

**INFLUENCE OF ECONOMIC RESTRUCTURING ON RURAL MISSOURI  
HIGH SCHOOL DROPOUT RATES**

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Doctor of Philosophy

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by  
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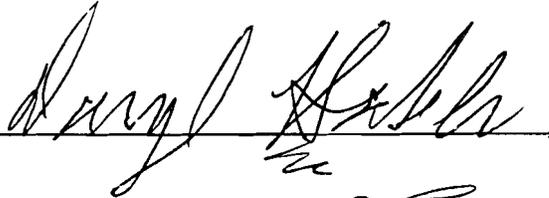
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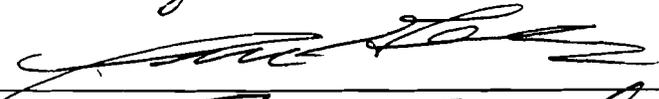
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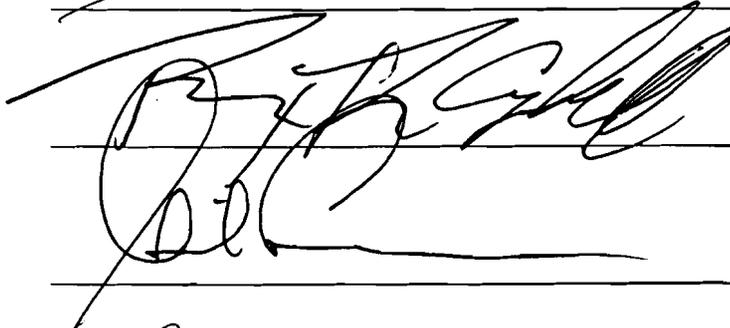
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## **ABSTRACT**

This research has argued that large scale social forces can influence individual level decisions, such as the decision to leave high school before graduating. The influence of Globalization, via economic restructuring, as measured by the transition from a manufacturing based economy to an economy of services and information, was found to influence students' decisions to drop out. Such economic restructuring has been occurring not only among the nations of the world but also down to the level of localities including rural areas of Missouri. This research measured economic restructuring as the changes taking place between 1980 and 1990 in local employment opportunities down to the level of rural school areas. Economic changes were assessed utilizing three occupation categories defined and explicated by Robert Reich: symbolic analysts, in-person service providers, and routine manufacturing and production workers and the subsequent influence of these changes on high school dropout rates as well as family structure and the perceptions of students regarding school and education.

A GIS was developed that captured the social and economic environment in a ten-mile radius buffer around 335 rural Missouri high schools. Census data from 1980 and 1990 comprised the social and economic data captured by the high school buffer. Data from the student portion of the Missouri School Improvement Program (MSIP) Advance Questionnaire were used to capture student perceptions regarding schooling and education within their high schools. The final dataset was comprised of rural high schools with attributes from the social and economic environment in which the individual

schools were located as well as the perceptions of the students associated with that high school.

Structural equation models were used to analyze the rural trends taking place from a rural-regional state-wide level. Findings indicated that increases in symbolic analyst and in-person service employment decreased high school dropout rates and the increase in routine production employment increased the dropout rate. Changes in all three occupation categories affected student family characteristics during the 1980s. Increases in in-person service employment had the greatest influence on family structure characteristics. Findings regarding student perceptions of education that resulted in increases in school commitment contributed to decline in high school dropout rates while increases in the number of hours students spent working at a part-time job increased the high school dropout rate.

# CHAPTER I

## STATEMENT OF THE PROBLEM

### **Introduction**

A complex model of secondary school leaving was constructed in order to place that behavior within a context of recent dramatic economic restructuring of local labor markets, corresponding changes in family characteristics, including students, and various salient characteristics of local schools. Most existing studies of the high school drop out phenomenon have either focused on the contributing effect of characteristics within schools or factors outside of school but have seldom tried to research the interaction between the two. Micro (social psychological) level studies have typically focused on individual student behaviors and attitudes associated with dropping out—variables such as study habits, truancy, and disciplinary problems are most common (Alexander et. al. 1997; Ensminger and Slusarcick 1992; Mensch and Kendel 1988; Vallerand et. al. 1997).

Macro (structural) level studies on the other hand are characterized by a focus that can be described as socio-demographic. These studies have generally focused on such structural variables as race, gender, and social class of students (Fine and Rosenberg 1983; Fitzpatrick and Yoels 1992; McNeal 1997; Rumberger 1987). Thus, the central tendency of most studies of high school dropouts has been to ascertain whether the extent of early school leaving can best be accounted for by characteristics of the individual drop out student or by characteristics of family, educational, social or economic environment in which the drop out resides. Few studies have focused on interaction between the two.

This study takes the position that dropping out should be examined within the context of a holistic system comprised of multiple variables at various levels of analysis. It is assumed that dropping out is a complex decision and is affected by numerous factors having both a push and a pull influence. Roscigno's (1999) study of the Black-White school achievement gap argues the importance of family-school links and the importance of neighborhood/community characteristics as influencing student achievement in both math and reading and the likelihood of their persistence to graduation. Roscigno argues that research has documented influences at the family and school levels, yet little work has dealt with both simultaneously. He goes on to state that these studies fail to acknowledge that family and school influences are themselves embedded in, and are a function of, broader social structures and spatial variation in class- and race-based opportunities.

The approach of this study has taken a step further than previous studies. In addition to measuring the influence of school and family effects on high school dropout rates this study looks at economic restructuring of the area surrounding the high school, as measured by change in employment opportunities (measured by occupation categories) between 1980 and 1990, and the influence this has had on the school and the family as well as high school dropout rates. Keeping in mind that student socioeconomic status is the greatest predictor of likelihood of dropping out of high school, regardless of how it is operationalized; the focus on economic restructuring taken here has included measures of not only the occupation of the persons that are in a ten-mile radius around the high school, but the education and income of these persons as well. However, it is specifically the measure of occupation of parents and other individuals located within a ten-mile

radius around the high school that is used to better understand the effect of economic restructuring on school, family and individual student outcomes.

### **Parent and Community Occupations**

The occupations used in this analysis were taken from data gathered by the US Census Bureau, specifically the occupations reported by the 1980 and 1990 censuses of population and housing of the areas surrounding schools. Examples of the types of occupations for which data was extracted include: executive and managerial; professional; sales; service; administrative; production; transportation; machine operator; and handlers and laborers. Using categories developed by Robert Reich (1992) these occupations were then grouped into three general occupational categories—Symbolic Analyst (executive, managerial and professional occupations), In-Person Service (sales, service, and administrative occupations), and Routine Production (production, transportation, machine operator, handler and laborer occupations).

Structural Equation Models were used to analyze the effects of economic restructuring on the rural high school dropout rate from a state-wide rural perspective. Economic restructuring refers to the percent change in the number of persons employed in each of the occupations between 1980 and 1990. For this study economic restructuring is synonymous with changing employment opportunities (as described by Reich's occupational categories) and how these have influenced families, students, and ultimately students' decisions to drop out.

### **Characterizing Labor Markets**

Labor markets are defined as the network of relationships between the buyers and the sellers of labor. These relationships are contained within geographic spaces which

can be defined as labor market areas (Cotter, 2002). Earlier studies concerned with the classification of labor markets separated occupations into primary and secondary sectors (Bonacich 1979; Hirsch 1980; Kreckel 1980; Piore 1975). Primary sector jobs were characterized as being steady, well-paying with benefits, and with the potential for advancement and promotion (Hirsch 1980; Piore 1975). Secondary sector jobs were characterized by high employee turnover, low pay with little or no benefits, and very little chance for advancement (Hirsch 1980; Piore 1975).

It was realized early on that this simple dichotomy did not accurately reflect how the labor market was organized. The primary sector was further divided into upper and lower tiers (Bauder 2001; Kreckel 1980). The upper tier consists of jobs that require creative, problem-solving, self-initiating characteristics, and have professional standards for work and individual motivation and achievement that are highly awarded (Kreckel 1980). The lower upper tier consists of “subordinate primary jobs” which are routinized and encourage personality characteristics of dependability, discipline, responsiveness to rules and authority, and acceptance of a firm’s goals (Kreckel 1980).

Thus, early sociological classification of labor market sectors were comprised of three distinct groups: upper and lower primary sectors, and the secondary sector (Bauder 2001; Hirsch 1980). Our research expands on this model through the utilization of the decennial census of population and housing data and organization of occupational categories into a three-tiered classification of labor markets as developed in Robert Reich’s (1992) typology of labor in the global world market. Reich organizes occupations into three main labor types: routine manufacturing and production, in-person services, and symbolic analyst services. Although dividing labor markets into these three

types of occupational groupings has the potential to blur the lines between high and low social actors within the category, these categories are more useful than high, medium and low status in that they define both the quality of work and what work is done. Thus, this research is concerned with the change in employment opportunities as measured by occupational categories during the 1980s and the influence that these changes had on high school dropout rates as well as the family and the school.

The view taken here is that labor market areas shape the social and economic environment within which the student is socialized. Labor market areas for this research were defined as the ten-mile radius around the high schools. The labor market area is the collection of the occupational categories in a pre-determined geographical space. Neighborhoods and areas that experience increases in high quality jobs brought about by economic restructuring are expected to have a far lower number of students that drop out. The flow of economic resources into the school and the home brought about by an increased standard of living achieved by higher quality employment opportunities (as measured by the changes in the occupational categories) will be used for developing children to the best of their ability. Conversely neighborhoods and areas characterized by decline in quality of employment and/or as well as areas that have always had low quality employment opportunities, are expected to contribute to increasing numbers of high school students that drop out.

The loss of community economic base brought about by the loss in both quality and quantity of occupations, effects schools in the loss of tax generated revenues that support it. Those students who remain in these neighborhoods and areas that experience

economic restructuring grow up in homes and attend schools that have been marked by the economic changes experienced.

### **Labor Market Change**

Changes occurring in local labor market areas are typically a consequence of changes having taken place at state, national and global levels. The impact of these large scale changes remain an abstraction for most people and workers in particular, and only become realized when directly experienced by workers and communities, as when a manufacturing plant leaves a US location for one overseas. Changes in many labor market areas are more and more shaped by the influence of factors taking place throughout the global economy—particularly advances in telecommunications, transportation and production technologies. Thus, the view of change taken in this research is that change in local labor market areas do not come about by individual or local level actions, but by more general trends operative in the global economy. Changes can however be measured by their influence on individual or local level actions.

The purpose of this research is to move away from dependence on either individual or structural explanations for dropping out of school in order to demonstrate that dropping out of high school is nested within a complex system of resource distributions comprised of numerous factors—such as occupation categories, family structure, and educational attainment to name a few—existing at different levels of scale that ultimately influence a student’s decision to drop out.

## **Research Problem**

This research is concerned with the following general research problem. How have changing employment opportunities in Missouri during the 1980s contributed to Missouri rural high school dropout rates in the 1990s?

## **Objectives of the Study**

- Measure the extent to which changing employment opportunities in rural Missouri during the 1980s, brought about by economic restructuring, have influenced rural high school dropout rates during the 1990s.
- Measure the extent to which changing employment opportunities in rural Missouri during the 1980s have influenced family structure in rural Missouri in the 1980s and how those changes have influenced rural high school dropout rates during the 1990s.
- Measure the relationships between characteristics and beliefs of students regarding schooling and education and the effect of those characteristics on dropping out.
- Develop and implement baseline data, at both statewide and regional levels within the state, setting the stage for further study regarding social and economic change in rural areas and its effect on students dropping out and the consequences of those decisions.

## **Discussion of the Problem**

Though there has been a gradual decline in the dropout rates of persons age sixteen through twenty-four years since there early 1970s (when the rate was 14.6%),

dropout rates have remained somewhat stable since the early 1990s and by 2000 reached a national rate of 10.9% (Kaufman and Chapman 2001). In contemporary American society (spanning the last three decades of the 1970s, 1980s and 1990s) the relatively high rate of early school leaving can be regarded as a problem for three reasons: The first is the long term negative economic consequences to the dropouts themselves; secondly the drop out rate is higher among minority and lower socioeconomic status youth and therefore contributes to perpetuation of structural inequality; thirdly perpetuation of high drop out rates contributes to lost social and economic productivity for neighborhoods, communities and society at large. The social and economic consequences of dropping out are serious problems for the individuals and the communities the dropouts reside in. Individual dropouts suffer adverse consequences because many have difficulty finding steady, career oriented employment, not just when they first leave school, but over their entire lifetimes (Rumberger 1987). Communities suffer as well because unemployment and the lost earnings of the dropouts lower tax revenues and increase demands on social services (Catterall 1985; Kaufman and Chapman 2001; Levin 1973; Rumberger 1987).

