-related advantages” (p. i).

Throughout the past thirty years, it has been supported that rural counties nonadjacent to large metropolitan areas saw increases of net migration and population growth that were lower than those counties which were adjacent to large metropolitan areas. The growth of rural or nonmetropolitan areas adjacent to large metropolitan areas has been referred to as “urban sprawl,” or “suburban spread,” and is often viewed as a more metropolitan issue (Atkinson & Oleson, 1996). Nevertheless, in 1993-94, over 33% of nonmetropolitan growth was occurring in nonadjacent counties. The dynamics of this type of growth present specific problems, and requires “site specific” attention (Atkinson & Oleson, 1996, p. 615). Despite the many ups and downs of rural population growth, there is evidence that some counties grew continuously throughout the 1980’s and the early 1990’s (Johnson & Beale, 1994). Johnson and Beale (1994) also find support for the idea that counties that lost population in the 1980’s, but had a history of growth or were part of the nonmetropolitan turnaround of the 1970’s, experienced growth again in the 1990’s. Counties involved in the “turnaround” and then the “decline,” actually continued to grow again in the 1990’s, at rates similar to those experienced during the turnaround. It seems that overall, counties have followed some patterns in the past, but the 1990’s are predicting some changes in these patterns, specifically due to natural increase and decrease in nonmetropolitan areas (Johnson & Beale, 1994).
The discussion of nonmetropolitan county type, size, and location prove to be invaluable variables when examining whether recent inmigrants to Iowa intend to remain in their current states that there is a relationship between the desire of the inmigrants to remain in the current Iowa community of residence for ten years from the time of the survey and the decision to settle in a thriving county instead of a distressed county. While there was valuable information on settling in povertized or distressed counties, research involving both thriving and distressed counties was rarely found. The process used to classify the counties is related to the above literature and is discussed further in Chapter 3, Materials and Methods.

Finally, when looking at the previous trends in migration and related studies, it is not surprising that the means of measuring migrational patterns has become an issue. One of the early arguments brought on by Fuguitt and Beale (1996) who mentioned the use of “annual net migration” in their studies as opposed to simple measure of immigration or out-migration alone. Poston and Coleman (1983) took a strong stand and encouraged researchers to look, not only at the actual turnaround in population and migration, but to also look at the pre- and post- stages. This is called absolute migration change. Their belief was that the turnaround was not a single event, but was part of a series of events in an on-going process. Additionally, push or pull factors are the sustenance activities dealing with a number of employment opportunities. This method was supported by the idea that “change in sustenance organization, to the extent that it produces changes in the opportunities for living, requires a change in population size; migration is viewed as a demographic response to the population’s need to reestablish the balance between its size and sustenance organization” (Hawley, 1950 as in Poston & Coleman, 1983). The literature reviewed did support the use of annual net migration; however, less support was seen for the use of absolute migration change.

McGranahan and Kassel (1995) also voiced concern regarding the inclusion of institutionalized civilian population in the figuring of net migration. The Current Population Survey (CPS) did not
include this subgroup of the population, the exclusion of the institutionalized civilian population caused the findings to vary somewhat from previous reports (i.e., Johnson & Beale, O'Malley, etc.). The CPS also did not include moves from other counties, making their finding appear indicative of authentic migration from outside of the state.

**Comings and goings in the nonmetropolitan United States**

During the migrational changes seen in nonmetropolitan areas, there have been many speculations about who is coming in, and who is going out. Because of the unique “push” and “pull” factors that are associated with rural areas, this issue deserves special attention. Morrill (1994) indicates that there are distinct origins and destinations of age-specific migration that are occurring. In particular, it will be helpful to look at characteristics of those migrating to and from the nonmetropolitan counties. Close examination of immigration, which is the movement of households from one state to another, divulged interesting ties to immigration, which is the movement of a household from one country to another. Of interest is the lack of overlap in states seeing high rates of immigration and those with high rates of immigration (Frey, 1994). Frey (1994) found a substantial number of American-born whites leaving those states (referred to as the “white flight”) denoted as “high-immigration” states.

One thing that is clear throughout the literature is the immigration of retirees to locations that have a very appealing appearance, and sport the title of a recreational state. States who have a high number of “retirement” and “recreation” counties have a stronger pull factor than others do. Also effected were adjacent counties, or counties that “touched” metropolitan centers. Johnson and Beale (1995) found that counties considered to be nonmetropolitan recreation counties could attribute 85% of the total population increase in those specific counties between 1992 and 1994 to the association with recreation; similarly, the fact that counties were adjacent nonmetropolitan counties accounted for 73%
of the total increase in population gain of adjacent nonmetropolitan counties during the same time period. Again, this growth outside of major metropolitan areas is identified as urban sprawl.

Many nonmetropolitan counties specialize in a designated work activity, such as manufacturing, agricultural production, mining, etc. (Fuguit & Beale, 1996). This specialization may limit the work force opportunities, preventing some immigrants from obtaining employment due to educational level or individual limitations. Employment can really become an issue when there are immigrants looking for work opportunities, and not finding positions matching their skill levels. Nagabhushana Rao (1980) supported this idea when reporting that the unemployed find the motivation to move in potential employment opportunities, making this population more likely to move to areas perceived as having jobs available, particularly during stressful economic periods.

Further exploration of employment as related to retention in Iowa is explored in this study. Hypothesis 1C (model III) states that there is a relationship between the desire of the inmigrants to remain in the current Iowa community of residence for ten years from the time of the survey and the citation of employment as the main reason for moving to Iowa. While this idea of employment as a pull factor and retention is not frequently addressed in previous migrational research, this study will examine the possible relationship of these two variables within this particular sample.

The late 1980’s found the increasingly affluent population moving to nonmetropolitan areas (Blakely & Bradshaw, 1981). They went on to note that rural living at that time, was most conducive for the “well-educated and skilled white population,” but made it clear that that was not who was migrating to rural areas. The value of non-economic variables became increasingly important to households and individuals, sparking an interest in relocating.

Specific characteristics of migrants in relation to rural areas point to “brain drain.” Brain drain refers to the out-migration of young (age 18-24) educated individuals (McGranahan & Kassel, 1995; Voth & Ramey, 1993) from nonmetropolitan areas. Nagabhushana Rao (1980) reported that
during the early to mid-1960’s, research indicated a positive relationship between education and migration; also positively correlated was the level of education and the distance migrated. More recent studies of the relationship between education and migration have provided additional information on brain drain. The 1980’s saw an increase in this movement, of about 2% per year; this movement continued to increase the rural-urban education gap that already existed (McGranahan & Kassel, 1995). The same research indicates that working age residents (ages 25-54), were just as likely to move out as they were to move in, and despite the increased immigration of elderly, the change in net migration was not offset. Between 1985 and 1990, ninety-four of ninety-nine Iowa counties reported a net loss of college graduates to other states; during that same time period, fifty-seven counties reported a net loss of the population with less than a high school degree (Goudy, Burke, & Hanson, 1997).

These reported statistics indicate a frequent incidence of brain drain in Iowa counties, but also suggest high rates of out-migration of those with less education in more than 55% of Iowa counties.

The 1990s brought about changes, seeing the amount of "brain drain" reduced and the immigration of working-age families with children, as well as elderly on the rise (McGranahan & Kassel, 1995). Fulton, Fuguitt, and Gibson (1997) also found net-migration gains, or reduced loss in the 1990’s, especially in the “higher status groups,” or those who are better educated with a higher income (p. 363). Despite the increase in age of immigrants, rural areas continue to draw in populations with less education than those in metropolitan areas. In 1991, 28% of the urban population had a college degree, while only 16% of rural residents did (McGranahan & Kassel, 1995). Frey (1994) points out the fact that college graduates become much more mobile than those with less education. This may be attributed to income or to job training. The U.S. Census of 1994 reported that compared to figures from 1989-1993, the metropolitan median household income was down 8.1%, nonmetropolitan median household was down only by 2.9% (Fuguitt & Beale, 1996). Perhaps this new data indicates a turning point for the economic status of immigrants.
Voth and Ramey (1993) show that the positive correlation of in- and out-migration has always been present, sometimes at relatively high rates. Correlation of the two movements tells us that as people move out of a state, there is a comparable number moving into the state within the same year. Their study in 1993 indicated that the correlation of the very basic measure of geographical moves (inmigration and out-migration), is about 11%. Use of this measure does little to indicate the differences in populations. To show this, Voth and Ramey (1993) found this correlation varies substantially when educational level and age is taken into consideration. Findings from their study show that while migration of individuals with higher levels of education (completion of college degree or professional degree) in and out of a county may be similar, fewer people with less education tend to leave the county. This has implications, both economic and social, for the counties themselves. Voth and Ramey reveal that when looking at education and age of migrants, 44% of the variance is explained, and only 2% is explained by age. This may be changing as the retired population moves into nonmetropolitan counties. While the aging population (age) does not appear to be a significant factor in these findings, there are differences when looking at age together with education. Again, Voth and Ramey found ages 25-34 with one to three years of college are more likely to migrate out, and the same age group, with some high school, are likely to be inmigrants. 

McGranahan and Kassel (1995) found that working adults and children that were below poverty level were more likely to move to rural areas than those same subgroups who were above poverty level. There is evidence that 70% of counties with persistent poverty are growing, and 53% of the increase is attributed to immigration (Johnson & Beale, 1995). Taking the research a step farther, work done by Fitchen (1995) examined the distribution of poverty in depressed rural counties. “An important but unrecognized factor in the dynamic relationship between poverty of people and poverty of place, is the migration of poor people” (Fitchen, 1995, p. 182). This is backed by the fact that
unless a household is simultaneously migrating and escaping poverty, migration usually elevates the poverty level.

Fitchen found that the immigration from urban to rural counties increases the rural poverty rate more readily than it actually decreases the urban poverty rate. In New York, low-income households cited inexpensive housing and pre-existing social ties as their main reasons for moving, but also mentioned better living conditions and better educational systems. Many of the immigrants are "leapfrogging" suburban areas and going directly to nonmetropolitan communities (Fitchen, 1995).

While immigrants to the depressed rural areas hold characteristics of low education, fewer job skills, and low-income, so do those who are staying in the area. Despite the fact that jobs are being left open by young, educated out migrants, many of the positions require skills and education that are not possessed by the new immigrants (Fitchen, 1995). For this reason, they may come into the area, and not be able to find employment; however, they may be able to locate housing that is more affordable.

Fitchen also discusses "pioneer migrants," or those who are followed to depressed rural areas by low-income family and friends (p. 193). Pioneer migrants are low-income households who migrate to nonmetropolitan areas; this "following" is not dependent on location of housing or employment, but is often related to the push factors of metropolitan areas (Fitchen, 1995). Though this type of migration increases immigration, it also makes the community or county poorer, as the struggle to provide more assistance is placed on the taxpayers. As a result, more pressure is placed on services and governments to meet the needs of the immigrants, making this a policy issue (Fitchen, 1995).