Perhaps even more serious than the consequences of dropping out are the factors that influence students to drop out. The high school dropout is embedded in a much larger pattern of structural inequality in society (Dorn 1996). Structural inequality is a system of unequal rewards that provide great comparative advantage, in regards to education, occupation and income, to a relatively small percentage of the population, often at the expense of much larger majority (Perrucci and Wysong 1999). Economic (social) inequality is a manifestation of a class system perpetuated by a persistent maldistribution of resources tied to occupation since it is the occupation that becomes the

activity in which the individual is engaged in order to acquire income, from which most other resources are obtained. Class inequality becomes structural inequality when a privileged but organized minority of individuals is able to amass a disproportionate share of national wealth, and to transmit that privilege across generations to create a permanent economic, political and social elite class (Perrucci and Wysong 1999). Ultimately, structural inequality is both a cause and a consequence of the ability to access and/or control important resources such as money, jobs, education, votes or information (Perrucci and Wysong 1999).

Structural inequality is a pervasive social force embedded throughout the various institutions of society. Although typically measured primarily in terms of income, social inequality is reflected in class related differences in access to such resources as education, jobs, money, health care, residential location, and transportation to name but a few. Education is often held to be a contributor to the maintenance and perpetuation of structural inequality through its dual roles of sorting and credentialing (Dorn 1996). For example, a study by Colclough and Beck (1986) found that in regard to educational curriculum tracking and subsequent social class reproduction, students that came from a blue-collar background (which the authors term “manual class”) were more than twice as likely to be placed in a vocational track, and students who were assigned to a vocational track had an eighty-nine percent chance of being channeled into a “manual class” destination. Similarly, students coming from a white-collar background (which the authors term “mental class”) were 1.6 times more likely to be placed in a college-bound track, and students who had been assigned to a college track had a sixty-one percent chance of being channeled into a “mental class” destination. Findings like these reinforce

the notion that in public schools students from a blue-collar background are more likely to end up in blue-collar employment, whereas students from a white-collar background go on to college and secure white-collar employment. With regard to access to education and its effect on obtaining a better job, education functions to sort students into differently valued occupations. This is carried out primarily through curriculum tracking (Colclough and Beck 1986; Dorn 1996; Oakes 1985; Oakes et. al. 1991; Rosenbaum 1976; Vanfossen et. al. 1987).

The downside to this arrangement is that not all students have access to the same educational opportunities (measured by quality of instruction and quality of instructional resources) and those that rank low in educational opportunities are consistently more likely to be channeled into less valued occupations by the teachers and the educational institutions of which they are a part.

Recent dramatic economic change throughout the world has contributed to significant change in the distribution of employment and income at the national, state and local levels in the US. Many analysts describe these changes as part of a general process of economic globalization that has accelerated during the past 20 years and especially within the past decade (Barkley 1999; Goe and Rhea 2000; Kim 1998; Miller 1995; Waters 1995). A consequence is that aggregate economic growth has accelerated in the US while at the same time increasing the income gap between those individuals that “have” and those that “have not” (Miller 1995). The increasing income gap between the “haves” and the “have nots” is attributable to rapidly growing wage rates and earnings for higher skill and professional employees and stagnation or decline of wage rates in real terms for the lower income proportion of families in the US (Waters 1995).

Globalization, it seems, does not diminish the forces of structural inequality, but rather amplifies them (Bradshaw 1996; Mehan 1996; Perrucci and Wysong 1999).

Globalization, for this study, is defined through the phenomenon of economic restructuring—the transition from a manufacturing-based economy to one based on services and information. Although globalization refers to a span of economic interdependence between nations, the consequence of changed patterns of production, employment and income distribution, manifestations of globalization are reflected in even the smallest rural communities in the U.S.

### **Further Consequences of Economic Change**

Dropping out of school is not the only effect that that has been associated with national and state level economic restructuring; suicide rates, crime rates, incarceration rates, and poverty rates have all been measured in relation to shifts in employment opportunities (Crutchfield et. al. 1997; Crutchfield et. al. 1999; Durkheim 1951; Morenoff and Sampson 1997). In a very general way, economic restructuring refers to a pattern of declining employment opportunities in some occupational categories and growth in employment opportunities in others. To be more specific in identifying the transitions occurring would require more detailed examination of individual occupational categories being affected. As an example economic restructuring brought about by globalization can be used to define the movement away from manufacturing based economies in some localities to economies based on provision of information and services.

An important issue that arises is whether the changes in employment opportunities are likely to affect youth in the same way they affect adults—especially

when considering that the only jobs available to most teenagers are secondary sector jobs. In one study of juvenile delinquency and labor market segmentation, Crutchfield and Pitchford (1997) found that the work experience of parents and other adults who live around youth affects their school performance as well as the probability of delinquency. High rates of local joblessness coupled by increasing numbers of adults in low paying, low-skilled occupations affected the academic performance of juveniles as well as their propensity for delinquency. The link between occupational category and educational performance was explained by diminished bonding between children and parents when the parent is employed in a low paying, low-skilled occupation. These findings indicate that children invest less time in education when the evidence in front of them, the work experience of parents and other adults, suggests that “playing by the rules”, or conformity, offers little hope for advancement or material wealth (Crutchfield et. al. 1999). There is a feedback loop between these factors as we note that parental occupation influences student academic performance, academic performance leads to the acquisition of credentials and training which then leads back to the importance of occupation in determining the occupation opportunities available to the student.

### **Social Implications of Space**

A central idea running through this research is the role that location plays in determining the influences of the social structure on individual action. Earlier theories and research on inequality tended to deny the need to take spatial settings into consideration, in order to remain aspatial. However new research, including that reported in this study, is focused on spatially embedded populations.

Furthermore, since social stratification is being affected, the empirical and conceptual direction of sociology as a discipline is giving rise to a new specialty area, spatial inequality. Spatial inequality emphasizes the structural-territorial bases of inequality, extending the research of stratification to the new frontier of geographic space. Spatial inequality examines how markers of stratification such as economic well being, race/class/gender inequalities, and other social, health and environmental indicators vary spatially. The utility of this approach is that it allows analysts to observe how macro-level social forces work themselves out at ground level; such observations in turn can modify and inform theory. According to Lobao and Sanz (2002) attempts to link macro and micro social forces to individuals' lives and well-being are often grounded in spatial settings such as the labor market.

### **Concepts**

There are several concepts that are important to this study, the first being the concept of the dropout. There are numerous ways to view and measure dropping out. Different methodologies have been developed to ascertain the most useful measure. From the evolution of drop out studies it appears that there are two ways to think of the drop out. First, is a purely quantitative measure of what it means to drop out. There are several methods that can be employed to ascertain this. There are two main methods that are used to calculate the dropout rate. The method employed by the Census Bureau computes dropout rate as the proportion of a given age cohort that is not enrolled in school and has not completed high school. The second method is based on attrition data. It shows the proportion of a selected entering high school class, usually ninth grade that graduates 4 years later. The other, and not so common, way is to think of the drop out

not as someone who is a failure, but as someone who voices a serious critique of the school system and its inability to educate all students equally.

Globalization, as measured by economic restructuring taking place between and within nations, is another concept central to this study. Globalization is on the one hand the vehicle used to describe the transition within the US from a manufacturing economy to an information/service economy. On the other hand, globalization is the product of various advancements in capitalism since the beginning of trade. Technological advancements in communications, transportation and production technologies that previously were non-existent on the one hand, and institutional changes on the other have all helped to usher in the current state of globalization. These advances have revolutionized production, and in the process have yielded unexpected restructuring in regard to labor and production, not only in industrialized nations, but for all nations. The final consequence of this restructuring is played out in the day to day lives of men and women all across the globe who must adapt to the changing employment landscape.

Labor markets, labor market areas, occupation categories, and employment opportunities need to be clearly stated because they are generally interrelated. A labor market refers to a cluster of similar occupations, Piore (1975) grouped occupations into two segments, the primary and secondary markets. Labor market areas are an arbitrary geographic location of the labor market and are usually determined in a custom-made fashion by the researcher. These geographical locations could be metropolitan centers, a county or cluster of counties or an entire state. In the case of this research the labor market area consists of the ten-mile buffer around each individual rural high school. These labor market areas are then used as the basis for understanding the influence of

economic restructuring on rural communities at both regional and state-wide levels. The concept of the occupation category is really synonymous with the concept of the labor market but differs with regard to the means by which the occupations are grouped. The labor market method of grouping occupations into primary and secondary markets was not as useful for this analysis as was aggregating the individual occupations according to the three occupation categories of the global economy put forth by Robert Reich (1992)—symbolic analysts, in-person services, and routine manufacturing and production.

The concept of employment opportunities is used to capture the change in occupation categories between 1980 and 1990. So, employment opportunities refer to the increase or decrease in employment in an occupation category for a labor market area.

### **Organization of the Dissertation**

This dissertation is organized in the following manner.

1. Chapter I entails the introduction, the research problem, the research objectives, the importance of the study, and important concepts.
2. A review of current literature is found in Chapter II and supplies empirical generalizations and propositions regarding economic restructuring and dropping out.
3. Chapter III consists of the theoretical framework, which includes theoretical orientations and hypotheses regarding globalization, labor market segmentation, and spatial inequality and their relation to economic restructuring and its effects on students, families and schools.

4. The research methodology is described in Chapter IV. It includes the units of analysis, operational definitions and the statistical techniques used.
5. An analysis of the quantitative data is presented in Chapter V.
6. Chapter VI encompasses a summary of the research findings, comparisons to literature, theoretical support, problems encountered while doing the research, and limitations of the research and conclusions.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

#### **Introduction**

The literature review is organized into four parts: (1) factors influencing dropping out of high school; (2) consequences of dropping out; (3) the influence of economic restructuring on various facets of social and economic life influencing drop out rates; and, (4) how these interactions take place in both social and geographic space.

The section on dropping out is further subdivided into the various influential factors organized around specific levels of social organization: the individual, the family, the school, the local economic structure and the interrelationship of these variables as they pertain to dropping out of high school. The section pertaining to the consequences of dropping out focuses on the economic effect dropping out has on the individual dropout as well as society overall. The section relating to economic restructuring focuses on the ramifications that changing employment opportunities have on societal members, particularly with regard to family structure and poverty, and school dropout rates.

#### **Factors Affecting Dropping Out of School**

A large body of research generated between the mid 1960's and the early 2000's has associated dropping out of high school with a wide range of factors. Within this review these factors have been organized into four categories that exist at various levels of scale, these include: the individual, the family, the school, and the economy within which these three are embedded. Within each of these categories specific variables related to dropout rates are reported. Since the literature concerning dropouts has such a

long and voluminous history the literature reviewed in this research focuses on more recent findings and methodologies to present an argument for the pervasiveness of the factors that influence a student's decision to drop out of high school. Another reason is that economic restructuring has been a relatively recent phenomenon and there is extensive research emphasizing its impact on early school leaving.

### **Individual Related Factors of Dropping Out**

The research literature has reported a number of individual characteristics of students associated with dropping out. Individual motivation and life-course indicators are often cited as the most important. Through the use of structural equation modeling, Vallerand et. al. (1997) tested an incentive model of dropping out and found that parent, teacher and administrator behaviors toward students influenced student's perception of personal competence and autonomy. The less supportive the behaviors of social agents', the less positive are students' perceptions of their own competence and autonomy. Likewise, the less positive students' perceptions of themselves, the lower their levels of school performance. Finally, low levels of personal motivation leads students to develop inclinations to drop out of high school, which later, lead to actually dropping out.

Vallerand et. al. (1997) also found dropouts were less intrinsically motivated (measured as: to accomplish, to know and to experience stimulation) and were less favorably oriented toward education than persistent students. Self motivation refers to behavior that is undertaken as a matter of choice and because the goal is valued as important. An example of this is students who remain in school because it is the path to reach other goals, such as college and a better job. Intrapersonal motivation is best defined as behaviors that arise when the student at least partially internalizes external

pressures. An example is students who do homework because they feel guilty if they do not. Dropouts were found to display significantly more amotivation (the relative absence of motivation) than persistent students. Concerning autonomy, dropouts perceived themselves as significantly less competent in school activities as persistent students. In reference to social agents, dropouts perceived their parents, teachers and school administrator's as less supportive than persistent students. Dropouts were found to have generally lower levels of self-esteem and less sense of control over their lives than more successful students.

Another of the individual factors associated with dropping out is reported by the literature regarding the life-course perspective of dropping out. The life-course perspective is primarily concerned with students' experiences over their life time. This aspect conceptualizes dropping out as being interwoven within the family, school and the local economic structure over the course of the individual's life. Ensminger and Slusarick (1992) found that aggressive behavior and students' perceptions of teachers were significantly related to graduating or dropping out. They report that as early as the first grade, individual student behavior can be found to be predictive of dropping out of school later on. First grade measures of aggressive behavior and low grades were found to be associated with failure to graduate—although this was true only for boys.

The life-course perspective of the student also incorporates motivation into the model by measuring student's educational hopes and expectations. Ensminger and Slusarick (1992) found that adolescents having high expectations for future education increased the likelihood of high school graduation. Signs of amotivation can be seen in student tardiness, absences and classroom department, all of which have been found to be

significant predictors of dropping out (Alexander et. al. 1997; Ensminger and Slusarick 1992, Rumberger 1987). Engagement greatly reduces probability of dropping out. And, as Alexander et. al. (1997) point out, the life-course perspective holds that through their actions (their motivation, or lack of it), individuals are producers of their own development.

### **The Relation of Family Structure to Dropping Out**

A large number of factors associated with family background and structure have been identified in the research literature as having a significant influence on a student's decision to later drop out of high school. Research shows that the most important family structure indicator is socioeconomic status. Numerous studies have found that dropout rates are higher for students of low socioeconomic status families, no matter what specific factors are used to measure socioeconomic status (Alexander et. al. 1997; Alspaugh 1998; Chen and Kaplan 1999; Lecompte and Dworkin 1991; Roscigno 1999; Rumberger 1987). The most commonly used measures of socioeconomic status include income, occupation, and educational attainment. Although each of these variables has been individually used as a measure of socioeconomic status, more often a combination of these three variables is used to construct an index of socioeconomic status.

Parental educational attainment has been found to be important in determining whether students graduate or not. Specifically, if the mother of a child graduated from high school the child would be more likely to graduate (Alexander et. al. 1997; Ensminger and Slusarick 1992; Rumberger 1987).

Another component of family structure having a significant effect on student dropout rate is whether the family is intact or not. There is a greater probability of

students having been socialized in a non-intact family to fail to graduate. A study by Chen and Kaplan (1999), utilizing structural equation modeling, found that growing up in intact families was associated with a better financial situation in the parental home and more positive early school experience of the children. These attributes led to children's later entry into adult roles of labor force participation, marriage/cohabitation, and continuation into post-secondary education. Perhaps the most important feature of the non-intact family is that single parents are more likely to be living in poverty than intact families with dual earners. Chen and Kaplan (1999) found that in cases of divorce, where the students stayed with the mothers, the departure of the father decreased income. They also found that noncustodial parents, in the case of remarriage, contribute less time and money to children's welfare. Fitzpatrick and Yoels (1992) found that in female-headed families, children are likely to have higher dropout rates. They note that female-headed families face a multitude of financial, social and psychological problems that contribute to their inability to provide critical parental support that often makes the difference between student success or failure. Alexander et. al. (1997) found that with regard to size of the family, children having many siblings increased the risk of dropping out.

Returning to the notion of expectations and aspirations, Ensminger and Slusarick (1992) found that mother's hopes and expectations when their children were in the first grade were not related to the child's graduation status. However, for adolescents, mother's hopes and expectations coupled with the students' hopes and expectations were significantly related to likelihood to graduate.

## **School Related Factors Affecting Dropping Out**

School related factors affecting high school drop out rates can be found at both micro and macro levels of social organization. On the one hand individual student behavior within the school; comprised of student performance on assignments, tests, learning materials, etc, influence a student's academic achievement and possibly their decision to leave school early.

At a macro level of social organization are the overall social and economic resources available to a school and the curriculum it is able to offer. The school is an institution that bridges micro and macro levels of social organization. Therefore understanding influences upon school outcomes involves looking at both micro and macro levels of social organization within which the school resides and performs.

As noted above, in the section regarding individual factors influencing dropping out, poor student academic achievement, as measured by grades, test scores, and grade retention, is associated with dropping out (Ekstrom et. al. 1986; Pittman 1991; Wehlage 1986). It has also been shown that student behavioral problems in school, including absenteeism, truancy and discipline problems are also associated with dropping out (Alexander et. al. 1997; Ensminger and Slusarick 1992; Marsh 1991).

Other than individual student factors that focus on behavior and achievement, research regarding the social and economic resources available to schools has shown that dropout rates tend to be higher in schools having very poor facilities and inadequate teaching staffs, conditions that shape the school climate and could ultimately affect student performance and their decision to leave (Fine 1986). Pittman and Haughwout (1987) have shown that high school size, measured as total student population, is also

related to dropping out. The dropout rate is higher in larger high schools. Fitzpatrick and Yoels (1992) found that educational expenditures per students' average daily attendance are also a significant determinant of school structure and consequently exerted a large indirect effect on dropout rates. Increased educational spending improves school structure by reducing the number of pupils and increasing the number of support personnel per teacher. Specifically, available fiscal resources must be transformed at the proper level to have an impact on retention.

Current expenditure per pupil in average daily attendance in Missouri public elementary and secondary schools in 1998-1999 dollars was \$4,104 in 1979-1980, \$5,840 in 1989-1990 and \$6,393 in 1998-1999 (Missouri Digest of Education Statistics 2002). The National average was \$4,815 in 1979-1980, \$6,453 in 1989-1990, and \$7,013 in 1998-1999 (Digest of Education Statistics 2002). In all three time periods Missouri expenditure per pupil was about \$600 lower than the National average.

Research by Bond (2001) found that states with large gaps in pay between teachers and similarly-educated professionals at the bachelor's level have higher dropout rates. Estimated average annual salary of teachers in Missouri public elementary and secondary schools in 1998-1999 dollars was \$28,999 in 1979-1980, \$35,110 in 1989-1990 and \$34,746 in 1998-1999 (Digest of Education Statistics 2000). The concurrent national average was \$33,848 in 1979-1980, \$40,582 in 1989-1990, and \$40,647 in 1998-1999 (Digest of Education Statistics 2000). For all three historical periods Missouri average annual teacher salaries were about \$5,000 lower than the National averages. However, the Missouri trend over the last decade has shown a significant increase in the number of students that graduate. During the 1989-1991 time period the high school

completion rates of the 18-24-year old cohort not currently enrolled in high school or below for Missouri was 88.0%, while for the nation the comparable rate was 85%. By the 1998-2000 school time period the high school completion rate for Missouri was 92.6% making it the fourth best in the nation, whereas the comparable national high school completion rate was only 85.7%.

### **Economic Factors Affecting Dropout Rates**

Economic-characteristics of the environment in which the school is located can influence students' decisions to leave school early in a variety of ways, such as employment opportunities, social class, poverty, and, as discussed above, the revenues the school can draw upon. Rumberger (1987) reports that about 20% of dropouts reported that they left school because they wanted to, or felt they had to work to help out their families financially. Dropout rates in Missouri tend to be high in communities with large high schools and low unemployment rates.

Research concerning student employment and decisions to drop out has indicated other important relationships as well. Most studies looking at employment patterns of youth and dropout rates report that the number of hours a student spends working each week is related to dropping out: the more hours worked the greater the likelihood of dropping out (D'Amico 1984; Marsh 1991). McNeal (1997) found that in addition to hours worked, the type of employment also contributed to dropping out. Essentially, students who were employed in retail, service and manufacturing jobs were more likely to drop out than those employed in traditional youth jobs such as lawn work, odd jobs, babysitting, and farm work.

Markel and Frone's (1998) research employed a structural equation model that looked at job characteristics, work-school conflict and school outcomes among adolescents. They found that job characteristics (workload, number of work hours, and job dissatisfaction) were positively related to school-work conflict. Work-school conflict was negatively related to school readiness for high school students. School readiness was positively related to school performance, which was negatively associated with school dissatisfaction. Their results also indicate a feedback mechanism showing that school dissatisfaction is negatively related to school readiness. School readiness was defined as the extent to which students attend school and classes, put forth effort in class and on assignments, and come to class prepared with completed assignments and necessary materials. The measures of work-school conflict were: (1) job hours, (2) job dissatisfaction, and (3) workload. Job hours refers to the number of hours devoted per week to work. Job dissatisfaction represented a strain-based predictor of interrole conflict. The workload predictor refers to the situation in which an individual has too much to accomplish in an inadequate span of time.

Returning again to studies concerning the longitudinal development of the dropout, these longitudinal studies report significant findings regarding the effects of the social stratification system. Alexander et. al. (1997) assert that race, gender and social class locate individuals and families in society's stratification system, and the conditions surrounding these statuses and roles help determine the educational success or failure of the student. In a separate longitudinal study, Ensminger and Slusarick (1992) assert that stratification shapes children's educational prospects long before school enters the picture, and it continues to weigh on children's development throughout their schooling.

One of the most telling ways in which stratification influences children's school experiences and decisions is poverty.

LeCompte and Dworkin's (1991) dropout research focused on the effects of poverty on educational attainment. They assert that poverty has less to do with the availability of cultural amenities and educational toys, and more to do with such tangible things as poor students' wearing shabby or inappropriate clothing that calls attention to one's status and damages self esteem. Poverty also means inadequate housing, with concomitant noise, crowding, and lack of privacy.

Poverty conditions are not conducive to completion of homework or studying. For the poverty-laden student there is an absence of a supportive environment for schoolwork. Teachers assign homework under the assumption that it is a natural extension of the school day. Thus, failure to complete assignments outside of school means that children are failing to accomplish tasks that teachers proscribe as necessary for all students. As LeCompte and Dworkin (1991) point out, research that shows a correlation between hours of homework done and student achievement does not usually take into consideration the socioeconomic conditions of students. As a consequence, many legislative education reform packages calling for additional hours of homework fail to appreciate how many poor children find it virtually impossible to do work at home.

Poverty also means insecurity, poor nutrition, poor hygiene and sometimes homelessness. Homelessness simply makes consistent schooling experiences impossible. Poverty also often means lack of adequate transportation and even telephone availability. The result is that poor families find it difficult to maintain good communication with teachers—a factor that, almost without exception, leads teachers to define them as

'parents who don't care' (LeCompte and Dworkin 1991). Poverty means that children have little medical, optical or dental care. Not going to the doctor means missing more school, and lack of access to other services means that conditions that might impede learning, such as poor vision, go undetected or is rendered too expensive to remediate. Finally, poverty often imposes a choice on children of whether to remain in school or go to work.

As can be seen from the previous discussion concerning the various factors that influence dropping out, there is a great deal of interrelationship between the various categories that are used measure and evaluate the phenomenon. Although it is possible to report and utilize these factors independently these factors are not mutually exclusive but exist in a holistic framework interpenetrating one another. The next section of the literature review moves away from the factors influencing dropout behavior and focuses instead on the consequences of dropping out.

### **Social and Economic Consequences of Dropping Out**

Over the last 40 years, the proportion of people who have failed to finish high school has decreased substantially. In 1960 nearly 30 percent of all persons aged 16 to 24 years old had not completed high school; by 1995 that proportion had dropped to 12 percent, and by 2000 the proportion had dropped to 10.9 percent (Digest of Education Statistics 2001). However, that trend varies greatly among communities, regions and states. Although the long-term trend of dropping out has declined, the short-term trend shows a pattern of stabilization with mild fluctuations from year to year among all groups. For example, in 1970 the nationwide dropout rate was 15 percent, by 1980 it was 14.1 percent, by 1990 it was 12.1 percent and by 2000 it was 10.9 percent. Since 1986,

the national dropout rate has been fluctuating between 11 and 12 percent. This same trend holds true for Missouri as well, with short-term trend fluctuations ranging between 6 and 7 percent during the 1990's (Digest of Education Statistics 2001).

Dropping out of high school is generally viewed as a visible form of academic failure in the same way high school graduation is seen as a visible form of academic success. Although dropping out could be seen as beneficial for some kids as well as the schools that they attend (such as cases where the student would be harmed if they remained in school, or in cases in which some students are so disruptive to other students and faculty that their dropping out would make learning easier for the other students) the research evidence strongly supports the view that dropping out has primarily negative social and economic consequences. Individual dropouts suffer because many have difficulty finding steady, good paying jobs, not just when they first leave school, but over their entire lifetime (Rumberger 1987). Society suffers as well because unemployment and lost earnings lower tax revenues, and increase demands on social services and reduce societal economic productivity.

The most immediate individual consequence of dropping out of high school is a low level of academic skills. While graduating from high school does not ensure that a person has sufficient academic skills for successful employment and further education, failing to graduate usually ensures that a person does not. Because of their low levels of academic skills, many high school dropouts find it difficult to secure steady employment and an adequate income. These economic effects are noticeable and are well documented. In 2000, for example, dropouts between the ages of 16 and 19 had an unemployment rate of 16 percent compared to high school graduates who had an

unemployment rate of 12 percent (Digest of Educational Statistics 2001). Even those dropouts who are able to secure year-round, full-time employment earn less than their graduated counterparts. In 1999, high school dropouts earned a median income of \$20,604 whereas high school graduates earned a median income of \$29,917 (Digest of Educational Statistics 2001).