McGranahan and Kassel (1995) both recognized a slight increase in the population of nonmetropolitan areas; however, they are quick to note the increase is often attributed to the immigration of poverty-stricken families and individuals, and immigrants with a lower level of education. That notion, along with the increasing number of returnees to nonmetropolitan areas
suggests changing trends in immigration. These changes will require action that differs from that of the past in nonmetropolitan areas.

For the most part, rural immigration is on the rise; however, the populations that are moving to these areas vary substantially from inmigrants of the 1970's and 1980's. An increased aging population in rural recreational areas, and people with lower education, fewer job skills, and lower income in all other rural areas increases the need to examine implications of this immigration. The push and pull factors of rural communities, and employment training programs (Fitchen, 1995), along with both housing and employment opportunities, must be examined.

**New and returning inmigrants**

Another population contributing to increased immigration is the number of returnees to rural areas. The research carried out in this area looks at both inmigrants who are returning to their state of birth, and at inmigrants who are returning to a state previously resided in (not specified as birth state). White (1992) has seen the return rates of individual states ranging from 3.2 to 33.9% since 1990. There was very little change in return rates from 1960 to 1980. On average, returnees make up 20% of inmigrants (White, 1992). These findings infer a need to “disaggregate” immigration into returnees and non-returnees. The return rate has been linked to location, historical events, and ethnicity. The study implies the reasons for pulling in returnees differs from the pulling in of other inmigrants. White (1992) also looks at what is referred to as the at-risk variable, developed by the Center for Demographic Studies, to measure each state’s ability to attract returnees relative to the number of former residents.

High rates of return do not necessarily mean good news for states trying to develop nonmetropolitan areas. Fitchen (1991) classifies returnees into two groups, the “desired” returnees and the “low-income” returnees (p. 91). The desired returnees are those with higher levels of education and who are economically “secure,” successful, and capable of making a living in the rural area. The
desired returnees may often be returning for employment opportunities and may be seeking a lower cost of living or more rural environment in which to reside; these returnees often occupy “important” roles in the community. On the other hand, low-income returnees are not as welcomed due to their lack of training, or their inability to provide for themselves. Returnees classified as low-income may seek assistance from the public, differentiating them further from other residents.

Larger states are more likely to have returnees in subsequent moves (Miller, 1973). A survey of recently inmigrated household heads in 1975 identified 20% as returnees (Stinner & Kan, 1984). A high “returnee” rate may imply that characteristics desirable or important to newcomers are not present (White, 1992), and therefore, may not be drawing in residents who had not previously resided in the state at the same rate as returnees. Returnees are said to bring in societal changes that differ from those of non-returning inmigrants. Areas pulling in returnees include Central Appalachia and states along the Mississippi River (White, 1992). Returnees may cite their reasons for returning as being related to issues associated with family and friends.

Miller (1973) indicates there is an assumption to be made when dealing with returning inmigrants. Most of them have used existing knowledge of the area to use in comparing and making a decision based on accurate information about the area being returned to and the area being left. Using that knowledge, Miller examined the reasons for returning home, and found that people are more likely to come home due to job availability, as opposed to better wages (1973).

A study conducted by Stinner and Kan (1984) on new and returning community residents in Utah examined demographic characteristics and attitudes towards institutional functioning. Demographic characteristics found to be significantly different between the new residents and the returning residents included the educational level of the respondent, along with the employment status and the family income level. In regard to community satisfaction and acceptance of community, Stinner and Kan found returnees were “significantly more likely to be satisfied with their current
community of residence than newcomers” (p. 141). On the other hand, newcomers were more likely than returnees to make financial and time commitments to community activities and services. Finally, the study showed that newcomers to the community were more likely than returnees to actually leave the community before the next survey (five year time period).

Additional research has also been conducted on elderly populations returning to a state they have previously lived in or their birth state (Longino & Serow, 1992). Findings from that same study indicate there are a number of returning retirees, who were much younger than other retired immigrants, returning to the Midwest and West. The West will be more likely to see immigration due to the fact that it was at one time a Mecca for those returning home from World War II. Across the nation, there is a trend which is seeing more retirees living alone (Longino & Serow, 1993). In all, specific parts of the United States are seeing growth in the number of elderly migrating into nonmetropolitan counties. Implications for the counties could be great, depending on the resources existing and the resources the immigrants will bring with them.

Hypothesis 1A (model I) was developed as a result of previous research on new and returning immigrants, specifically within the state of Iowa. The hypothesis states that there is a relationship between the desire of the immigrants to remain in the current Iowa community of residence for ten years from the time of the survey and the previous residency status of the respondents in the state of Iowa. In other words, there’s a relationship between the retention and whether the immigrant has ever lived in Iowa before. Because of the research previously carried out on the specific characteristic of immigrants, it is proposed that a relationship between being a returning immigrant and the preference to remain in the current community of residence does exist.

Implications of immigration for nonmetropolitan communities

"As the integration of nonmetro areas into the national economy continues, nonmetropolitan migration trends are likely to become increasingly sensitive to national and global economic, political,
and social forces” (Johnson & Beale, 1994, p. 665-6). This statement sets off a warning that things need to change. In looking at the effects of net immigration for nonmetropolitan areas, several things become evident, including growth, services and employment. Voth and Brewster (1990) point out that the rural United States grew in stages, many related to the distinct time periods and events throughout history. The researchers also bring out the ideas that rural communities follow a very different path than urban communities in meeting the changing needs of the populations. They also point out that rural communities often are faced with unique structural barriers which may create challenges when adapting to the increased size and changing make-up of the community.

The first issue is the need to prevent immigration from occurring too quickly, or more specifically, to control the possible implications of rapid immigration. A study by Bender (1987) looked at the development of community services for rural areas. The order in which areas experience growth was examined; do services come first, or does an increase in population? Some say economic development is necessary in the development of a need for services, and others believe that amenities (services) should be what pulls new residents into an area. Nonmetropolitan areas are becoming increasingly sensitive to their role in the national and global economy (Johnson & Beale, 1994). Rural areas, unlike urban areas, often have centralized services, not the “ideal” decentralized services (Bender, 1987). Blakely (1981) mentions that while many nonmetropolitan communities look to pull in business and industry, they may often overlook the capabilities of the existing human capital and infrastructure’s capabilities of meeting the growing needs of the new population.

Shelley and Koven (1993) conducted research which examined migration on a political, economic, and social level, and then related the amenities present to the quality of life. They found that there is a probable way to predict the net interstate migration (specifically using immigration of the 1970’s), using the state population, along with a composite of “ecological quality of life variables, combined with economic factors;” in this particular study, the researchers were referring to the
population of the state, population density, temperature, school enrollment, etc. (Shelley & Koven, 1993, p. 256). They did mention that the direct impact of elected officials on net migration is limited, but supported the idea that government is part of the strong force involved in cultivating capital investment which is used to draw people into the state. Fundamentally, they acknowledged the complexity of net migration and supported the importance of continued research looking at the prediction of change in relation to multiple variables.

When dealing with low-income areas, services of another type become important. Since depressed counties appear to pull low-income populations in (McGranahan & Kassel, 1995), there is a need to examine the funding for public assistance in rural areas. Fitchen (1995) notes that public assistance is not difficult to transfer; however, rural areas are puzzled by the desire of households and individuals moving from economic centers with employment opportunities to rural areas which have little to no employment opportunities. Voss & Fuguitt (1991) have indicated that “migration to and from a place inevitably alters that place” (p. 660). They also mentioned that while migration of low-income households or individuals may appear to be good for the migrant, it is usually negative for the county. The ideal situation would be to bring money into the county; however, there is rarely a great impact on income due to the approximately equal amount of income coming into the county and income leaving the county (Voss & Fuguitt, 1991).

Despite the similar findings regarding income, it does hold true that most migrants take a greater share of the overall wage; however, they are perceived to bring with them an ignorance of previous happenings and history within the community (Voss & Fuguitt, 1991). The latter can prove to be detrimental to the social development of the community. Voss and Fuguitt (1991) denoted that in especially in the South, knowledge of previous happenings and events promoted the uniting of the community. When inmigrants came in, most everything about them was identical to either out-migrants or current residents, except for their knowledge of local events and important issues (Voss &
Fuguitt, 1991). Not being familiar with community happenings or community history may be seen as negative, specifically by the local population. Fitchen (1991) supports this by saying that the “perception of population change is heightened by the contrast between present population realities and the image of the way the community has ‘always’ been until now” (p. 98). Fitchen suggests that being individuals who hold visible public positions, have relatives in the area, and know about the local attitudes tend to be more noticed, and revered as part of the community. On the other hand, new inmigrants tend to be more noticed and lack the advantages of the population which has resided in the area for a longer amount of time. This may contribute to differences in the satisfaction of new and returning inmigrants.

Johnson and Beale feel that “whatever the future course of nonmetro demographic trends, they are likely to be more volatile than in the past” (1994, p. 665). This does not mean that implications are all negative, in fact, Williams (1997) cites Johnson and Beale as identifying the increasing immigration as opportunistic for economic growth and the creation of job opportunities, the advancement of fiscal issues for local government, the availability and quality of health care, educational support, and development of the infrastructure. While many of these may be viewed as difficult to achieve, they are also issues that rural communities will have to face in the event of increased population.

Summary of literature

The information found on inmigration provided a good base. Looking at past research conducted on migration, considering who makes up the inmigrants, and understanding what implications face counties, communities, and states experiencing an increase in population due to immigration are useful in the understanding of possible relationships between pull factors and retention of inmigrants.

Population change was especially noticeable due to the fluctuations of the 1970’s, 1980’s, and 1990’s. Looking at inmigration longitudinally provided a better understanding of what was happening
in rural or nonmetropolitan areas. Literature also pertaining to the issue of rural immigration included the need to look at community satisfaction for new residents, taking an approach that realizes that they are “consumers first and residents of their community second” (Brown, 1993). Sofranko & Fliegel (1984) look at the knowledge of new migrants regarding services and employment opportunities in new areas and how that relates to satisfaction. Adding onto the issue of employment, Cooper (1994) looked at wage rates and how they affect migration patterns and migration decisions. In the same study, there was also information divulged that indicates a geographic “sorting” of wage markets by potential migrants. Finally, Frankena and Koebernick (1984) bring in the issue of natural amenities and look at how that is tied to growth, specifically housing growth, in nonmetropolitan areas. They take a special interest in looking at economic specialization in relation to the type of migrant that chooses to relocate in the county.

**Research Question and Established Hypotheses**

In an effort to further explore the migration continuum, it is important not only to understand what is bringing new immigrants to Iowa, but also what is contributing to their preferences to remain in the state. Based on findings produced by previous studies and research conducted in the area of immigration to nonmetropolitan counties, hypotheses have been formulated for use in this study. Each hypothesis was previously mentioned in the related area of discussion which provided support for each (located in the Theoretical Background section and in Chapter 2). Below are the five hypothesis addressed in this study, summarized and described, along with the variables and the model used in the analysis of each hypothesis.

**Research Question**

What variables contribute to the preference of new immigrants to live in their current Iowa community ten years from the time the survey was completed?
Hypotheses

It is hypothesized that there will be relationships between each of the following characteristics of recent Iowa inmigrants and their preference to remain in their same Iowa community ten years from the time of the survey:

1A) The previous residency status of the respondents in the state of Iowa (returning – model I)

Research indicates that residents returning to their home state have a greater knowledge base of the history, and are more likely to have realistic expectations of the area as opposed to an individual who has never lived in the state (Stinner & Kan, 1984); findings also indicate that the migration reasons for returnees differs somewhat from the migration reasons of residents who have not previously lived in a state (Longino & Serow, 1992; Miller, 1973).

1B) The decision to settle in a thriving county instead of a distressed county (thriving – model I)

This is supported by research which examined employment opportunities in relation to the propensity to move to another area, as well as differences in net population seen by thriving counties in relation to distressed counties.

1C) The citation of employment as the main reason for moving to Iowa (employment – model III)

A number of studies have examined the impact of employment as an incentive to move to another state. Various findings support the relationship between employment and the desire to remain in the same community.

1D) The desire of the inmigrant to specifically move to the state of Iowa (pull – model III)

This issue is addressed by the theoretical basis of this study, specifically Ravenstein’s Laws of Migration (Dorigo & Tobler, 1983), which support the idea that people must be willing to first move to a new state, and the more willing they were to come initially, the more likely they are to want to stay.
1E) The differences experienced between the expectations and findings as related to cost of living, the quality of education, the cost of housing, and the tax rate. (cost of living, quality of education, housing cost, and taxes – model IV)

This relates to the idea of being pleased with the condition of specific economic factors within the new community and state; the idea is derived from the belief that expectations and findings are factors influencing the decision to initially move to Iowa, as well as the decision of whether or not to remain in the Iowa community of residence. Tiebout’s Theory of Local Expenditures (1956) is also appropriately tied with this hypotheses.
CHAPTER 3

MATERIALS AND METHODS

Information presented below describes both the data and the variables utilized in this particular study, focusing on the variables used as the dependent and the independent variables in the analysis of data. Descriptions and frequencies of variables can be found in Appendices B and C.

Description of Data

The data used in this study are from the “Living In Iowa” mail survey conducted by Iowa State University in the Spring of 1997. This survey was developed by a research team in the Department of Human Development and Family Studies to examine inmigrants to rural Iowa counties and to provide the State of Iowa with valuable information relating to their migration. The survey and procedure were formatted in a manner similar to surveys previously conducted in states such as Idaho (Junk, Fox, Carlson, Rudizits, Cann, Schnabel, & Rumford, 1997). Because the objective of this study was to examine the new residents in selected counties within the state, the survey targeted characteristics most commonly associated with nonmetropolitan areas, as well as basic demographic issues. Due to the sampling method used, the respondents were not necessarily the heads of household; however, all were adults, eighteen years of age or older. No specific information as to their position within the household was asked of respondents. Issues addressed included demographic characteristics of the respondent, information relating to expectations and findings associated with moving to Iowa, push and pull factors affecting both their decision to move to Iowa and the decision to remain in Iowa, identified needs within their current community, and satisfaction associated with both the decision to move to the state of Iowa and with the current living conditions.
Procedure

The county selection process began by generating information about all eighty-nine nonmetropolitan Iowa counties. The information generated through the Department of Economic Development was used to create an index of all the counties. The index was created by ranking nonmetropolitan counties from unfavorable (1) to most favorable (89) utilizing statistical information from the following areas:

1) 1995 average weekly wage rate (1 - low and 89 - high)
2) 1990-95 net population change (1 - low (decrease) and 89 - high (increase))
3) 1990 percentage of families at or below poverty level (1 - high and 89 - low)
4) 1990 percentage of total county population over age 65 (1 - high and 89 - low)

The numeric ranking of the individual counties for each of these four categories was added together, and the sum was divided by four to find the initial average ranking of the county compared to all other nonmetropolitan counties within the state. This average number was again used to rank the counties in descending order, based on the economic indicator index developed for this study.

From this ranking of the eighty-nine nonmetropolitan counties, the counties ranked one through twenty-five (identified as the distressed counties) and the counties ranked sixty-four through eighty-nine (identified as thriving) were charted on a state map. Looking for a similar location within the state was a key issue in identifying the counties selected for the pilot study.

From the state map, a cluster of ten distressed and a cluster of four thriving counties were selected. More distressed counties than thriving counties were needed in order to generate a similar size list of recent inmigrants. Both clusters were located in the southern part of the state, and included counties with a variety of characteristics. Table 3-1 provides basic demographic profiles of the counties selected for this study. In order to uphold the issue of confidentiality, the respondents were
Table 3-1. Profiles of selected nonmetropolitan counties

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Distressed county</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adams (2) rural</td>
<td>4,500</td>
<td>77.1%</td>
<td>9.4%</td>
<td>$14,238</td>
<td>3.6%</td>
<td>231</td>
</tr>
<tr>
<td>Appanoose (10) rural</td>
<td>13,674</td>
<td>72.1%</td>
<td>11.5%</td>
<td>$14,747</td>
<td>5.5%</td>
<td>965</td>
</tr>
<tr>
<td>Clarke (17) rural adjacent</td>
<td>8,136</td>
<td>77.6%</td>
<td>8.8%</td>
<td>$13,787</td>
<td>6.6%</td>
<td>324</td>
</tr>
<tr>
<td>Decatur (5) rural</td>
<td>8,177</td>
<td>71.8%</td>
<td>12.3%</td>
<td>$12,744</td>
<td>6.1%</td>
<td>1021</td>
</tr>
<tr>
<td>Montgomery (20) rural adjacent</td>
<td>11,939</td>
<td>80%</td>
<td>12.8%</td>
<td>$16,690</td>
<td>4.2%</td>
<td>939</td>
</tr>
<tr>
<td>Page (18) rural</td>
<td>16,676</td>
<td>78.2%</td>
<td>13.5%</td>
<td>$17,587</td>
<td>3.7%</td>
<td>1,116</td>
</tr>
<tr>
<td>Ringgold (4) rural</td>
<td>5,373</td>
<td>78%</td>
<td>10.3%</td>
<td>$13,371</td>
<td>3.8%</td>
<td>290</td>
</tr>
<tr>
<td>Taylor (7) rural</td>
<td>7,152</td>
<td>75%</td>
<td>8.7%</td>
<td>$12,525</td>
<td>6%</td>
<td>503</td>
</tr>
<tr>
<td>Union (11) rural</td>
<td>12,416</td>
<td>79%</td>
<td>12.8%</td>
<td>$15,507</td>
<td>5.1%</td>
<td>536</td>
</tr>
<tr>
<td>Wayne (1) rural</td>
<td>6,866</td>
<td>71.7%</td>
<td>8.4%</td>
<td>$13,975</td>
<td>4%</td>
<td>396</td>
</tr>
<tr>
<td>Distressed mean</td>
<td>9,491</td>
<td>76.05%</td>
<td>10.85%</td>
<td>$14,517</td>
<td>4.85%</td>
<td>632.1</td>
</tr>
<tr>
<td><strong>Thriving county</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Des Moines (68) urban</td>
<td>42,679</td>
<td>78.9%</td>
<td>12.7%</td>
<td>$18,328</td>
<td>4.7%</td>
<td>3,247</td>
</tr>
<tr>
<td>Henry (81) rural</td>
<td>19,826</td>
<td>79.1%</td>
<td>14.3%</td>
<td>$17,152</td>
<td>3.4%</td>
<td>1,512</td>
</tr>
<tr>
<td>Louisa (73) rural adjacent</td>
<td>11,793</td>
<td>76.3%</td>
<td>9.2%</td>
<td>$16,331</td>
<td>4.1%</td>
<td>657</td>
</tr>
<tr>
<td>Washington (71) rural adjacent</td>
<td>20,508</td>
<td>76.9%</td>
<td>11.7%</td>
<td>$17,337</td>
<td>3.1%</td>
<td>811</td>
</tr>
<tr>
<td>Thriving mean</td>
<td>23,702</td>
<td>77.8%</td>
<td>12%</td>
<td>$17,287</td>
<td>3.8%</td>
<td>1,557</td>
</tr>
<tr>
<td>State mean</td>
<td>28,705</td>
<td>80.1%</td>
<td>16.9%</td>
<td>$18,275</td>
<td>3.7%</td>
<td></td>
</tr>
</tbody>
</table>

Sources:


not traced back to the county of origin. Instead, they are given exclusive designation as either a citizen in the distressed counties or a citizen in the thriving counties.

Sample

The sample was drawn from a computerized list of adult (eighteen years of age or older) driver license holders who had surrendered an out-of-state license for an Iowa license during the previous year (1996) in the each of the fourteen selected counties. The list was provided by the Office of Driver Services, Iowa Department of Transportation. From the list, a systematic random sample of 1,031 names was drawn. One in every seven names was selected from the list of ten distressed counties, and one in every six names was selected from the list of four thriving counties. The names were assigned area codes and participant numbers to insure the confidentiality of participants in the study and to track the response rate.

Of the 1,031 surveys sent, only eighty-six were returned by the post office, resulting in 945 surveys delivered. Of the 945, 634 were returned by participants, a response rate of 67%. For this particular study, only the respondents who moved to Iowa since 1993 were used. The eligibility of each respondent was determined with the question specifically asking what month and year he or she moved or returned to the state of Iowa. Using this subsample of the original sample eliminated outliers, and allowed this study to fall within the same time frame as the initial data used to classify and select the counties. Because this study is only utilizing respondents who have moved to Iowa since 1993, forty-two respondents of the 634 were eliminated. Eliminated from the sample were twenty-one respondents who had resided in Iowa for a number of years before actually surrendering their out-of-state license and twenty-one who did not indicate the date of their immigration to Iowa. Therefore, the sample size for this study was 592 recent immigrants to the state of Iowa. Broken down by years, it can be seen that 4.7% of the sample migrated to Iowa in 1993, 8.3% in 1994, 29.1% in 1995, 56.6% in
1996, and 1.4% in 1997. The variation in percentages can be attributed to the individual decision of each respondent as to when the out-of-state driver license was exchanged.