Labor force participation of high school dropouts is not the same for all social groups. The percent of white high school dropouts, aged 16 to 19, who were employed in 2000 was almost fifty percent, whereas only thirty-three percent of black dropouts and thirty-eight percent of Hispanic dropouts were employed (Digest of Educational Statistics 2001). Also, when looking at the type of occupations dropouts come to occupy, the two occupations with the largest percentage of dropouts for 2000 are those characterized by service occupations (thirteen percent), and those characterized as operators, fabricators and laborers at fifteen percent (Digest of Educational Statistics 2001).

In a research exercise that has yet to be duplicated, Levin (1972) identified seven national social costs of inadequate education, which he defined as the failure to complete high school: 1) foregone national income; 2) foregone tax revenues for the support of government services; 3) increased demand for social services; 4) increased crime; 5) reduced political participation; 6) reduced intergenerational mobility; and, 7) poorer levels of health. For each of these areas he examined the research literature and summarized what was known about the relationship between education and each of the above social outcomes. He then estimated the aggregate social costs associated with the first four outcomes.

Lost income is perhaps the most often cited social consequence of dropping out of high school. Levin estimated that the foregone income from the cohort of males aged 25 to 34 who failed to finish high school amounted to \$237 billion. When compared to the national income of \$802 billion for 1969 this figure represents almost 30 percent of the total national income. This lost income resulted in lost government revenues of \$71 billion, which would be about \$340 billion in 2003 dollars. A more recent study estimated the foregone income of male and female dropouts from the national high school class of 1981 at \$228 billion and forgone government revenues at more than \$68 billion (Catterall 1985), which would be \$460 billion and \$140 billion respectively in 2003.

The social consequences and social costs of dropping out go beyond foregone income and revenues. As Levin documented, high school dropouts are more likely to require a wide range of social services, including welfare, medical assistance and unemployment assistance. They are also more likely to engage in crime, have poorer health, and have lower rates of intergenerational mobility and lower rates of political participation. Based on the research literature and cost data available at that time, Levin estimated the social costs of providing social services and fighting crime associated with dropping out at \$6 billion per year. When adjusting this value for inflation in 2003 dollars this would amount to \$30 billion per year.

This section looked at the causes of dropping out, organized around the individual, the family, the school and the economic structure, as well as the consequences of dropping out, not only to the individual but to society as well. The next section reviews the literature regarding economic restructuring and its influence on selected

aspects of social organization related to the variables influencing students' decisions to leave high school prematurely.

### **Economic Restructuring**

In addition to the causes and consequences of dropping out, it is necessary to provide some background on the effects that economic restructuring has had on various social groups and social structures. Restructuring is a transformative process that, like all major structural changes, is disruptive to the social system. In the past two decades there have been fundamental changes in community economic structure, namely deindustrialization, which is manifested in a decline in manufacturing employment, and the increased employment in the services and information sectors. These transformations are referred to hereafter as economic restructuring. It is not clear what the long term effects of economic restructuring will be on society but, in the short run, economic restructuring disrupts community economic organization (Nelson 1998). This can be observed as increased unemployment, decreased standards of living, rising income disparities and rising levels of family poverty. This section of the literature review looks at the effect of economic restructuring on family poverty and income inequality.

Findings from the McLaughlin et. al. (1999) study of economic restructuring and the influence it has had on female headed families, indicate that there are differences between nonmetropolitan and metropolitan counties when it comes to consequences of economic restructuring occurring during the 1980s. Their results indicate that the number of female headed households increased more rapidly in nonmetropolitan than metropolitan counties, although metropolitan counties had the greatest number of female headed households. Industrial restructuring was found to contribute to the increase in the

number of female headed households, although changes in various industries had differing effects on these households.

Having a higher percentage of persons employed in 1980 (both men and women) and an increase in total employment in a county were related to slower growth in the number of female headed households (McLaughlin et. al. 1999). This finding indicates that more economic opportunities in 1980 and increases in economic opportunities over the decade encouraged family formation and stability. However, McLaughlin et. al. (1999) found that an overall gain in women's employment was associated with larger increases in female-headed families. As employment opportunities grow for women relative to men, female headship also increases. In nonmetropolitan counties, increases in women's employment in secondary sector jobs, professional services, and public administration correspond with smaller increases in female headed families. These findings are interesting in that it would appear that poor secondary sector jobs help to alleviate economic distress in a couple-headed household, but do not provide women with enough resources to support their own households when separated. McLaughlin et. al. (1999) state that the increase in good jobs for women indicate that women are capable of handling economic distress and are therefore more attractive marital partners, thereby reducing the growth of female headed households. McLaughlin et. al. (1999) also found that aside from the gain in employment of women in specific industries, industry-specific gains in total employment in non metropolitan counties show that increases in professional services; finance, insurance, and real estate; construction; and wholesale trade are associated with smaller percentages of female headed households. These sectors typically offer relatively high wages for men, thereby improving men's economic

attractiveness as potential mates or strengthening the economic foundation of existing families. However, the increase in part-time employment opportunities for men was found to be associated with higher percentages of female headed households (McLaughlin et. al. 1999).

Findings from research by Lichter and McLaughlin (1995) reveal interesting insights into the relationship between changing economic opportunity, family structure and poverty in rural areas. They take as their starting point the position that the economic restructuring of the 1980s ushered in a new pattern of growing economic diversity over geographic space, both rural and urban. Their research finds that poverty rates increased more rapidly in nonmetro than metro counties during the 1980s. Also, they found that spatial differences in poverty rates and relative increases in county poverty rates over the 1980s were most strongly associated with women's employment (women working in general, not employment in a specific occupation or industry category) and headship status.

Nelson's (1998) study of economic restructuring on family poverty looked at this relationship as it took place in Ohio cities, suburbs and nonmetropolitan counties between 1970 thru 1980 and 1980 thru 1990. For the 1970 thru 1980 time period, change in the number of manufacturing jobs was a significant predictor of change in the number of poor families—a loss in manufacturing jobs led to an increase in poor families. Suburb and nonmetropolitan communities were associated with a decrease in the existence of poor families, whereas it was the central city communities that experienced an increase in poor families. For the 1980 thru 1990 time period, change in manufacturing employment was not a significant predictor of family poverty. However, change in the number of

service jobs was significant in explaining changes in the number of poor families—as the number of service jobs increased, so did the number of families in poverty. However, this only held true for suburb and central city communities. In Nelson’s (1998) Ohio research, nonmetropolitan communities were associated with fewer poor families. This finding is in contrast with that of Lichter and McLaughlin (1995) who found that the national trend regarding poverty rates was that they increased more rapidly in nonmetro than metro counties during the 1980s. Both Nelson’s (1998) and Lichter and McLaughlin’s (1995) research findings highlight the importance in paying attention to the variations in the types of association that can exist between the same variables for different geographic regions.

Cotter’s (2002) research looks at the relationship between local economic opportunity structures and household poverty, and the degree to which employment provided a route out of poverty for families in metro and nonmetro areas. His results indicate that both household characteristics (age, race, sex, marital status, educational attainment, and disability status) and the social and economic context of local labor markets (located in the South, nonmetropolitan, adults with less than a high school degree, female headed households, employed mothers, unemployment, presence of “good” jobs, educational expenditures) contribute to metro-nonmetro differences in poverty rates. Cotter’s (2002) research points out the complexity of rural poverty in contrast to urban poverty dynamics; poor persons in nonmetro America are more likely to be white, live in intact families, or are more elderly than in metropolitan areas; at the same time, minorities, children and female-headed households are more likely to be poor in nonmetro than metro areas. Nonmetropolitan poor are more likely than metro poor to

live in a family where the head is working either full or part-time. However, poverty rates do vary greatly among rural areas and regions of the country.

Ryscavage and Henle (1990) studied the acceleration of earnings inequality during the 1980s in relation to economic restructuring. When looking at industry and earnings inequality they found that manufacturing, retail trade and professional and related services showed a significant trend towards more earnings inequality. During the 1980s the top fifth of earners gained a greater share of aggregate earnings at the expense of the lower three-fifths. Their data show that service sector jobs yield lower annual earnings than manufacturing jobs, and much lower earnings than professional and managerial jobs. Interestingly, when looking at pay increases over the period 1982 thru 1988, those at the higher paying end of the service industry category were found to have done as well as or better than either those in manufacturing or those in the professional and managerial category.

Ryscavage and Henle (1990) found that during the time period of 1975 thru 1989 higher paying white-collar occupations recorded greater percentage increases in earnings throughout the US than did the lesser paying blue-collar occupations. In general, the higher the level of pay and responsibility, the greater has been the pay increase over the decades. Furthermore, even within most white-collar occupations, whose pay has been increasing more rapidly than that of the lower paying blue-collar occupations, the gains of the higher levels (within the white-collar category) have been outpacing those of the lower levels.

McLaughlin's (2002) research was concerned with the increase in income inequality between 1980 and 1990 and how this relates to nonmetropolitan counties. Her

findings reveal that economic restructuring increased income inequality more strongly in nonmetro areas than metro ones. Other indicators that had an affect on income inequality in both metro and nonmetro areas were changes in household structure, demographic composition and labor supply and quality. Her findings reveal that economic restructuring has the potential for greater impact in rural areas because the lesser diversity and smaller size of local economies makes them more susceptible to the economic disruptions brought about by economic restructuring.

McLaughlin's (2002) research critiques previous income inequality research for not considering how income inequality may vary across more or less rural settings, or across areas with different dominant industries. Her approach to income inequality research advocates research that considers the spatial differences inherent in economic restructuring and the social and economic structures that are affected. She specifically asks what it is about rural places that would cause a different relationship between a change in industry structure and a change in income inequality. She provides two answers to this question. The first is that rural labor markets or economies are often dominated by one or two industrial sectors and therefore tend to be less diverse than urban economies. Thus, closure or reduced employment on the part of a major employer will create ripple effects throughout the rest of the economy that are more readily and easily felt by rural communities. And second, recent economic restructuring has differed in metro and nonmetro areas. For example, growth in the service sector in rural areas has tended to be in personal services and retail trade, which often create lower-paying jobs. High-end service-sector jobs in health and business services are disproportionately located in metro areas.

McLaughlin (2002) found that economic restructuring was much more important for changing income inequality among nonmetro than metro counties:

“The consequences of restructuring are felt more strongly in nonmetro counties, where labor markets tend to be smaller and less diverse, and where changes would tend to ripple through the local economy with more substantial consequences for other industrial sectors.” (McLaughlin 2002:528-529)

McLaughlin’s study raises the need for multilevel models that incorporate individual level information on changes in employment job quality, and income with family or household, industry and community characteristics that would clarify the processes by which economic restructuring affects individuals’ lives.

### **Chapter Summary**

The review of literature and findings reported above supports the assertion that dropping out of school is a phenomena that can be located within the context of many social indicators i.e. race, socioeconomic status, educational attainment, income, and occupation. Specifically, this section looked at research concerning the factors that influence dropping out, the consequences of dropping out and the influence economic restructuring has had upon individuals, families and communities. The theory section will build on these research findings and present a way of looking at the dropout phenomena in the context of globalization, labor market segmentation, and spatial inequality. From a methodological standpoint, studies of dropping out have not usually taken into consideration the interrelationships of the variables that influence students’ decisions to drop out of school. By utilizing structural equation models, the methodology of this research will ascertain the significance and degree of relationships existing between the variables in the model.

## **CHAPTER III**

### **THEORETICAL FRAMEWORK**

#### **Introduction**

As noted in the Introduction chapter, the purpose of this research is to bridge macro and micro levels of analysis regarding students' decisions to drop out of high school. By necessity it employs a basic theory of the middle range since it actively creates a contact point between large scale social forces and individual action. The macro structure of social organization influences the behavior of actors at the micro interaction level. The behavior of actors, shaped by social organization, can be measured by both the positive and negative consequences of these. Modern dominant social thought and practice in the US is strained through a political economy dictated by the capitalist mode of production. A social problem inherent to the capitalist mode of production, and a cause of student's dropping out, is the vertical differentiation of social strata and the inequality regarding the acquisition of goods and services that exists between strata.

The movement of social actors and groups up and down the social strata and the interrelationships and effects that this movement has on social action and organization is one of the core themes of sociological thought (Kerbo 1996; Lenski 1984). It is concerned with mobility within the system of stratification and the means by which this mobility is accomplished. One of the institutions responsible for social mobility is education—as the linchpin connecting occupation and income.

Regardless of how it is operationalized, socioeconomic status remains the strongest predictor of educational achievement, including failure to graduate. And socioeconomic status is the way that sociology measures location in the stratified system of resource distribution that is a defining feature of capitalism.

### **Geographic Distribution of Social Inequality**

One of the ways this research bridges the macro and micro levels of social action and organization is by looking at how inequality, via social stratification, plays out spatially in rural areas. A strong geographic component underlies all of the interrelationships we analyze. In essence this research is fundamentally concerned with how social structure influences individual decisions across various social and physical geographies. Geographic space will be used to organize the data and the scope of the project and will also link each of the research subjects, the rural high school, to the social and economic environment in which each is situated. This bridge of geography was an important element in the overall research project, from data collection to analysis and the conclusions drawn.