Following the process suggested in Dillman’s (1978) Total Design Method, the process used in administering the survey involved contacting participants a maximum of four times (see Appendix A). The first contact was a letter of advanced notice; the second was the initial mailing of the survey, along with a cover letter, return envelope, and toll-free contact number; and the third contact was a combination thank you or reminder postcard. A fourth contact was sent to those who had been sent a survey, but had not yet responded, this included a reminder letter, a replacement survey, and a return envelope.

Respondents were asked to complete a seven page questionnaire, which included both multiple choice questions, rankings, and open-ended questions. The survey itself had been tested for ease of response and time required to complete by the research team who developed the survey. Responses were entered in the computer upon arrival at Iowa State University, and then were checked for correctness at two independent times, by two different individuals. Questions not answered were denoted as “missing” when the data were entered.

Description of Variables

The variables utilized in this study are best understood by breaking them down into the dependent variable and the independent variables, providing both a description of the data as initially received through the question, and the operationalized definition. Several of the variables were recoded for use in logistic regression; this type of regression required using categorical or continuous independent variables with a dichotomous dependent variable. For that reason, it was necessary to dummy code some of the independent variables for use in this particular type of analysis. Additional information about the variables used in this study is located in Appendices B and C.
Dependent variable

The dependent variable identified in the research question asks the new inmigrants where they would prefer to live ten years from the time they were completing the questionnaire. Responses to this particular question carry a great deal of value, particularly in the area of possible needs identification for communities and for long-range economic planning. Knowing if the resident is planning to stay in the same Iowa community for ten years from the time of the survey creates knowledge about the retention rate of new inmigrants. While there is value in knowing how many new residents are coming to the state, of equal value is knowing how many are planning to remain in the state. The respondents were asked to indicate whether they would prefer to 1) be in the same community 2) be in another part of Iowa or 3) in another state. Responses of the entire sample indicated that of the 592 respondents, 47.8% would prefer to live in the same community, 10.5% would prefer to live in another part of Iowa, 37.2% would prefer to live in another state, and 4.6% did not respond. As mentioned before, to use the selected measure of analysis, logistic regression, on the sample, the dependent variable was turned into a dichotomous variable, with a 1 representing the preference to live in the current county of residence (n=283) and zero representing the preference to live in an area other than the current community (combining the responses of preferring to live in another community and preferring to live in another state), with n=282. There were twenty-seven “missing” responses reported within this variable.

The value in using this specific question as the dependent variable in this research project lies in two major areas. The first of these is that regardless of the household position of respondents (head of household, child, etc.) their plans to either stay in the same community, or live elsewhere can provide communities and the state of Iowa with an idea of possible changes in population. The second and most important piece of information derived from utilizing this particular variable, lies in its ability to examine migration in stages. First of all, how strong are the pull factors that initially brought the respondents into the state, and secondly, what are the current living situations of the inmigrants which
are influencing their future residential preference. This idea of push-pull factors and retention draws the theoretical basis of the study together, and provides an opportunity to identify specific factors influencing future migration decisions to stay in or to leave the community.

**Independent variables**

Related to the issue of whether people prefer to live in the same community in ten years are a number of independent variables. The independent variables in the study are placed in groups (based on logic and related literature), which in turn are used in four separate models which build upon each other. The groupings of variables which constitute each model can be identified as exogenous variables and intervening variables.

Variables relating to the migration experience were used as exogenous variables and were the first of four groupings which were entered into four separate but progressive models. Model I was made up of information pertaining to the type of county and whether the resident was a previous Iowa resident. The type of county the respondent moved to was determined prior to sending the survey, during the initial selection of the sample, and was denoted in the assigned identification code located on the survey. Each survey was coded prior to the mailing. The type of county was mutually exclusive, with 294 (49.7%) moving to thriving counties and 298 respondents (50.3%) moving to distressed counties. This variable was coded as a dummy variable, with zero representing distressed counties and one representing thriving counties. Because this variable was assigned due to the sampling procedure, there were no missing cases for this variable.

The residency status question asked respondents if they were first time Iowa residents. Those that were first time Iowa residents are called “new” and those who were not first time Iowa residents were called “returning.” The breakdown of this variable indicated that 307 (51.9%) were returning inmigrants and 283 of the respondents (47.8%) were new inmigrants. Only two cases had missing variables (this was only .3% of the sample). This variable was also recoded into a dummy variable,
using one to represent immigrants who had lived in Iowa before (returnees) and using zero to represent immigrants who had never lived in Iowa (new).

The second model included demographic characteristics of the respondents which were the first of three models using intervening variables in the study and included information pertaining to the age, gender, education level, and income level of the respondents. Beginning with age, respondents were asked to answer what year they were born. From that reported information, the year of birth was subtracted from 1997 (the year the study was conducted), and the variable age was created. The range of ages for the sample was eighteen to eighty-five, with more than fifty percent being under the age of thirty-five; the mean age was 39.3.

Gender was a dichotomous variable, with females (56.9%) coded as one and males (41.7%) coded as zero; only eight of the responses (1.4%) were shown to be missing from this variable.

Education level (Q30) was an ordinal variable, using five ordered categories (lowest level to highest level) which included 1) grade school or some high school 2) high school graduate or GED 3) vocational school or some college 4) college graduate or 5) professional or graduate degree. More than half (54.9%) of the respondents had some vocational education or were college graduates. Those respondents who had completed graduate school or had obtained a professional degree constituted 10.8% of the sample.

The final intervening variable was the 1996 total household income level before taxes. This too was an ordinal variable with five categories, with response choices coded from low to high as follows: 1) less than $15,000 2) $15,000-$29,999 3) $30,000-$59,999 4) $60,000-$99,999 and 5) $100,000 or more. Over fifty percent made less than $30,000 before taxes in 1996.

Model III consisted of two more intervening variables, relating to employment and the desire to move to Iowa. The employment variable, referred to as job, was created from an open-ended question, looking at the main reason for the respondent’s recent move to Iowa. Using a categorizing technique,
responses from this question were coded and placed in seventeen mutually exclusive categories. From these seventeen, the number, one, was used to specifically identified employment or job as the main reason for coming to Iowa; over forty-two percent of the respondents indicated that they were coming to Iowa for reasons related to employment (either for themselves, or for members of their household). Using the original data, a dummy code was developed, using one to represent the respondents who came specifically for employment related reasons, and zero representing all other reasons given by respondents. In the event that more than one main reason for moving to Iowa was given, the first response was used.

The next intervening variable used in Model III consisted of the measure of pull to Iowa, asking what the feelings about moving were, prior to moving to Iowa. The question asked the respondents to reply to one of five responses which included 1) actively looking for a way to move to Iowa 2) considered moving to several states, including Iowa 3) did not want to move to Iowa 4) did not want to move anywhere and 5) none of these statements apply. This particular variable addressed the pull-theory, which influences the decision of individuals and households when preparing to move. This variable was dummy coded, using a one to represent actively looking for a way to move to Iowa (20.9%), and zero representing all other responses.

The fourth model included intervening variables which dealt with the expectations and findings of new inmigrants, specifically related to economic issues, collectively referred to as measures of economic attractiveness. First of all, respondents were asked to compare what they had expected the quality of four specified issues to be in Iowa to their previous state of residency. Later, within the survey, they were asked to indicate what they found the quality of the same four specified issues to be in Iowa, as compared to their previous state of residency. The options were that they found each of these (1) higher, (2) same, or (3) lower, as compared to their previous state. The economic issues selected for use in this study include the following:
- cost of living in Iowa
- housing costs in Iowa
- taxes in the state of Iowa
- quality of education in the state of Iowa

Each of these issues were numerically coded, with two responses for each economic issue, one indicating expectations, and the other indicating findings. The coding scheme represented a ranking, with one denoting a negative rating, and three being considered a positive rating. Quality of education was reversed coded to match the negative and positive pattern used with the other variables. From these codings, an index of expectations in relation to findings, referred to collectively and alone, as measures of economic attractiveness, was constructed for each of the four variables. This was done by taking the numeric coding of the finding, and subtracting the numeric coding of the expectation. If the result of this computation was zero, the findings and expectations were the same; if the result of this computation was one or two, the findings exceeded the expectations; if the result of this computation was negative one or negative two, the findings did not meet the expectations. The newly computed economic attractiveness variables were coded as follows:

- cost of living = cost of living found - cost of living expected
- quality of education = quality of education found - quality of education expected
- cost of housing = cost of housing found - cost of housing expected
- rate of taxes = rate of taxes found - rate of taxes expected

An example of the procedure used to construct a measure of economic attractiveness variable is as follows: the respondent had the expectation that the cost of living would be higher in Iowa as compared to the previous state of residency (coded as 1), and then finding that the cost of living in Iowa was really much lower than in the previous state of residency (coded as 3). To calculate the economic attractiveness of the cost of living in Iowa, one was subtracted from three. The resulting
number was a two; a positive number larger than zero which was translated to mean that the findings exceeded the expectations of the respondent in relation to the cost of living in Iowa. When applied to the model, this was interpreted as representing greater economic attractiveness to the recent immigrant.
CHAPTER 4

RESULTS

Results in this chapter addresses the research question by using cross-tabs, frequencies, and logistic regression. A description of the logistic regression procedure, and then discussion of the various models used to address the hypotheses are included in this chapter.

Logistic Regression

Logistic regression is a multivariate technique used to estimate the probability associated with a dichotomized outcome variable. In order to better understand this technique, the process is broken down into the three steps explained below. Each of the three steps provides the same basic information about the outcome, the information is just phrased differently with each method (Menard, 1995). With information produced by computing the logistic regression using a dichotomous dependent variable, it is possible to compute the odds ratio. The odds ratio is defined as the probability an outcome will occur over the probability that an event/outcome will not occur (Noursis, 1997). This ratio is interpreted to be the “the odds of the dependent variable occurring.” The odds ratio can be expressed as a function of predictor variables as presented below in Equation 4-1.

\[
\frac{\alpha}{1-\alpha} = e^{(b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3)} \quad \text{Equation 4-1.}
\]

Because the above method isn’t reflective of a linear relationship, the same information could also be used to calculate the log of the odds, or a logit. This can be translated into the change in the dependent variable that is a result of a one-unit change in the independent variable (Noursis, 1997). The formula for the log of the odds translates into a linear relationship between the variables used in this study, unlike the method used above to calculate the odds of the occurrence. The coefficients linking the covariates to the log of the odds can be interpreted similar to regression coefficients;
however, the outcome is a change in the log of the odds rather than a change in the level of outcome. The equation for the log of the odds is presented below in Equation 4-2.

$$\log \left( \frac{\alpha}{1-\alpha} \right) = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3$$  \hspace{1cm} \text{Equation 4-2.}$$

The final calculation for this process estimates the probability that the dependent variable will occur. The equation used alpha divided by one minus alpha to represent the approximate probability of the outcome, as seen in Equation 4-3 below. If the probability is greater than .5, it is usually assumed the event will occur. the equation below, can be used to calculate the probability that an event will occur.

$$\text{probability or } p = \frac{\alpha}{1 + \alpha}$$  \hspace{1cm} \text{Equation 4-3.}$$

Depending on the use of the particular data, any of the three methods explored above may be used to examine the relationship of the variables in a logistic regression model to the identified dependent variable. In this instance, the log of the odds will be used to examine the results of the data analysis.