At the macro level are found the forces of social change and social structure. The social structure has changed because of the economic restructuring taking place during the recent transition to a global economy. In this research economic restructuring is operationalized by changes in employment opportunities taking place throughout the State of Missouri as well as within selected labor market regions. Changes in employment opportunities have both positive and negative effects upon the population who experience them. These effects are felt within families which in turn influence the children (students) in these families. Thus, social structure, as experienced through

economic restructuring, shapes student development (through the family) and ultimately their educational achievement.

### **Economic Restructuring and Social Change**

Economic restructuring, as social change, influences the student through the institutions of family and education. The primary funding source, local and state taxes, of public schools is derived from the businesses and population that each school serves. When there are changes in employment opportunity, brought about by economic restructuring those changes will affect the tax base of each public school in both positive and negative ways. The type of employment opportunities that are lost or acquired will make a difference in the tax base that the school has available to it as well. For some schools, acquiring new firms in the locality and subsequent occupational opportunities will increase tax revenues and therefore the amount of money schools have to operate on. For other schools losing a firm and subsequent occupational opportunities will decrease the available tax revenues and therefore the amount of money the school receives.

Gains or losses of businesses can be measured by changes in the types of occupations in which people are employed in a specific location. These occupations regardless of their type are located within a local system of social stratification. This plays out in two different ways; one is the direct influence of the goods and services available to the student because of the parents' employment in an occupation. The other is the tax revenue that is generated for schools thru the parents' employment in an occupation. When these changes include greater employment in better quality occupations then the families and the schools are affected positively. When these

changes result in greater employment in occupations of poorer quality than the families and schools are adversely affected.

The degree to which these changes have either positive or negative effects on students dropping out is the principal interest of this study. This research follows the flow of influence from the macro level of economic restructuring, as measured by occupation employment change, through the family structure, and ultimately to the micro level of the high school student's decision to remain in school or drop out of high school. Ultimately, this study focuses on the impact of local labor markets and their structural constraints on upward socioeconomic mobility, as well as creation of new and more rewarding opportunities.

### **Globalization**

Globalization can be seen as both a precursor and a post-cursor of labor market segmentation that extends the concept beyond the boundaries of national borders. Whereas theories of labor market segmentation address a time when manufacturing drove the US economy (and therefore applied primarily to industrial societies), theories of globalization place the dropout discussion in the center of a period of social and economic change taking place in the context of transition from a manufacturing economic base to one of services, information and advanced technology.

From a theoretical perspective, various forms of globalization have existed since the beginning of the concept of "economy". Underneath the concept of globalization and all its nuances, there remains the fact that globalization is a social process in which the constraints of geography on social and cultural arrangements recede and in which people become increasingly aware that they are receding (Waters 1995). Of utmost importance is

that the link between capitalist production and a global consumer culture has remained intact and is highly influential on other social forms of organization – the family, schooling and employment in particular.

Waters (1995) argues that globalization effects are measured by the positive and negative disruptions which it causes in the 3 main arenas of social life. First, there is the economy. The economy concerns the production, exchange, distribution and consumption of goods and services. Second, there is the polity. The polity concerns the social arrangements for the concentration and application of power, organized coercion and surveillance—in other words authority. Third, there is the culture. The culture concerns the social arrangements for the production, exchange, and expression of symbols that represent facts, affects, meanings, beliefs, preferences, tastes and values. Waters' (1995) overall argument is that material exchanges localize; political exchanges internationalize; and symbolic exchanges globalize. The globalization of human society is contingent on the extent to which cultural structures are effective relative to economic and political structures. Currently, globalization operates through capitalist modes of production and is a continued extension of the general trend towards the commodification of everything (Debord 1973). One driving force pushing towards the commodification of everything is the transnational corporations that operate on a level transcending the political structure. Indeed corporations can achieve economic domination over nation states and have come to dominate the world economy in many respects. These corporations establish global linkages and systems of exchange so that the globe is increasingly constituted as a single market for commodities, labor and capital. Waters (1995) asserts that capitalism is the vehicle of economic globalization because its

particular institutions—financial markets, commodities, contractualized labor, and alienable property—facilitate economic exchanges over great distances.

### **Globalization and Technology**

From a technological standpoint globalization has achieved world dominance primarily through advancements in communications, transportation and machine technology in general. The interaction of these advancements has resulted in what Harvey (1989) refers to as time-space compression. Time-space compression involves a shortening of time and a shrinking of space—brought about by the advances in communications, transportation and production technology. The process of time-space compression is not gradual and continuous but occurs in short and intense bursts during which the world changes rapidly and uncertainty increases. Driving these bursts are technological innovations or organizational responses to changes in the resources necessary to sustain human societies.

Globalization affords a definition of stratification based on consumption patterns as well as to means of production. Waters (1995) offers a straightforward historical account of the birth and growth of capitalism. Historically, Waters argues, between 1600 and 1870 a period of “capitalist economy” was eroding absolutist empires and emerging in weak nation-states. Between 1870 and 1960 we find the “political economy”, a system of international or inter-organizational economic relations. The power of the state depended upon the power of its economy. From 1960 to the present is the cultural economy phase. Here symbolized markets move beyond capacity of states to manage them and units of economic production start to downscale to a more individual and

humanized scale. In a culturalized global economy, world class is displaced by a world status system based on consumption, lifestyle and value-commitment (Waters 1995).

### **Globalization and Education**

It is Waters belief that globalization proceeds most rapidly in contexts in which relationships are mediated through symbols. The primary institution best lending itself to this phenomenon is education, the institution responsible for training and rewarding advancement in the understanding and application of symbols. It is important to keep in mind that globalization naturally precedes modernization, and is independent of it, and is itself a long-term historical process. In the global economy work can no longer be expected to be a duty or a calling or even a means of creative self-expression. “Choice of occupation, indeed choice of whether to work at all, can be expected increasingly to become a matter of status affiliation rather than of material advantage” (Waters 1995).

The theory of globalization advanced in this research comes through an understanding of its trends. The numerous trends characteristic of globalization, such as the increasing gap between the rich and the poor and the shift among “industrialized” nations from a manufacturing based economy to one based on services and information, taken as a whole, generate a theory facilitating understanding high school dropouts in the context of the global economy. Globalizing trends have been accentuated with the advent of the information/knowledge economy, the increasing power of multinationals and the growing severity of environmental degradation (Miller 1995). This research focused on the advent of the information economy in this new period of globalization, rather than on the power of multinational organizations or the destruction of the natural environment as a result of competition on the global market.

Economically the global economy is becoming increasingly interconnected and consolidated (Bradshaw 1996). Because of this increasing interconnectedness the nation-state and its overall importance are waning. As nation-states become increasingly weaker and their territorial sovereignty is eroded, increasing levels of importance are placed on promoting the interests of sub-groups in the global marketplace. Yet there are three factors of global economic organization that promote uncontrollability in the global market: the international division of labor in manufacturing, the interconnection of currency and capital markets, and the non-physical nature of technological-scientific capital (Churchill 1996).

The international division of labor in manufacturing concerns the shift of manufacturing from the industrialized countries to those of the former third world. As McLaren (1995) notes, large segments of industrial production have been exported to the Third World to produce an outlet among the middle class for consumer durables. These jobs are more part-time and unprotected—especially for the new nonwhite urban underclass that has transformed the Third World into the heart of the First World (Massumi 1993 in McLaren 1995). Ultimately workforce and capital are now more fluid, which allows the employed to be more easily dismissed, retrained and transferred; product turnover is tied more to fulfillment effect and image value than use value. Globalization can be seen as a move towards hyperindustrialism, the global assembly line and the international division of labor. McLaren's (1995) discussion of the following characteristics of a globally transformed labor market structure succinctly makes the point:

The transformation in labor market structure and industrial organization, the revival of sweatshops in places such as New York and Los Angeles, Paris, and London, new networks of sub-contracting and out-sourcing, bankruptcies, plant closures, deindustrialization, tighter organization of capitalism and imploding centralization achieved through instant data analysis, the transformation of knowledge into the most valuable commodity, the capacity for instantaneous responses to changes in exchange rates, fashions and tastes and moves by competitors, the replacement of use value by image value, the formation of financial conglomerates and powerful global brokers and the proliferation and decentralization of financial activities and flows through the formation of new financial instruments and markets—all of these new trends have influenced the nature and composition of the global working class. (McLaren 1995:8-9).

Perhaps the most significant implication of globalization is the structural shift towards production and distributional activities that require a well-trained and well-educated labor force and the reduced need for the unskilled and the semi-skilled members of the labor force who make up the larger proportion of the working population (Miller 1995). The result of distributional trends like these have been the widening gap between the wealthy and the poor—on a between country comparison basis as well as between individuals within countries. For example, in 2000 the average GDP per capita in low-income countries was a little more than \$200, while high-income countries had an average Gross Domestic Product per capita of \$28,000, a difference of 140x (World Economic Outlook 2005). Trends are similar in our own country as well—over the two decades from 1969 to 1989, the real income of the poorest fifth of American wage earners declined by about 25% while the richest 1% of Americans managed to increase their after-tax incomes by well over 50% (Miller 1995). Although these income trends for Americans are dated compared to income trends in the 21<sup>st</sup> century, they are not dated

for the time period that is the focus of this research, but rather capture the time period of the study.

### **The Costs of Social Change**

The burden of social change should be equitably distributed among all groups in society. When the costs of social change are ignored, the vulnerable and poor largely pay the bills rather than those who can more easily absorb the costs and often are the principal beneficiaries of these changes. The main victims of the swift and deep transformations in employment, demography, corporate structuring and social welfare policies are working people, low-income and poor households (Miller and Collins 1996). Finally, it is female-headed families and people of color who are located disproportionately in lower and moderate-income levels (Miller and Collins 1996).

Culturally, the “values” of Americans are distorted more by the privileged positions at the top than by anything else in society. Ultimately, money success becomes the guide to defining self-worth: he who dies with the most toys wins—we are what we own, and others value (Miller and Collins 1996). Perhaps the greatest distortion resulting from the concentration of income and wealth is that it results in a concentration of political power.

Globalization is the result of a critical juncture between economic, social and technological history. “We are witnessing no less than the demise of an earlier economic system, centered on the mass production and mass marketing of industrial goods, and the emergence of a new paradigm of economic development emphasizing services, flexible production, and customized consumption” (Noyelle 1987). The picture of globalization that Noyelle paints is one of a move away from the older dual labor market theories and

advocating that labor market structure is different. His focus is on the shift from internal labor markets to external markets. As such the internal market was indicative of “firm centered” skill development. With external markets being the current trend, education becomes an even more important player in creating the workforce of tomorrow.

### **Globalization and Technology**

The trend of globalization, as it relates to labor markets, can best be characterized as a shift in capital and labor towards information technologies and away from manufacturing industries. Along with this is the internationalization of the economy in general. Dual labor markets predate the current form of globalization. However, historically speaking, it is most likely the case that some form of globalization has been around for just about as long as commerce has. This more modern facet of globalization began taking shape during the late 1970s and early 1980s. What we are currently calling globalization is the culmination of production and distribution that indicates that all cultures are now organized under the same web of production. It is a one-world economy. As such, there are new features of labor and capital, specifically as these are conjoined with technology. Computer and communications technology have made this possible (Noyelle 1987; Perrucci and Wysong 1999).

Interestingly enough, the term dropout came into the vernacular during the 1960s. It was beginning at about this time when the mass collective of citizens considered it a social wrong to leave high school before graduation (Dorn 1996). A primary aspect of the transition to the current manifestation of globalization is the inherent need for an intelligent and educated work force. Almost 180 degrees the opposite of the previous manifestation of labor and capital needs.

## **The Rich Becoming Richer and the Poor Becoming Poorer**

Central to the discussion of globalization is the development of the three job types of the future that Robert Reich (1992) sees taking place due to the development of the “global web” of production. Global webs of production represent a shift away from high-volume production to one of high-value. They also represent a trend away from a nationally produced product, and are instead the end result of a diffuse system of production taking place all around the world. These job types correspond with what has been previously discussed concerning the international division of labor, or the creation of an international labor market. Thus, the worth of individuals in the global market is coming to depend, not on the fortunes of any global corporation (i.e. GM, Toyota, Sony etc.) or on national industry, but on the functions that these individuals perform—the value that they add—within the global economy.

Reich is highly critical of the Census Bureau’s classification of occupations since they were developed when the economy was focused on high-volume, standardized production, in which almost every job fit into, or around, the core American corporation. However he concedes that much of the information about the American workforce must be taken from the typical categories developed by the Census Bureau. His suggestion on determining who fits into which new category is to decompose the government’s data into the smallest subcategories in which they are collected, then reorder the subcategories according to which new functional group they appear to belong in (Reich 1992). The three types of jobs of the future that Reich sees as the basis of “rich” and “poor” are: 1) symbolic-analytic services; 2) in-person services; and 3) routine production services.