This use of actual variables from the study in this example consisted of all dichotomous variables, which were recoded as either zero or one. In this case, as in all the models, the dependent variable indicates whether the inmigrant prefers to stay in his/her community of current residence in the next ten years (coded as one) or if the inmigrant prefers to live somewhere else (coded as zero). The coefficients produced with this program are most easily interpreted using the dependent variable’s value of one, which in this case, indicates the preference to stay in the same community. The other dichotomous variables used are thriving and returning. Thriving is coded to represent whether the inmigrant settled in a county classified as thriving (coded as one) or in a county classified as distressed (coded as zero). The variable, returning, indicates whether the inmigrant previously lived in Iowa (coded as one) or if he or she is new, and has never lived in Iowa before (coded as zero). The breakdown of the sample, using the dependent variables, in addition to both independent variables is
shown below in table 4-1. If thriving is coded one and returning is coded zero, it would be assumed that the immigrant or the group of immigrants moved to a thriving county, and had never lived in Iowa before.

Table 4-1 provides an idea of the distribution of recent inmigrants in to each type of county discussed in this study, based upon their previous residency status in the state of Iowa, and upon their plans to remain in their current community of residence for the next ten years. The differences observed in the distribution of the inmigrants based upon county type, residency status, and plans to remain in their current community of residence warrant the need for additional research. These differences, specifically in the numbers of people who plan to remain in the same Iowa community and in the future residency preferences of new inmigrants in thriving counties, are not as proportional as the overall distribution between county types and residency status of inmigrants alone. Knowing what is affecting the desire of the inmigrants to remain in their same community of residence for the next ten years could provide valuable information to many nonmetropolitan communities. This information may also affect the recruitment tools used by these counties, specifically targeting returnees or nonreturnees.

Table 4-1. Breakdown of recent inmigrants by plans to remain in current Iowa community (10 year prediction), county type (thriving) and residency status (returning) (n = 563)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Distressed county (thriving = 0)</th>
<th>Thriving county (thriving = 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New inmigrants (returning = 0)</td>
<td>Returning inmigrants (returning = 0)</td>
</tr>
<tr>
<td>Leaving Iowa community (stay = 0)</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>Staying in Iowa community (stay = 1)</td>
<td>75</td>
<td>88</td>
</tr>
<tr>
<td>Column Total (percentage of total sample)</td>
<td>140 (24.87%)</td>
<td>143 (25.4%)</td>
</tr>
</tbody>
</table>
The interaction effect of the variables returning and thriving will be used \((b_3)\) only in the example of model I, due to the fact that it did not exhibit any significance when used as a predictor of the dependent variable. The parameter of the interaction variable was \(0.6267\), and the contribution it made to the explanation of the dependent variable was not substantial \((\alpha > 0.05)\), making the use of the interaction variable unnecessary in all models, but valuable in the explanation of the logistic regression process. The interaction effect is only applied when the inmigrants were both from thriving counties and were returning inmigrants; this is due to the dummy coding of variables used in the models.

Calculating the odds of the dependent variable requires parameter estimates generated by the logistic regression function. Equation 4-1 was used to calculate the odds of the dependent variable (as in Table 4-2), which is predicting whether people will stay in the same community ten years from the time of the survey based on the residency status of the inmigrant and the type of county currently resided in. The entire sample \((n = 563)\) was used in the calculations in this particular section. The estimated coefficients for the all of the following equations are \(b_0 = 0.1431\), \(b_1 = 0.3269\), \(b_2 = -0.9900\), and \(b_3 = 0.6267\).

The odds of staying in the same community are arranged by residency status and county type in Table 4-3. If a respondent resides in a non-thriving or distressed county and he or she is not a returning inmigrant, the odds of staying in the same community ten years from the time of the survey are 1.15.

**Table 4-2. Computation of odds**

(\(\text{using Equation 4-1 } \alpha/(1-\alpha) = e^{(b_0 + b_1 \cdot \text{returning} + b_2 \cdot \text{thriving} + b_3 \cdot \text{returning} \cdot \text{thriving})}\) )

<table>
<thead>
<tr>
<th>Variable coding</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning = 0</td>
<td>(e^{(0.1431 + 0.3269 \cdot 0 - 0.9900 \cdot 0 + 0.6267 \cdot 0 \cdot 0)} = 1.1538)</td>
</tr>
<tr>
<td>Thriving = 0</td>
<td></td>
</tr>
<tr>
<td>Returning = 1</td>
<td>(e^{(0.1431 + 0.3269 \cdot 1 - 0.9900 \cdot 0 + 0.6267 \cdot 1 \cdot 0)} = 1.6000)</td>
</tr>
<tr>
<td>Thriving = 0</td>
<td></td>
</tr>
<tr>
<td>Returning = 0</td>
<td>(e^{(0.1431 + 0.3269 \cdot 0 - 0.9900 \cdot 1 + 0.6267 \cdot 0 \cdot 1)} = 0.4287)</td>
</tr>
<tr>
<td>Thriving = 1</td>
<td></td>
</tr>
<tr>
<td>Returning = 1</td>
<td>(e^{(0.1431 + 0.3269 \cdot 1 - 0.9900 \cdot 1 + 0.6267 \cdot 1 \cdot 1)} = 1.1126)</td>
</tr>
</tbody>
</table>
On the other hand, if the respondent lives in a thriving area and is a returning immigrant, the odds of staying in the same community ten years from the time of the survey are 1.11. Other interpretations indicate that the odds of newcomers staying in a thriving county are very low (.4287), while the odds of returning immigrants staying in the distressed counties is quite high (1.6000).

Table 4-3. Odds of staying in current community 10 years from the time of the survey

<table>
<thead>
<tr>
<th></th>
<th>Returning = 0</th>
<th>Returning = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thriving = 0</td>
<td>1.1538</td>
<td>1.6000</td>
</tr>
<tr>
<td>Thriving = 1</td>
<td>.4287</td>
<td>1.1126</td>
</tr>
</tbody>
</table>

Again utilizing the dichotomous values for both the dependent and independent variables, Equation 4-2 (in previous section) is used to calculate the log of the odds that the immigrant will stay in his or her current Iowa community of residency for the next ten years. As noted above, the log of the odds linearizes the odds of staying in the current county of residency for ten years from the time of the survey.

Table 4-4. Logarithm of the odds equation

(\(\text{Equation 4-2}: \beta_0 + \beta_1 (\text{returning}) + \beta_2 (\text{thriving}) + \beta_3 (\text{returning} \times \text{thriving})\))

<table>
<thead>
<tr>
<th>Variable coding</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning = 0</td>
<td>Thriving = 0  (0.1431 + 0.3269(0) - 0.9900(0) + 0.6267(0*0) = 0.1431)</td>
</tr>
<tr>
<td>Returning = 1</td>
<td>Thriving = 0  (0.1431 + 0.3269(1) - 0.9900(0) + 0.6267(1*0) = 0.4700)</td>
</tr>
<tr>
<td>Returning = 0</td>
<td>Thriving = 1  (0.1431 + 0.3269(0) - 0.9900(1) + 0.6267(0*1) = -0.8469)</td>
</tr>
<tr>
<td>Returning = 1</td>
<td>Thriving = 1  (0.1431 + 0.3269(1) - 0.9900(1) + 0.6267(1*1) = 0.1067)</td>
</tr>
</tbody>
</table>

The log of the odds equation was computed four different times, using a different combination of the independent dichotomous variables each time, as seen below in Table 4-4. Each of the four times represents a group of immigrants, each group with a different combination of the mutually exclusive independent variables. The estimated coefficients used to calculate the log of the odds are the same as those used to calculate the odds. The coefficients for this equation are the same as those used for the equations used above, and the others within this section. Results indicate that for those
inmigrants living in non-thriving counties, who are not returning inmigrants, the log of the odds is .14. This same formula shows that those living in thriving counties, and who were returning inmigrants, have a log of the odds equal to .11. The data is organized by county type and inmigrant residency status as seen below in Table 4-5.

Table 4-5. Logarithm of odds of staying in current community 10 years from the time of the survey

<table>
<thead>
<tr>
<th>Thriving = 0</th>
<th>Returning = 0</th>
<th>Returning = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>.1431</td>
<td>.4700</td>
<td></td>
</tr>
<tr>
<td>-.8469</td>
<td>.1067</td>
<td></td>
</tr>
</tbody>
</table>

Table 4-6. Probability Equations (using Equation 4-3 $p = \frac{\alpha}{1+\alpha}$)

<table>
<thead>
<tr>
<th>Variable coding</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning = 0</td>
<td>Thriving = 0 1.1538/(1 + 1.1538) = .5357</td>
</tr>
<tr>
<td>Returning = 0</td>
<td>Thriving = 0 1.6000/(1 + 1.6000) = .6154</td>
</tr>
<tr>
<td>Returning = 0</td>
<td>Thriving = 1 .4287/(1 + .4287) = .3001</td>
</tr>
<tr>
<td>Returning = 1</td>
<td>Thriving = 1 1.1126/(1 + 1.1126) = .5266</td>
</tr>
</tbody>
</table>

The third calculation used to examine logistic regression was probability. This is seen above in Table 4-6. This simply provided an estimated calculation of whether the inmigrants will prefer to stay in the same community, based on the information provided regarding the type of community residing in and whether the inmigrant has resided in Iowa before. To be useful, probability should be between zero and one, and could easily be translated into percentages. The probabilities provide approximated information relating to the occurrence of the dependent variable. Probabilities can be calculated by using Equation 4-3 as seen above in Table 4-6.

Table 4-7 provides the probabilities calculated for the dependent variable in this study. The provided probabilities demonstrated how likely it is that inmigrants with particular characteristics will remain in their current community of residence. Probability for inmigrants not previously Iowa residents and living in non-thriving or distressed counties is 53.57%; inmigrants who previously lived in Iowa and are now living in non-thriving counties have a probability of 61.54% - this is the quadrant
with the highest probability of remaining in the current community of residency; immigrants living in
thriving counties, but have not resided in Iowa previously have a probability of 30.01%, the lowest of
all quadrants; and finally, residents living in thriving counties who have lived in Iowa before have a
probability of 52.66%. A summary of these findings implies that regardless of the residency status of
the immigrant, households living in distressed counties are more likely to remain in Iowa for ten years
than those in thriving counties, and returnees are more likely to stay than are newcomers to the state.

Table 4-7. Probability of staying in current community 10 years from the time of the survey

<table>
<thead>
<tr>
<th></th>
<th>Returning = 0</th>
<th>Returning = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thriving = 0</td>
<td>.5357</td>
<td>.6154</td>
</tr>
<tr>
<td>Thriving = 1</td>
<td>.3001</td>
<td>.5266</td>
</tr>
</tbody>
</table>

Discussion of Models

Four models developed for use with the data related to immigration are exhibited below. A
basic description of the logistic regression process accompanies model I, with models II, III, and IV
utilizing the information from the analysis to interpret the data, predicting the relationships between the
selected independent variables and the dependent variable. The four models were developed to address
issues brought up in the exploration of theory and literature related to this particular study. Three of
the four models specifically address the hypotheses associated with this study and the other model
examines the relationship between the selected dependent variable and demographic characteristics.
The use of the model exploring demographic characteristics is in support of the multifaceted research
on these particular variables. The following explains which hypothesis is addressed by each model:

Model I – hypothesis 1A and hypothesis 1B
Model II – demographic characteristics
Model III – hypothesis 1C and hypothesis 1D
Model IV – hypothesis 1E
Model I

Model I was used not only to explore the responses to two of the stated hypotheses, but also to explain the process of logistic regression. Provided with the primary output, the log of the odds (logit), the odds, and the probability were calculated above. Use of the same model, with the elimination of the interaction variable (based on significance level or p less than .05 in initial logistic regression model), provided for the examination of both Hypotheses IA and IB.

The purpose of hypothesis IA was to explore the relationship between the dependent variable, the preference of recent Iowa inmigrants to remain in their current community of residence in ten years, and its relationship to the previous Iowa residency experiences of the inmigrant (referred to as returning). Using logistic regression, the relationship is explored. Table 4-8 includes the results of the first logistic model, which contained both the independent variables returning and thriving. The model predicts a relationship, both positive and significant in this case, between having lived in Iowa before and planning to reside in the same community in ten years. This may be attributed to the reasons the inmigrant initially moved back to the state of Iowa, possibly citing reasons of a more permanent nature. This provides evidence which supports hypothesis IA.

Hypothesis IB predicted a relationship between the desire to stay in the same community ten years from the time of the survey to the type of county in which they settled, defined as either a thriving or a distressed county. The relationship is explored through the use of logistic regression in model I as well. Table 4-8 includes the results of the regression model, and indicates that living in a thriving county is negatively and significantly (p<.05) related to the desire to remain in the same Iowa community over the next ten years. This finding suggests that if people are in thriving areas, as defined in this case by use of economic and demographic factors, they are less likely to want to stay in the community over the next ten years. Possible reasons for this significantly negative relationship may stem from the original reason the inmigrants moved to Iowa in the first place. For whatever reason
they came to thriving areas, the fact that they settled in a thriving area as opposed to distressed area, is not enough to retain them in ten years hence. This is enough to indicate that there is support for hypothesis 1B in model I.

Model I, involving both variables (returning and thriving) is significant, and has a model Chi-square of 26.969. The explanation of variance prior to running any models was 780.482, and upon completing model I, there was an unexplained variance of 753.513. The model is significant, and the pseudo R² is .0351, considered to be quite low in its ability to explain the variance of the model. The model indicates that while having lived in Iowa before contributes to the likelihood of staying in the same community over the next ten years, living in a thriving county takes away from the probability.

Table 4-8. Logistic regression of the probability of staying in current community ten years from the time of the survey (n=563)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate (b)</th>
<th>Wald test</th>
<th>Standard error</th>
<th>Approximate significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning</td>
<td>.6318</td>
<td>13.271</td>
<td>.1734</td>
<td>.0003*</td>
</tr>
<tr>
<td>Thriving</td>
<td>-.6581</td>
<td>14.426</td>
<td>.1733</td>
<td>.0001*</td>
</tr>
</tbody>
</table>

Model X² 26.969 Model significance .0000
Degrees of freedom 2 Pseudo R² .0351

* significant at the p < .05 level

Model II

The issue of basic demographics was addressed in the “Living in Iowa” survey, and will be addressed through use of logistic regression in model II. While there were no established hypotheses which dealt directly with the issue of demographic characteristics, there is valuable information which can be drawn from the analysis and the relationship of selected demographic variables to the dependent variable.

The variables included in the second logistic regression model involved those specifically pertaining to educational level, annual income, age, and gender. As mentioned in the methods and
materials chapter, both educational level and annual income were ordinal variables with five ascending possible responses, age was calculated using the year of birth provided by the respondent, and gender was dummy coded (one represented females). When these demographic variables were added to the existing model, which was controlling for county type (thriving) and previous Iowa residency (returning), there was an increase in the pseudo-$R^2$, increasing it from the .0346 of model I, to .0880. This increase in pseudo-$R^2$ suggests that the addition of the demographic variables is aiding in the explanation of what would make immigrants want to remain in Iowa for the next ten year, thus explaining more of the variance than before. Model II was also significant, with a model Chi-square of 65.306.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate (b)</th>
<th>Wald test</th>
<th>Standard error</th>
<th>Approximate significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning (returning)</td>
<td>.4785</td>
<td>6.894</td>
<td>.1822</td>
<td>.0086*</td>
</tr>
<tr>
<td>Thriving (thriving)</td>
<td>-.6118</td>
<td>11.420</td>
<td>.1810</td>
<td>.0007*</td>
</tr>
<tr>
<td>Educational level (Q30)</td>
<td>-.3159</td>
<td>13.197</td>
<td>.0870</td>
<td>.0003*</td>
</tr>
<tr>
<td>Income level (Q33)</td>
<td>-.0068</td>
<td>.012</td>
<td>.0619</td>
<td>.9122</td>
</tr>
<tr>
<td>Age (age)</td>
<td>.0316</td>
<td>20.725</td>
<td>.0069</td>
<td>.0000*</td>
</tr>
<tr>
<td>Gender (female)</td>
<td>.2630</td>
<td>2.027</td>
<td>.1848</td>
<td>.1545</td>
</tr>
</tbody>
</table>

Model $X^2$ = 65.306

<table>
<thead>
<tr>
<th>Degrees of freedom</th>
<th>Model significance</th>
<th>Pseudo $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>.0000</td>
<td>.0880</td>
</tr>
</tbody>
</table>

* significant at the p < .05 level

Findings from model II are reported in Table 4-9. Using the coefficients provided, the two variables carried over from model I remain significant, with the status of being a returning immigrant being positively related to staying in the same Iowa community, and residing in a thriving county being negative related. Two of the four new demographic variables were found to be significant as well. Educational level was negative and significant, indicating that as the educational level increases, the
probability of living in the same Iowa community ten years from the time of the survey decreases. The positive relationship between age and the dependent variable implies that as age increases, so does the probability that the immigrant will remain in the same Iowa community. The insignificance of gender and income level did not lend support to the model’s ability to explain the variance; however, knowing there is no significant effect from these two variables provided information pertaining to the population that plans to remain in Iowa.

**Model III**

Examination of both employment and actively looking for a way to move to the state as reasons for coming to Iowa was carried out through the logistic regression model III. Addressing these issues identified as “pull” issues also provided for a testing of the hypotheses 1C and 1D. Hypothesis 1C suggested that there was a relationship between the desire to stay in the same Iowa community for the next ten years and the citing of employment-related issues as the main reason for moving to Iowa. This was taken into account and computed using logistic regression, including the variables entered in model II (returning, thriving, educational level, income level, age, and gender). In response to hypotheses 1C, the analysis of the data indicated that there was no significant relationship between the indication of job-related reasons for moving to Iowa by the respondent and the dependent variable; however, there was an indication of a negative relationship that was not significant. Apparently, coming to Iowa for job-related reasons had no effect on the long-term retention of immigrants.

Hypothesis 1D, which hypothesizes a relationship between the desire to move to only Iowa and retention in the same community for ten years after this survey, was also analyzed in this same model. Holding the variables previously discussed constant, hypothesis 1D is supported by the analysis of this particular model. Using a dichotomous variable which had been coded to represent the fact that the immigrant was actively looking for a way to move to Iowa, the relationship was found to be both positive and significant, as seen below in Table 4-10. This implies that respondents who indicated they
were “actively looking for a way to move to Iowa,” are more likely to stay in their current community.

This significance was supported by a strong Wald statistic (19.817) for the variable “pull”. Also evident was the increase in Pseudo R² of model III - .1183; the model Chi-square for model III was 88.738.

Table 4-10. Logistic regression of the probability of staying in current community ten years from the time of the survey (n=541)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate (b)</th>
<th>Wald test</th>
<th>Standard error</th>
<th>Approximate significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning (returning)</td>
<td>.2446</td>
<td>1.483</td>
<td>.2008</td>
<td>.2232</td>
</tr>
<tr>
<td>Thriving (thriving)</td>
<td>-.5942</td>
<td>9.963</td>
<td>.1883</td>
<td>.0016*</td>
</tr>
<tr>
<td>Educational level (Q30)</td>
<td>-.2730</td>
<td>8.758</td>
<td>.0922</td>
<td>.0031*</td>
</tr>
<tr>
<td>Income level (Q33)</td>
<td>-.0236</td>
<td>.126</td>
<td>.0663</td>
<td>.7225</td>
</tr>
<tr>
<td>Age (age)</td>
<td>.0331</td>
<td>21.242</td>
<td>.0072</td>
<td>.0000*</td>
</tr>
<tr>
<td>Gender (female)</td>
<td>.2597</td>
<td>1.81</td>
<td>.1929</td>
<td>.1781</td>
</tr>
<tr>
<td>Employment issues (job)</td>
<td>-.1008</td>
<td>.239</td>
<td>.2061</td>
<td>.6249</td>
</tr>
<tr>
<td>Desire to move to Iowa (pull)</td>
<td>1.1150</td>
<td>19.187</td>
<td>.2505</td>
<td>.0000*</td>
</tr>
</tbody>
</table>

Model X² 88.738  Model significance .0000
Degrees of freedom 8  Pseudo R² .1183

* significant at the p < .05 level

The association of these factors which were “pulling” the immigrants specifically to Iowa, with the retention of recent immigrants provides a means of exploring the theoretical base of this study. The findings support logic, suggesting that if people relocate only for a job, it might not be enough to keep them in that area for a long period of time; however, if people are actively looking for a way to move to a state, there are obviously factors pulling them in, and from the analysis, these factors are strong enough to possibly keep them in the same Iowa community for a predicted ten years. The desire to move to the state of Iowa specifically, served as a very important measure of pull in this study. In addition to finding the variable associated with the desire to move to Iowa significant, all other variables identified as significant in previous models continued to be significant, with the exception of
the returning variable, which became not significant after adding the group of intervening variables (pull and job) into the model.