Employees found in the last two types of occupation categories generally remain poor while those in the first category are becoming more affluent (see Figure 3.1).

**Figure 3.1 Why the Rich Get Richer and the Poor Become Poorer**

<b>Employment Sector</b>	<b>Change in Jobs</b>	<b>Change in Income</b>	<b>Scope of Competition</b>
<b>Symbolic Analyst</b>	<b>+</b>	<b>+</b>	<b>Global</b>
<b>In-Person Service</b>	<b>+</b>	<b>-</b>	<b>Local</b>
<b>Routine Production</b>	<b>+</b>	<b>-</b>	<b>Global</b>

Symbolic-analytic services, the first job category, include all the problem-solving, problem-identifying, and strategic-brokering activities. Like routine production services, symbolic-analytic services can be traded globally and thus must compete with foreign providers even in American markets. Their work does not enter world commerce as tangible goods, but as the manipulation of symbols—data, words, oral and visual representations. Symbolic analysts solve, identify, and broker problems by manipulating symbols. They simplify reality into abstract images that can be rearranged, experimented with, communicated to other specialists, and then, transformed back into reality. The manipulations are done with analytic tools, sharpened by experience. Manipulations increase efficiency, yield new inventions, sell products, and even entertain. Like routine producers, symbolic analysts rarely come into direct contact with the ultimate beneficiaries of their work, however, like in-person service providers symbolic analysts collaborate with the beneficiaries of their work. Yet, many other aspects of their work life are quite different from both routine and in-person services. Symbolic analysts often have partnerships or associates rather than bosses or supervisors. Their incomes may vary from time to time, but are not directly related to how much time they put in or the

quantity of the work that they put out. Income depends, rather, on the quality, the originality, cleverness, and occasionally, speed with which they solve, identify, or broker new problems. The following are examples of occupations that comprise symbolic analyst workers:

*Research scientists, design engineers, software engineers, civil engineers, biotechnology engineers, sound engineers, public relations executives, investment bankers, lawyers, real estate developers, management consultants, financial consultants, tax consultants, energy consultants, agricultural consultants, armaments consultants, architectural consultants, management information specialists, organization development specialists, strategic planners, corporate head hunters, systems analysts, advertising executives and marketing strategists, art directors, architects, cinematographers, film editors, production designers, publishers, writers and editors, journalists, musicians, television and film producers, university professors. (Reich 1992:177-178)*

In-person services, describe the second kind of massive employment, and may also entail simple and repetitive tasks. And like routine production services, the pay of in-person services is a function of hours worked, or work performed. At best, a high school education, or equivalent, and some vocational training are all that's needed to perform tasks in this area. The importance of in-person service providers is that the services performed must be provided person-to-person, and thus are not sold globally. In-person service providers are in direct contact with the ultimate beneficiaries of their work; their immediate objects are people rather than metal, fabric, or data. In-person service providers work in small teams, or often alone. The following are examples of occupations that comprise the in-person service provider:

*Retail sales, food servers, hotel workers, janitors, cashiers, hospital attendants and orderlies, nursing-home aides, child-care workers, house cleaners, home health-care aides, taxi drivers, secretaries, hairdressers,*

*auto mechanics, real estate sellers, flight attendants, physical therapists, and security guards. (Reich 1992:176)*

Routine production services entail the kinds of repetitive tasks performed in the manufacturing-based economy of old. These tasks are completed over and over—one step in a sequence of steps for producing finished products exchanged globally. Routine production services are found in many places within a modern services and information economy apart from older high-volume industries. For example, “the “information revolution” may have rendered some of us more productive, but it has also produced huge piles of raw data which must be processed in much the same monotonous way that assembly-line workers and, before them, textile workers processed piles of other raw materials” (Reich 1992). Typically, routine producers work in the company of many other people doing the same thing, usually within large enclosed spaces. They are guided by standard operating procedures and codified rules. Their wages are based either on the amount of time they put in or on the amount of work they do. At the most general level these are traditional blue collar jobs. Routine producers usually must be able to read, to perform simple computations, and possess the capacity to take direction. A modest literacy suffices.

The development of these occupational categories force focus on one specific phenomenon in particular and that is actors, whose contributions to the global economy are more highly valued in world markets, will succeed, while others, whose contributions are deemed far less valuable, fail. To this extent there is a growing gap between the haves and the have nots, that is characteristic of dualist labor market theories, which will be discussed in the next section.

Theories of globalization and the development of new occupational categories align with dualistic labor market theories concerning the disproportional placement of minorities and women into jobs that are characterized by low pay, unsafe conditions and have high rates of employee turnover. Because of the ease with which capital can move production facilities, evident in the American corporate downsizing of the 1980's through the relocating of manufacturing plants to Third World countries in order to take advantage of cheaper labor rates, there is an ever strengthened dual labor market—at both national and international levels.

### **Labor Market Segmentation**

The discussion of globalization can be reduced to a more manageable and tangible form by looking at the organization of occupational categories. Specifically, focusing on the way occupation is differentiated and creates labor market segments. There are several theories of labor market segmentation that relate to this study concerning the influence of labor market trends on high school dropout rates. Dual Labor Market Theory and Split Labor Market Theory are used. Dual labor market theory is concerned with the creation and maintenance of primary (core) and secondary (periphery) labor market structures (with also a semi periphery labor market) and how these relate to the individuals that come to occupy one or the other of the sectors.

Dual labor market theory introduced during the 1970s grew out of research regarding social mobility and was ultimately an attempt to understand the labor force problems of disadvantaged, particularly black, workers, in urban core areas (Piore 1973). The research was particularly concerned with how this could be accomplished using secondary data and how it related to social structure and ultimately the inequality

inherent to the capitalist mode of production. Specifically, this theory has proved a useful way of organizing work experience in low-income labor markets. Since the origin of dual labor market theory, continuous research has contributed further to the understanding of dual labor markets and it now contends that labor is divided into essentially three distinct segments - the primary and secondary sectors, with the primary sector divided into an upper and lower tier.

Piore (1973) provides a very concise view of what constitutes the primary and secondary labor markets. The primary sector is made up of jobs with relatively high wages, good working conditions, chances of advancement, equity in due process and administration of work rules and above all employment stability. Jobs in the secondary sector, by contrast, tend to be low-paying, with poorer working conditions and little chance of advancement. There tends to be a highly personalized relationship between workers and supervisors which leaves wide latitude for favoritism and is conducive to harsh and capricious work discipline. Secondary employment tends to be characterized by considerable instability in jobs and a high turnover among the labor force.

A primary critique of dual labor market theory is its myopic focus on the problems of disadvantaged workers. Another important critique is that there are distinctions among primary jobs that are in many ways as important as the distinction between the primary and secondary sectors (Hirsch 1980; Kreckel 1980). At the very least it is necessary to point out the distinction within the primary sector between an upper and a lower tier. Another critique of dual labor market theory is that it holds too strictly to the tenet that once a person is in a primary or secondary sector there is no movement from one to the other (Parcel 1987). A key element of the dual labor market is

that racial minorities, women and youth are disproportionately allocated to the secondary labor market, while the more desirable primary labor market jobs are more often held by white males (Parcel 1987).

Regardless of mobility from secondary to primary labor markets, the dual labor market theory argues that jobs for youth are likely to be poorly paid, unstable, unpleasant, and potentially unsafe, repetitive and performed under arbitrary enforcement of work rules that are only informally defined (Marsh 1991). Findings indicate that there is certainly mobility between sectors, with younger workers moving up and older workers moving down.

As Parcel (1987) points out, what is important to remember is that secondary workers have little incentive to remain with particular firms since they are not accumulating firm-specific training to be rewarded with upward mobility along job ladders. The propensity to quit thus results in “job-hopping” or alternation between work and periods of unemployment. In contrast, workers employed in the primary labor market are accumulating firm-specific training that they can translate into higher positions within firms and higher earnings as their career progresses. They have incentive to remain with their firms, thus reducing probabilities of unemployment.

### **Dual-Market Work Experiences of Youth**

Ashton and Field (1976) illustrated that there are connections between the home and school experiences of youth and the career orientations these youths develop as they select occupations in their early years of work. They describe the careers of young workers in terms of three patterns: the career-less, the short-term career and the extended career. Their research indicates that those from working-class and marginally employed

families, and labeled as failures in school, develop notions of work that lead them into career-less occupational experiences that are consistent with their time frames emphasizing immediate gratification. Those from higher status working- and lower-middle-class families tend to be more successful in school and have more advantages in the home; they develop a career orientation that allows for and encourages a short-term training period where initial wages are low, followed by an extended period of higher economic payoffs, as well as greater payoffs in job security. Those from the higher levels of the middle class where social and economic resources are even more abundant are more successful in school and develop extended career perspectives from their work experience. In terms of the dual labor market, the career-less occupy secondary labor market positions, the short-term career incumbents occupy lower tier primary labor market jobs, while those with extended careers occupy the upper tier of the primary market (Parcel 1987).

Whereas dual labor market theory is concerned with explaining the labor force problems of the disadvantaged while placing the argument within a socio-structural framework that ultimately highlights social stratification, Bonacich's (1979) Split Labor Market Theory focuses on the racial and ethnic conflict rooted in differences in the price of labor which is also useful for highlighting the influence of social stratification. Bonacich (1979) starts by observing that historically nonwhite or colored people have often played the role of cheap labor, while white workers have tended to be higher priced. Because of the difference in the price of labor, there is set into motion pressure for employers to displace high-priced with cheaper labor. Displacement, or the threat of, displacement, leads in turn to efforts on the part of high-priced labor to protect itself,

often taking the form of trying to prohibit or limit employers' access to cheap labor. Bonacich argues that while the main struggle is waged between employers and high-priced labor over the former's efforts to undermine the latter, cheap labor groups become the chief victims, since their exclusion from full participation in the capitalist economy hinders their development and escape from the sub-proletariat.

Bonacich emphasizes that the basic dynamic of split labor market theory is one of a complex class struggle, which exemplifies an orientation towards social structure and inequality within the structure. Bonacich (1979) asserts that the real division is not between white and non-white, but between high-priced and cheap labor, which is where inequality most notably takes place. This distinction, because of historical accident, happens to have been frequently correlated with white/non-white distinctions, hence race comes to be the language in which ensuing conflicts are expressed.

Our use of theories of labor market segmentation is important for two reasons: first, these theories and the studies associated with them have shown that individuals from lower-class positions, minorities, women and youth are disproportionately more likely to occupy secondary labor sectors, and all that goes with them. Second, studies have shown that high school dropouts are disproportionately comprised of individuals from low socioeconomic standing, and/or of minority status. Thus, theory and research indicate that labor market structure plays a large role in keeping persons from lower-class backgrounds in their disadvantaged positions. It is truly a vicious cycle that continues to reproduce itself—students come from disadvantaged environments, which affect their school performance, which in turn influences decisions to drop out and therefore influences their placement in secondary sector jobs. These consequences influence the

social and economic environment their children will come from; with the cycle perpetually repeating itself.

These features of labor market segmentation, as advanced by Piore (1979) and Bonacich (1976) fall in line with the labor market structure of the “New Class Society” as advanced by Perrucci and Wysong (1999). According to Perrucci and Wysong:

“Members of the employer, managerial and professional classes have a stable income flow, employment stability, pensions and insurance. Their positions in the economy enable them to use their resources to accumulate more resources and to insure their stability over time. The new working class has little in the way of secure resources. Their jobs are unstable, as they can be eliminated by labor-replacing technology or corporate moves to offshore production (Perrucci and Wysong 1999:28).”

Perrucci and Wysong (1999) go on to note that the service economy is excellently suited to a two-tiered labor market—this system consists of a small number of symbolic analysts and a large group of “peripheral” workers who are less central to organizational goals and needs.

Perrucci and Wysong (1999) cite four primary structural patterns that are the driving forces of current trends in class polarization, e.g. the division of the US into two main social classes, privileged class versus the new working class. First, there is a pattern of growing income inequality. A result has been the placement of increasing numbers of people in both the upper and the lower-income ranges with declining members in the middle range. Second, has been a corresponding pattern of falling real wages. Third, has been a pattern of shrinking fringe benefits, especially health care and pensions. Finally, there has been an increasing use of contingent, contract, temporary and part-time workers by a wide range of employers. These trends have contributed to a

growing “contingency workforce’ characterized not only by low pay and prestige but also by decreasing levels of job security.