**Model IV**

The final model addresses the final hypothesis, HE, which dealt with economic issues associated with moving to the state of Iowa. The survey used in this study asked respondents to indicate both the expectations they had about four specific economic issues in Iowa, as compared to their previous state of residency, and the findings concerning the same four economic issues after arriving in Iowa. Use of this set of questions allowed for the measurement of economic attractiveness, considered to be both pull factors, which brought them to the state of Iowa, and push factors, which might contribute to the decision to move out of their new Iowa community.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate (b)</th>
<th>Wald test</th>
<th>Standard error</th>
<th>Approximate significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning (returning)</td>
<td>.1595</td>
<td>.553</td>
<td>.2144</td>
<td>.4569</td>
</tr>
<tr>
<td>Thriving (thriving)</td>
<td>-.6150</td>
<td>9.363</td>
<td>.2010</td>
<td>.0022*</td>
</tr>
<tr>
<td>Educational level (Q30)</td>
<td>-.2774</td>
<td>7.512</td>
<td>.1008</td>
<td>.0059*</td>
</tr>
<tr>
<td>Income level (Q33)</td>
<td>-.0097</td>
<td>.017</td>
<td>.0744</td>
<td>.8962</td>
</tr>
<tr>
<td>Age (age)</td>
<td>.0440</td>
<td>28.875</td>
<td>.0082</td>
<td>.0000*</td>
</tr>
<tr>
<td>Gender (female)</td>
<td>.3222</td>
<td>2.401</td>
<td>.2079</td>
<td>.1213</td>
</tr>
<tr>
<td>Employment issues (job)</td>
<td>-.0262</td>
<td>.014</td>
<td>.2177</td>
<td>.9044</td>
</tr>
<tr>
<td>Desire to move to Iowa (pull)</td>
<td>1.1217</td>
<td>17.513</td>
<td>.2680</td>
<td>.0000*</td>
</tr>
<tr>
<td>Cost of living (colvng)</td>
<td>.6427</td>
<td>11.915</td>
<td>.1904</td>
<td>.0007*</td>
</tr>
<tr>
<td>Quality of education (educ)</td>
<td>.1901</td>
<td>.976</td>
<td>.1924</td>
<td>.3232</td>
</tr>
<tr>
<td>Housing costs (hsingcst)</td>
<td>.0175</td>
<td>.001</td>
<td>.1759</td>
<td>.9206</td>
</tr>
<tr>
<td>Taxes (taxes)</td>
<td>-.1782</td>
<td>1.189</td>
<td>.1635</td>
<td>.2757</td>
</tr>
</tbody>
</table>

**Model X^2** 106.678  **Model significance** .0000

| Degrees of freedom             | 12                     | Pseudo R^2 | .1527          |

* significant at the p < .05 level
As seen above in Table 4-11, knowing both the expectations and the findings allowed for a comparison and creation of variables measuring the accuracy of their expectations can contribute to the understanding of what factors influence the decision to remain in the same Iowa community. The economic issues explored were the cost of living, the quality of education in the state, the cost of housing, and the state tax rate. Each of these were entered as a separate variable, using positive numbers to indicate findings which exceeded expectations and negative numbers representing findings which did not meet expectations.

Holding all of the previously entered variables constant, the model found only one of the four economic attractiveness variables to be significant - cost of living. Cost of living was found to have a positive and significant relationship to the desire to stay in the same Iowa community. If people found the cost of living to be lower than they expected, they were more apt to prefer to stay in their current Iowa community. The conclusion that the other three economic issues did not significantly influence the decision to stay in the current community of residence opens a number of questions relating to the desire to remain in the same community over a period of ten years. The variables which were not significant in this model (quality of education, cost of housing, and taxes) are those denoted as important in the migration decision by researchers such as Tiebout and Ravenstein. When another regression model was run without the cost of living variable, the three other economic attractiveness variables were again not significant at the .05 level. This unreported model was run to explore the possible inclusion of the three variables under the umbrella of the cost of living variable. Future research might involve further examination of the importance of the quality of education, cost of housing, and taxes expected and those found, in relation to the preference to remain in the current community of residence for the next ten years.

Along with the significant positive relationship of the cost of living, each of the other variables identified as significant in model III remained the same. None of the variables went from being either
positively to negatively related or vice versa, which might have suggested an extremely powerful effect of the new variables added to the model. The Chi-square of the model increased to 106.678, and the pseudo $R^2$ increased to .1527, suggesting this model accounts for a 15% reduction of the Chi-square. Examination of the Wald test statistics, which test the statistical significance of the individual variables, also lends valuable interpretative powers. The Wald statistic is analogous in use to the $t$-ratio used in linear regression. The significant variables in model IV all have strong Wald test scores, and that combined with the small coefficients indicates significance.

**Summary of models**

The findings resulting from this study provided valuable information for use in future migration studies, as well as for economic and community development in nonmetropolitan areas. Maintaining the same variables, with the exception of one, as significant throughout the analysis of all of the models implies that the variables were important to the explanation of why recent immigrants might choose to stay in Iowa for ten years following the date of the survey. While some of the findings catered to “common sense,” such as age and educational level, the relationship of the dependent variable with the others was somewhat of a surprise. An example of this is the inverted significant relationship between living in a thriving area and wanting to remain in the same community in ten years. Other variables such as income and the other three variables measuring economic attractiveness had support from the literature and from the theoretical and conceptual underpinnings; it would seem that this support would have made them significant in the explanation of why people would hope to be living in the same Iowa community ten years after the completion of the survey.

Incremental increases in the model significance, as well as in the measure of the Pseudo $R^2$, indicates the value of the model as it relates to the retention of new immigrants in selected counties within the state of Iowa. Table 4-12 exhibits the progressive nature of the models, and clearly shows
what new variables were added in each model, in addition to the variables found to be significant in each of the models. As seen in Table 4-12, the variable, "returning," was significant in the first two models, but the power of the additional variables added in Model III (employment as reasons for moving and pull to Iowa or desire to move specifically to Iowa) prevented it from continuing to be significant. None of the variables went from being positively and significantly related to being negatively and significantly related, or vice versa in any of the models.

Discussing the hypotheses associated with the study overall, in terms of the either supporting or rejecting the null hypotheses, we find that we fail to reject the null hypotheses, or have sufficient evidence to believe there is a relationship between the dependent variable and the independent variables in three of the five hypotheses. Preference to remain in the same Iowa community for the next ten years was found to have a relationship with the specified variables through the use of logistic

### Table 4-12. New variables and significant variables within each logistic regression progressive model

<table>
<thead>
<tr>
<th></th>
<th>Model I (n = 563)</th>
<th>Model II (n = 554)</th>
<th>Model III (n = 541)</th>
<th>Model IV (n = 504)</th>
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</thead>
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<td>Dependent variable</td>
<td>Prefer to remain in current community of residence for next 10 years</td>
<td>Prefer to remain in current community of residence for next 10 years</td>
<td>Prefer to remain in current community of residence for next 10 years</td>
<td>Prefer to remain in current community of residence for next 10 years</td>
</tr>
<tr>
<td>Variables in models</td>
<td>returning* thriving*</td>
<td>returning* thriving* education level* income level age* gender</td>
<td>returning* thriving* education level* income level age* gender employment pull*</td>
<td>returning* thriving* education level* income level age* gender employment pull* cost of living* quality of education housing costs taxes</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>.0351</td>
<td>.0880</td>
<td>.1183</td>
<td>.1527</td>
</tr>
</tbody>
</table>

*significant at p < .05 level

boldfaced - new variables in model
regression. The hypotheses supported by the analysis included the supposed relationships between the dependent variable and the decision to settle in a thriving county (1B – model I), the desire to specifically move to the state of Iowa (1D – model III), and finally, one of the four economic attractiveness variables, cost of living (1E – model IV).
CHAPTER 5

SUMMARY AND CONCLUSIONS

Summary of Study

There were two initial objectives of this study, the first of which was to present specific information from the recent inmigrants which would be beneficial to the future development of nonmetropolitan counties in the state of Iowa. The second and more specific objective was to explore not only the factors which brought the respondents to the state of Iowa, but also the factors which contribute to the decision to remain in the current community of residence in Iowa. Both of the aforementioned “push-pull” factors are tied closely with the theoretical base of the study, which included theories founded on basic economic principles, in addition to theories which examined service bundles and push-pull issues as they pertain to migration.

The sample for the study was drawn from a survey of recent inmigrants to the state of Iowa. The sample was pulled from fourteen counties, in which four of the counties were identified by a predetermined index, to be thriving, and the other ten were considered to be distressed. In addition to specifically studying traits about the county, the recent inmigrants were classified in mutually exclusive groups relating to their residency status. Respondents were classified as either returning inmigrants or new inmigrants, based on whether they had previously lived in Iowa. This classification of both county type and residency status provided for an interesting breakdown in the sample.

Beginning the analysis of data on the mutually exclusive categorization of both county and residency status provided an opportunity to examine how much of an effect both of these variables had on the dependent variable. The dependent variable selected was a measure of whether the respondent intended to stay in their present community of residency for the next ten years, or if he or she intended to move to another area. In addition to looking at the effect the type of county and residency status had
on the dependent variable, three other levels of data were also entered into the total of four models presented. The other levels contained data related to demographic issues, employment and pull factors, and measures of economic attractiveness.

Of the variables entered, there were three which had a positive and significant relationship with the dependent variable which was to prefer to stay in Iowa for ten years from the survey completion date. The three variables were age of respondent, the desire to move to Iowa, and the cost of living expected in relation to the cost of living found. With each of these, it is indicated that as one increased, the probability of staying in Iowa increased. On the other hand, there were two variables which were significant, but were negatively related, including living in a thriving county and level of education. With both of these, the likelihood of staying in the same community decreased as the level of education increased and when the county of new residency was thriving rather than distressed.

Limitations of Study

While the survey used in this study held a great deal of valuable information, all of the data could not be used for this particular study. One of the limitations of the study, in its use specifically for use in the area of economic and community development, was the lack of questions more specific to the retention of inmigrants. This sort of information might have included more specific details on the state from which the respondents came, and whether they were currently working in the county or outside of the county (also applicable to working in or outside of state when dealing with counties on state lines). The value of additional data, which specifically examined the retention of recent immigrants would provide for a greater explanation of the dependent variable within this study.

A second limitation pertaining to the study was the use of surveys that were sent to household members, and not specifically to the head of the household. An example of this was the eighteen year-old son, who did not have a choice but to move with his family. This could affect the responses to several of the questions, as well as the outcome of the analysis. Not being in the role of head of
household might alter the decisions made by the respondent, as well as the specific responses to what affected their decisions to move to Iowa, and what their specific plans are for the future. A lack of knowledge of economic issues which affect the household, could also have been a major factor in the responses received through the use of this survey, making the data less reliable.