There are several societal developments that have contributed to the dual class structure. Although these developments are contained within the stratified social structure, they are also indicative of social change. For starters, Perrucci and Wysong (1999) look at the transformation of the mid-century middle-class American society into a bifurcated and polarized two-class society. This “new class society” consists of a privileged class made up of roughly 20 percent of the population and a new working class composed of the remaining 80 percent. How they determine this percentage is not quite clear but is based on a person’s position in the new class society as determined by their access to four types of scarce resources, or forms of generative capital: 1) consumption capital; 2) investment capital; 3) credentialed/skill capital; and, 4) social capital. The privileged class is composed of those who have retained access to these resources over time, rendering them stable and predictable. The new working class, in contrast, has limited access to generative capital, and their resources have become more unstable and unpredictable. Importantly, the privileged class uses its resources to maintain and legitimate the new class society. This is achieved through its control of large-scale organizations and institutional networks in the areas of economy, education, politics and culture. This form of class structure is based on a system of distribution and where one falls with regard to their position within the distributional system. This is in contrast to earlier Marxist theories of stratification based on workers relationships to the means of production, or functionalist theories of stratification based on social prestige.

As a result of the economic changes characterized by globalization, between the late 1970's and the mid 1980's more than 11 million workers lost jobs because of plant shut downs, relocation of facilities to other countries or layoffs (Perrucci and Wysong 1999). These displaced workers most frequently found work in the expanding service sectors which were of lower pay, part-time and/or lacked health insurance and other benefits (Perrucci and Wysong 1999). Perrucci and Wysong argue that the first step in reshaping the social class structure took place from the mid 1970's to the mid 1980's and began with an attack on higher-wage unionized workers—eliminating their jobs in auto industries, steel mills, rubber plants and textile mills to name a few. The reshaping continued through the late 1980's and mid 1990's, when the strategy changed from plant closings and relocations to “restructuring and downsizing”, often directed at eliminating white-collar jobs (Perrucci and Wysong 1999). Thus, the trends of economic restructuring, plant closings, shifting investment abroad, and downsizing, have resulted in the creation of a protected privileged class and a divided working class comprised of: 1) core workers—who possess the skills, knowledge and experience essential to the operation of the firm; income levels place them in the comfort class; they are needed for the organizations continuity; 2) temporary workers—whose employment is linked to economic ups and downs, therefore no job security; and 3) contingent workers—employees of a contract labor agency (Perrucci and Wysong 1999). Although these categories are enlightening, they are difficult to quantify from secondary data sources. Similarly, categorizing groups of labor this way illustrates two things, first is that occupation classifications as defined by the Census Bureau are becoming increasingly less adequate for assessing claims put forth by theorists concerned with labor market

segmentation and how this relates to how individuals earn a living in the global economy. Second, these categories take into consideration the influence of economic restructuring, under globalization, on employment opportunities and explain how these changes have been carried out.

### **Dual Labor Market Analyses of Rural Areas**

As noted above, the creation of dual labor market theory arose out of explanations of unemployment in urban areas. What about the history and structure of the rural labor market? Historically, rural areas have provided “plentiful, inexpensive and unorganized labor” (Falk and Lyson 1988). However, in recent years the pool of low-skill and low wage firms that fueled employment growth to rural areas has been drying up. Falk and Lyson (1988) were concerned with the industrial and occupational change taking place in the South. They used dual-economy theory of economic segmentation to examine the assortment of industrial sectors that operate in urban areas, suburbs and rural areas. Industries under the dual-economy theory fall into one of two groups: the periphery, which operates under competitive capitalist trends; and the core, which is organized on the basis of oligopolistic capitalism.

Falk and Lyson (1988) characterize peripheral industries as having relatively low profit margins, minimal internal labor markets, low capital-to-labor ratios, a sensitivity to changes in product demand, limited worker unionization, relatively low wage rates, low job-skill requirements, short on-the-job training periods and high worker turnover. Core industries have high product-market concentration, product diversification, high profit margins, capital intensiveness, bureaucratically organized managerial structures, well-

developed internal labor markets, extensive unionization, relatively high job-skill requirements, high wage rates, extensive on-the-job training and low worker turnover. High technology employment occurs primarily in urban counties, thus this economic sector has been unevenly distributed across urban and rural areas.

Falk and Lyson (1988) define labor markets as “the occupational arenas in which work is organized.” The majority of rural workers were manual laborers. In urban areas blue-collar workers are likely to be in skilled and service work, while in rural areas they are more likely to be operators and laborers. According to Falk and Lyson (1988) the Southern economy expanded rapidly during the 1970s, but the situation most Southern workers found themselves in changed little. Job creation in the urban areas was in the upper-primary labor market. Job growth in rural areas was almost entirely of the secondary labor market. Secondary sector jobs are ways to make a living, and nothing more.

Low-wage, low-status service jobs are replacing low-wage, low-status manufacturing jobs in rural areas. Retail-trade establishments are more important to urban economies than rural. During the 1970s, retail-trade establishments created more jobs than firms from any other industry. Over half of the employment in the rural periphery is comprised of operatives and laborers. Good jobs are closely associated with core-sector jobs and bad jobs with periphery. In the urban areas good jobs in the core are expanding faster than bad, while in the rural areas it is just the opposite. There are more good jobs in urban areas than rural regardless of industry. The planning strategies of the South during the 1970s and the 1980s did “little more than maintain an occupational structure dominated by low-wage and low-skill positions” (Falk and Lyson 1988).

Concluding the work of Falk and Lyson the following occupations are typical of the good and bad job dichotomy. Good jobs: managers, professionals, technicians and skilled craftsmen. Bad jobs: sales, office and clerical, operatives, laborers, and service workers.

Peck (1996) argues that segmentation theories are useful for highlighting the fact that the market mechanism can itself act as a source of inequality. Rather than locate all causes of inequality outside the labor market, segmentation theorists contested this perspective by focusing attention on the quality of jobs rather than the qualities of workers and the constraints surrounding the processes of job matching and worker mobility.

Peck (1996) asserts that the labor market is not an equilibrating, self-regulating structure. Rather it is dependent upon the state to ensure that the supply of labor is regulated, to ensure some sort of balance is maintained between labor supply and demand and between the respective amounts of labor which can be supported within and outside the labor market. Labor market structures are not created unilaterally, but are produced by the combined influence of the causal processes associated with labor demand, labor supply and the state (Peck 1996). Segmentation is the set of processes that slice up local labor markets. Workers in different segments of the same local labor market may share little in the way of common employment experiences.

Segmentation not only undermines the coherence of local labor markets, it also poses a challenge to the notion of the spatial division of labor as it highlights the heterogeneity of local/regional labor pools. Areas with diverse economic systems have proven less easy to characterize as localities. The economic, social and political coherence of such areas is often difficult to specify.

Peck's (1996) research focuses on how spatial structures influence the way in which causal powers are realized in the form of concrete effects. This is not an 'effect of space' *per se*, but a product of the spatial relations between objects endowed with causal powers. Concrete local labor market structures consequently arise from the way in which the causal forces underpinning the labor market merge with one another under particular spatial-temporal conditions defined by the political economy.

Peck's research regarding the way in which the labor market adjusts to recession has demonstrated that cutbacks in recruitment into skilled, primary sector jobs act as a trigger to a process of occupational downgrading or bumping down as job seekers reconcile themselves to less skilled jobs. The result of this trading down process is that many lower skilled, secondary sector workers will be displaced into unemployment. In a bumped down local labor market, there will be a tendency, in addition to high unemployment, for the skills of the local labor force to be underutilized.

Education is also influenced in the bumped down local labor market. Highly qualified school-leavers must trade down the job hierarchy and, as a result, the value of their educational qualifications depends upon the state of the local labor market on which they are traded. The individual returns on human capital investments vary between buoyant and depressed local labor markets. As long as educational aspirations are shaped by the occupations and employment opportunities present, or not present, in the geographic area that students spend most of their time, then persistence to graduation will, in part, be determined by the employment opportunities available. Jobs requiring a college educated work force will draw on college educated people. Likewise, jobs that do not require more than a high school education, or at most an eighth grade education

can be interpreted as contributing to lowering the educational aspirations of the school age population.

It is possible that Peck has developed an alternative 'midlevel' conception of the local labor market in which there is an explicit recognition of the process of segmentation and the considerable internal diversity this entails. Technological requirements, industrial structure, product market conditions, trade union activity, state policies, the domestic economy, and cultural systems all have a role to play in the production and reproduction of labor market structures. The local labor market, conceived at such a level of abstraction, consequently has a genuine claim to theoretical significance.

This leads into the discussion of spatial inequality as an area of theory and research in its own right. Earlier theories and research on inequality tended to deny the need to take spatial settings into consideration. They were largely aspatial. The new research is focused on spatially embedded populations. Furthermore, since a core area of the discipline is being affected (i.e. stratification), the empirical and conceptual direction of sociology as a discipline is giving rise to a new specialty area, spatial inequality.

### **Spatial Contribution to Inequality**

As briefly touched on in earlier sections of this document, a central idea running through this research is the role that location plays in determining the influences of the social structure on individual action. There is growing interest in spatial sociology, based on the legacy of past research traditions and from attempts to create new ones.

Importantly, research employing a spatial centered approach has consistently been aware of the influence of labor market segmentation upon the persons living in a specific area

and specifically the inequality that exists between the segments in a specified geographic area.

Spatial inequality emphasizes the structural-territorial bases of inequality, extending the research of stratification to the new frontier of geographic space. Spatial inequality examines how markers of stratification such as economic well being, race/class/gender inequalities, and other social, health and environmental indicators vary spatially and, in turn, how territory itself becomes a marker of stratification, as in the comparative socioeconomic position of rural and urban regions. From a methodological standpoint, the addition of geographic techniques in spatial analysis and GIS introduces new ways of conceptualizing research questions and analyzing data.

Lobao and Saenz (2002) assert that the development of sociological interest in spatial inequality is tied to several interrelated events that took place during the 1980s and thru the 1990s. That interest initiated a revision of top-down approaches of theories of stratification, and acknowledged the role of human agency in creating social structure. That research led to extending the substantive reach of stratification beyond its traditional economic boundaries and embraced extra-economic, nonclass bases of inequality such as race/ethnicity, gender and the role of the state. A trend began to move away from deductive theory of social science covering laws, applicable to all phenomena regardless of time and place, to focus on spatial and historical context in which relationships occur. There has been growing interdisciplinary collaboration of sociology with geography, especially concerning recent theoretical and methodological innovations in geography.

The utility of this approach is that it allows analysts to observe how macro-level social forces work themselves out at ground level. Such observations in turn can modify

and inform theory. According to Lobao and Saenz (2002) attempts to link macro and micro social forces to individuals' lives and well-being are often grounded in spatial settings such as the labor market, which has generated a large and growing social science literature.

The study of spatial inequality from a rural sociology perspective adds geographical space to the mix of stratification related indicators, fuses the importance of space with the power of inequality, and links rural sociology to related subfields within sociology (Lobao and Saenz 2002). Lobao and Saenz (2002) assert that rural sociologists' interests in spatial inequality is substantively different by focusing on social stratification in terms of both production and consumption patterns as well as other diversity issues taking place across territory.

How has spatial research fused the importance of space with the power of inequality? Lobao and Saenz (2002) assert that attention to spatial inequality contributes to the internal coherence of rural sociology. Given the long standing tradition in rural sociology of studying the links between space and stratification, rural sociology is well positioned to make significant contributions to the spatial inequality movement within the broader discipline of sociology.

One final benefit of studying spatial inequality is that it is useful in linking all three subfields of human ecology together. Demography, urban and rural sociology developed from human ecology, which traditionally gave little attention to power-based social relations. Lobao and Saenz (2002) insist that a currently-a strong critical tradition infuses both urban and rural sociology and as a result a critical demography has emerged. This critical tradition is linking all three subfields much more closely than in the past.

Lobao (1996) makes a case for spatial inequality research in the field of rural sociology by drawing upon the “sociology of the periphery” tradition that runs through rural sociology. What she means by this is the “longstanding concern with space, uneven development and the social relationships of peripheral settings that have provided substantive boundary and conceptual meaning to rural sociology, as well as propelled its evolution” (Lobao 1996:77). In her opinion it has been geographic space which has always been the one single element that has linked the diverse concerns of rural sociologists since the field’s inception.

Employment opportunities vary spatially. Yet space does not actually exist in the sense of being an object that can have effects on other objects; spatial determinism is an incorrect mode of explanation. So how can these two crucial observations be reconciled – that spatial variations matter but that space itself does nothing? The only acceptable answer is to find an analytical schema allowing for the recognition of this “patterning” without forcing a situation where space becomes a “thing” with its own characteristics and effects.

The relationships between various social agents and institutions take place in a spatial arena. Ultimately, this spatial arena measures the extent of the political economy as it exists in geographical space. The political economy constrains social relationships through law and the availability of employment. Quality of employment is also considered.

Although spatial relations are caused by social objects they cannot be reduced to them once set in place (Duncan and Savage 1989). It is important to remember that all social objects exist in a spatial arena and will hence be affected by spatially contingent

relations. The point is made that this feature of contingency indicates that the nature of this effect cannot be deduced at an abstract level, it can only be decided by empirical concrete research.