Another limitation identified was the sample size; this was a small sample due to the use of this survey as a pilot study. The intention of this study was to collect data regarding changes which should be made if this were to be used on a state-wide basis. This limited both the size of the sample, and the parts of the state involved in the study. A final limitation to the study was the use of the term community synonymously with county. This could be an issue, especially in more rural areas, where a community might be considered somewhat different than a county, especially in the area of resources available.

**Implications for Future Research**

As mentioned above, there is a real need for migration research which addresses not only the type of area being migrated to, but also the previous residency characteristic of the households migrating. This will provide information which is more useful to counties experiencing a rejuvenation of sorts due to one type of immigration or another.

This study also indicates a need for research which explores the prediction of retention for communities. Not only is knowing about what brings people to a specific county or area important, but knowing what keeps the individuals in that area is also of great importance. The issue of rural retention is important, especially to the nonmetropolitan communities working to create a strong economy or community based on population growth. A population in constant transition can be detrimental to a community or area not familiar with handling this type of population.

Finally, the study examining what influences the decisions of households to either remain in Iowa, or to leave opens up an excellent opportunity to further examine the issue of satisfaction as it
relates to retention. This may include satisfaction issues that differ from those already identified, such as neighborhood satisfaction, housing satisfaction, and community satisfaction, but may also involve satisfaction issues associated specifically related to the push-pull process of migration, which involves not only satisfaction factors which affect the pulling in of migrants, but also the satisfaction factors associated with the pushing out of migrants. Being able to decipher between these two types of movement is becoming increasingly important to the survival of nonmetropolitan areas, in Iowa and other areas across the United States.
APPENDIX A

LIVING IN IOWA CORRESPONDENCE
February 21, 1997

«First Name» «Last Name»
«Address 1»
«City» «State» «Postal Code»

Dear «First Name» «Last Name»,

Within the next few days, you will receive a request to complete a brief questionnaire. We are mailing the survey to you in an effort to learn how new and returning residents feel about their move to Iowa.

The survey is being conducted through Iowa State University to assist with state and community development efforts. The information you share with us will be used to study the expectations and satisfactions of new and returning residents.

Your response to the forthcoming survey is very important to the success of this project. Your willingness to take the time necessary to complete and return the questionnaire is greatly appreciated. Please watch for the arrival of the survey next week.

Thank you in advance for your help with our project.

Sincerely,

Sue R. Crull, Team Director
Living in Iowa Project
February 28, 1997

Dear

Enclosed you will find a copy of the Living in Iowa survey, which is part of a larger research project seeking to understand why people are moving into the state. The survey is conducted through Iowa State University to assist with state and community development efforts.

In order to obtain opinions of new and returning residents, I am asking you to complete and return the enclosed questionnaire. The survey will take about 15 minutes. When you are finished with the survey, please refold the questionnaire lengthwise and mail it in the enclosed envelope, if possible by March 12.

Your answers will be kept confidential. Your name was randomly selected from public records, provided by the Department of Transportation, of people who came from another state and received an Iowa driver’s license. Although the survey has an identification number, it will only be used to record your return so that you will not receive additional letters. Your name and street address will never appear on the questionnaire or with your answers.

While completion of this survey is voluntary, I hope you will take a few minutes to share your experiences with us. If you have questions, please call me at 1-800-992-6371 (toll-free number) or e-mail me at suecruil@iastate.edu.

Thank you very much for your cooperation.

Sue R. Crull, Team Director
Living in Iowa Project
This card is in reference to the questionnaire that you received last week to obtain your opinion about moving or returning to Iowa.

If you have already returned the survey Please accept our sincere thanks! If you have not yet had time to respond, we encourage you to do so because your opinions are needed for community research.

If you have not received the survey or if it was misplaced, please call Sue Crull at 1-800-992-6371 so a copy can be mailed to you.
March 14, 1997

Ms. Jane Doe
122 Somewhere St.
New Home, IA 55555

Dear Ms. Doe:

About one month ago a survey titled “At Home in Iowa” was mailed to you. As of today I have not received your completed questionnaire. Realizing how busy our lives are I know that you may not have had time to complete it, however I would genuinely appreciate hearing from you.

The study is being conducted so that new and returning Iowa residents can voice their opinions about issues that may affect rural economic development in the state. I am writing to you again because the study’s usefulness depends upon our receiving a questionnaire from each respondent. Your name was drawn through a scientific sampling process in which every person moving to the state and applying for an Iowa driver’s license had an equal chance of being selected. In order for information from the study to be truly representative of new and returning residents it is essential that each person in this sample return a completed questionnaire.

In the event that your questionnaire was misplaced, a replacement is enclosed. I would be happy to answer any questions you have about the study. Please do not hesitate to call me at (515) 294-7844, or e-mail me at suecrull@iastate.edu.

Sincerely,

Sue R. Crull
Project Director, Living in Iowa
Iowa State University
APPENDIX B

FREQUENCIES OF ORIGINAL AND
RECODED/DUMMY VARIABLES
<table>
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<tr>
<th>Original variable (question #)</th>
<th>Original code - label</th>
<th>Original code - frequencies</th>
<th>Recoded variable (question #)</th>
<th>Recode - label</th>
<th>Recode - frequencies</th>
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<td>area (area)</td>
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<td>1 - 298</td>
<td>thriving (area)</td>
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<td></td>
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<td>new Iowa resident (Q2)</td>
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<td>1 - 283</td>
<td>returning Iowa resident (Q2)</td>
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<td>1 - 252</td>
<td>job (Q4)</td>
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<td>0 - 331</td>
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<td>2 - born/raised in Iowa</td>
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<td>2 - same</td>
<td>2 - 272</td>
<td>education</td>
<td>2 - same</td>
<td>2 - 272</td>
</tr>
<tr>
<td>found (Q15f)</td>
<td>3 - lower</td>
<td>3 - 77</td>
<td>expected</td>
<td>3 - higher</td>
<td>3 - 216</td>
</tr>
<tr>
<td></td>
<td>9 - missing</td>
<td>9 - 27</td>
<td>(Q13f)</td>
<td>9 - missing</td>
<td>9 - 27</td>
</tr>
<tr>
<td>prefer to live in 10 years</td>
<td>1 - in the same community</td>
<td>1 - 283</td>
<td>stay (Q26)</td>
<td>0 - leave current community</td>
<td>0 - 282</td>
</tr>
<tr>
<td>(Q26)</td>
<td>2 - in another part of Iowa</td>
<td>2 - 62</td>
<td>stay (Q26)</td>
<td>1 - stay in same community</td>
<td>1 - 283</td>
</tr>
<tr>
<td></td>
<td>3 - in another</td>
<td>3 - 220</td>
<td></td>
<td>9 - missing</td>
<td>9 - 27</td>
</tr>
<tr>
<td></td>
<td>9 - missing</td>
<td>9 - 27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>year of birth (Q28)</td>
<td>range: 1979 - 1911</td>
<td>n = 582</td>
<td>not recoded</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9999 - missing</td>
<td>9999 - 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gender (Q29)</td>
<td>1 - male</td>
<td>1 - 247</td>
<td>female (Q29)</td>
<td>0 - male</td>
<td>0 - 247</td>
</tr>
<tr>
<td></td>
<td>2 - female</td>
<td>2 - 337</td>
<td>1 - female</td>
<td>1 - 337</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 - missing</td>
<td>9 - 8</td>
<td>9 - missing</td>
<td>9 - 8</td>
<td></td>
</tr>
<tr>
<td>highest level of education</td>
<td>1 - less than high school</td>
<td>1 - 34</td>
<td>not recoded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>completed (Q30)</td>
<td>2 - high school/GED</td>
<td>2 - 162</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 - vocational school/some college</td>
<td>3 - 176</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 - college</td>
<td>4 - 149</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 - professional/graduate degree</td>
<td>5 - 64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 - missing</td>
<td>9 - 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996 annual income level (Q33)</td>
<td>1 - &lt;$15,000</td>
<td>1 - 121</td>
<td>not recoded</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 - $15,000 - $29,999</td>
<td>2 - 181</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 - $30,000 - $59,999</td>
<td>3 - 179</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 - $60,000 - $99,999</td>
<td>4 - 64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 - $100,000 or more</td>
<td>5 - 22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 - missing</td>
<td>9 - 25</td>
<td></td>
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</table>
APPENDIX C

FREQUENCIES AND FORMULAS OF CONSTRUCTED VARIABLES
Table C-1. Frequencies and formulas of constructed variables

<table>
<thead>
<tr>
<th>Constructed variable (variable name)</th>
<th>Constructed code equation</th>
<th>Constructed code - labels</th>
<th>Constructed code - frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>age (age)</td>
<td>age = 1997 - q28</td>
<td>range: 18 - 86</td>
<td>9999 - 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9999 - missing</td>
<td>n = 582</td>
</tr>
<tr>
<td>cost of living (colvng)</td>
<td>colvng = Q15a - Q13a</td>
<td>-2 - findings far from expectations</td>
<td>-2 - 36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1 - finding did not meet expectations</td>
<td>-1 - 112</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 - findings same as expectations</td>
<td>0 - 401</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - findings exceeded expectation</td>
<td>1 - 32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - findings far above expectations</td>
<td>2 - 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - one or more variables missing</td>
<td>9 - 11</td>
</tr>
<tr>
<td>cost of housing (hsingest)</td>
<td>hsingest = Q15c - Q13c</td>
<td>-2 - findings far from expectations</td>
<td>-2 - 41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1 - finding did not meet expectations</td>
<td>-1 - 81</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 - findings same as expectations</td>
<td>0 - 418</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - findings exceeded expectation</td>
<td>1 - 35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - findings far above expectations</td>
<td>2 - 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - one or more variables missing</td>
<td>9 - 16</td>
</tr>
<tr>
<td>taxes (taxes)</td>
<td>taxes = Q15d - Q13d</td>
<td>-2 - findings far from expectations</td>
<td>-2 - 42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1 - finding did not meet expectations</td>
<td>-1 - 92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 - findings same as expectations</td>
<td>0 - 399</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - findings exceeded expectation</td>
<td>1 - 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - findings far above expectations</td>
<td>2 - 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - one or more variables missing</td>
<td>9 - 28</td>
</tr>
<tr>
<td>quality of education (educ)</td>
<td>educ = Q15f - Q13f (previously recoded)</td>
<td>-2 - findings far from expectations</td>
<td>-2 - 13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1 - finding did not meet expectations</td>
<td>-1 - 67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 - findings same as expectations</td>
<td>0 - 448</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - findings exceeded expectation</td>
<td>1 - 27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - findings far above expectations</td>
<td>2 - 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - one or more variables missing</td>
<td>9 - 34</td>
</tr>
</tbody>
</table>
REFERENCES


Hamrick, K. S. (1997). Rural areas continue to benefit from the economic expansion. Rural Conditions and Trends, 8(2), 4-5.


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