Theoretically spatial analysis and spatial differentiation, take into consideration that different social processes will tend to operate at different spatial scales, both by having varying boundaries and by being unevenly developed in different ways. Boundaries circumscribe the geographical space they occupy. Uneven development is measured by the different social activities taking place in different locations since not all capitalist processes can take place in the same location. Thus, Duncan and Savage (1989) state that it is necessary to distinguish a world economic system from a national system and a local frame of 'experience'.

Duncan and Savage (1989) assert that a proper form of study for social research is not 'locality', which is never properly specified, but economic restructuring and its local effects using case study areas as appropriate. Our research extends the work of Duncan and Savage by focusing on economic restructuring and its local effects on employment opportunity, family structure, and high school dropout rates.

Duncan and Savage (1989) point out that interest in local labor markets can be found in literature on 'segmented labor markets' which originated in the 1970s. The importance of labor market segmentation is that it provided a theoretical as well as a methodological means to study the differences in employment opportunities between various races in the metro areas of the nation (Piore 1975; Bonacich 1979). Methodologically, it utilized census occupation data to develop the groupings for the primary and secondary sector labor markets. One current and relative critique of the two

tiered approach is that it was developed when the United States economy was driven by high-volume manufacturing. Through Globalization, and “webs of production”, a new set of occupational opportunities have come to the forefront, replacing the manufacturing based economy and creating an economy based on services and information.

This research has been forced to deal with both situations: first the legacy of occupational data being organized into categories reflective of the manufacturing-based economy and the classification of these occupational categories into primary and secondary labor market segments. However at the same time the research must deal with the transformation of the economy and subsequently occupations into new categories that do not easily resonate with the earlier dual labor market structure derived occupational categories.

In order to do the analysis, occupational codes will be organized in a hybrid manner, for two reasons: 1) the previous industrial era categories do not reflect current occupation structure; and 2) the most current census data do not accurately organize modern occupation structures into the symbolic analyst, in-person service, and routine production services typologies either. However, there is enough conceptual overlap between these two perspectives that this research will organize current census data on occupation into the three categories set forth by Reich (1992).

In concluding the section on theories of labor market segmentation and spatial inequality the point being made is that segmentation of occupations results in the unequal distribution of resources among members of society. This segmentation of occupations, carried out in the form of employment opportunities, plays several roles in the life of the high school student. For starters, employment opportunities that have been available to

parents affect the level of socioeconomic resources available to a student. As has been illustrated, the lack of socioeconomic resources available to a student is often detrimental to their education. Secondly, employment opportunities determine the quality of educational instruction available.

### **The Effect of Economy on Dropping Out of School**

The dropout represents a failure of the educational system as it operates under capitalism to effectively educate all students. Furthermore, consistent patterns of dropping out repeatedly point to the influence of structural inequality (Dorn 1996; Perrucci and Wysong 1999; Rosigno 1999). Structural inequality refers to a structured system of unequal rewards that provide enormous advantages to a small percentage of people at the expense of the overwhelming majority. To this end the education system, for good or for bad, functions to transmit advantage and disadvantage across generations (Perrucci and Wysong 1999). Structural inequality is maintained through the practices of curriculum tracking and main-streaming (Oakes 1985; Perrucci and Wysong 1999), and is legitimated through the time honored educational rhetoric of meritocracy.

Historically many social and economic variables have been developed in order to measure the influence of structural inequality on the outcomes of education. At the top of the list the most important construct for determining educational success, regardless of how it is operationalized, is socioeconomic status. Typically, socioeconomic status is a combined measure of educational attainment and occupation. Other variables such as income, either on its own, or in conjunction with educational attainment and occupation, have been used to quantify socioeconomic status. Socioeconomic status is useful because it provides a means of quantification in order to locate individuals on a continuum of

social and economic resource distribution that comprises the system of social stratification. Determining location is important because it is location on this continuum that determines both the quantity and the quality of the goods and services that can be acquired and that come to reflect socioeconomic status.

We can measure the prestige of a high school with population demographics including occupation, education, and income. With credentials comes prestige. Perrucci and Wysong (1999) argue that if one follows the importance of educational credentials historically, the trend indicates that when a grade school education became the norm, the emphasis changed to the high school education in order to differentiate between pay and prestige. Once the high school diploma became the norm, the bachelor's degree became the educational certificate of choice. Now, with college education being the sought after degree, it has reached a point where a degree alone is not sufficient, the credential must include the status of the educational facility from which the degree was awarded. From a historical perspective it appears that the privileged classes that control the corporations and the universities keep moving the finish line when too many of the nonprivileged class starts to get access to the valued educational credentials (Perrucci and Wysong 1999).

Throughout this research it is proving to be impossible to remove what is taking place from the socially stratified environment in which it plays itself out. Getting an education is paramount to securing a better position on the socioeconomic resource distribution continuum. The higher the education generally the more resources, regardless of how those resources are measured, are available to the individual, while the lower the education the fewer the resources available.

As was pointed out in the chapter dealing with the review of the literature the best predictor of likelihood of a student leaving school early has always been socioeconomic status. But what is it about socioeconomic status that makes it such a strong predictor? By focusing on social stratification this research will study the way that resources are distributed within a society—who gets what and why. The dropout phenomenon is interrelated with socioeconomic resource distribution on a number of levels. First, there is the influence that resources have on whether a student graduates from high school or not. Thus, students coming from poverty or lower class situations have fewer socioeconomic resources to draw on which, in turn can influence their decision to leave school early. Secondly, and on the other end of the distribution relationship, high school dropouts greatly decrease their chances of securing resources once they drop out. It is a vicious cycle in that it takes resources to acquire and sustain resources, and dropouts for the most part start out with limited or no resources and therefore typically have a more difficult time obtaining resources later in life.

### **Chapter Summary**

This chapter was organized at the start from a macro-level perspective and concluded with the micro-level perspective. This reflects the overall nature of the research, which is to gain a better understanding of how large scale macro-level social forces shape micro-level individual actions. The first section of the theory chapter dealt with globalization. Globalization provides insight into understanding recent economic restructuring from the standpoint of the transition away from a manufacturing based economy towards one based on services and information. These trends however have not reduced the effects of labor market segmentation, but rather have strengthened them for

certain portions of the population. The end result of these kinds of disruptive transitions can be measured by such indicators of social malaise as high school dropout rates, crime rates, and unemployment rates to name a few. The end result of this transition has been an increased polarization of societal members along a continuum defined by occupation, education and income. The organization of the workforce into symbolic analysts, routine production workers and in-person service providers presents a useful theoretical grounding that can be quantitatively measured.

Following the discussion of globalization was the section on labor market segmentation. The discussion of globalization can be reduced to a more manageable and tangible form by looking at the organization and interrelationship of different occupation categories, theories of labor market segmentation are well suited for this. At the core of labor market segmentation is a theory and methodology of inequality determined by occupational categories. Theories of labor market segmentation classify occupations as either being of good or bad quality. Furthermore, specific segments of the population, the poor, minorities, women and children, unquestionably come to occupy jobs in the less desirable labor market. On a different, yet related, note, the effects of economic restructuring materialize in occupation opportunity. Economic restructuring and the loss of good jobs and their subsequent replacement with jobs of lesser quality is at the center of this research.

Following the sections on globalization and labor market segmentation it became necessary to address the spatial context that is an important component of this research. Spatial scale is important both theoretically and methodologically. From the theoretical standpoint there is the basic argument of this research that macro-level social forces can

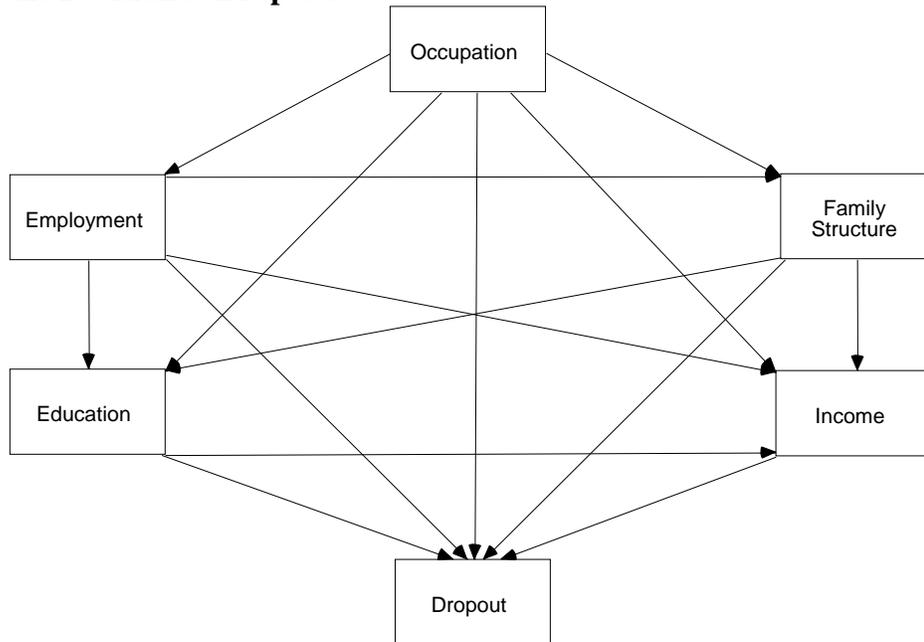
influence individual levels of behavior. The methodological nature of this research is spatially organized as well, and will be discussed further in the next chapter dealing with the methodology employed to carry out the research. The section on the spatial aspect of the research specifically focused on spatial inequality, which again is important to the overall organization of the research from both a methodological and a theoretical level.

The remainder of the chapter will deal with the visual models developed to better understand the social interaction taking place as well as the unique set of hypotheses that were developed to test the relationship between economic restructuring and high school dropout rates.

### **Visualization of the Models Portraying the Relationships among Variables**

Figure 3.2 provides a visual diagram illustrating the social and economic forces that influence high school dropout rates. These variables will be further expanded to include all of the indicators that were used to measure these core variable types.

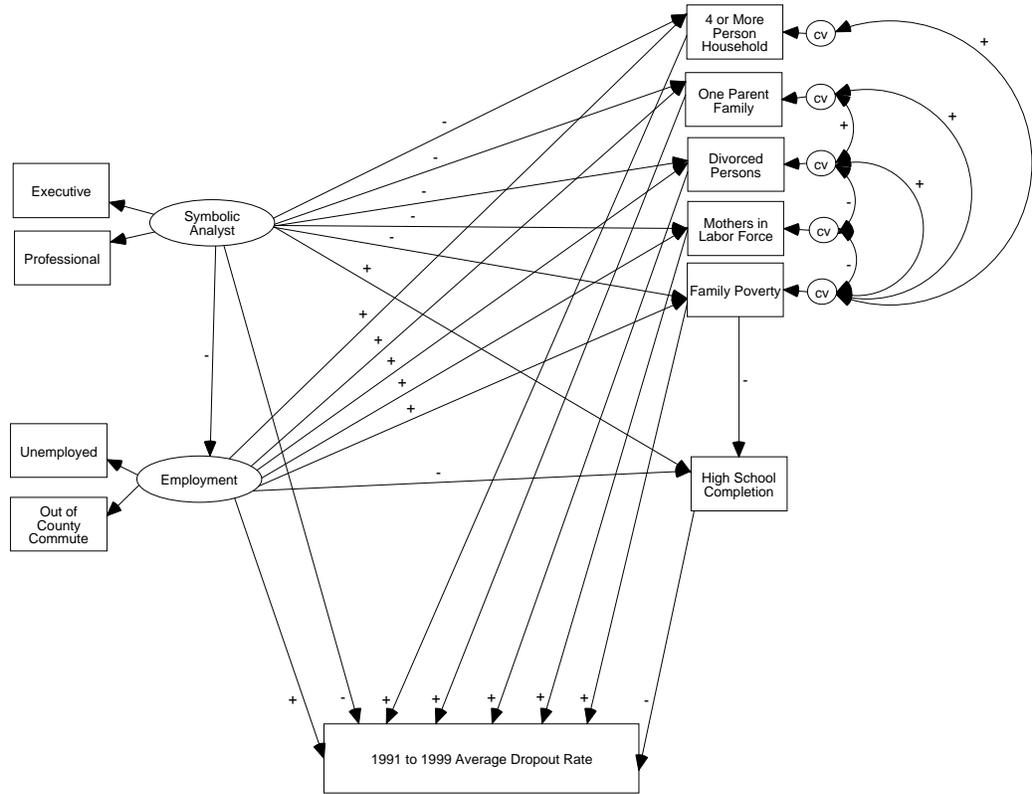
**Figure 3.2 Conceptual Framework of the Social and Economic Forces Influencing the Decision to Drop Out.**



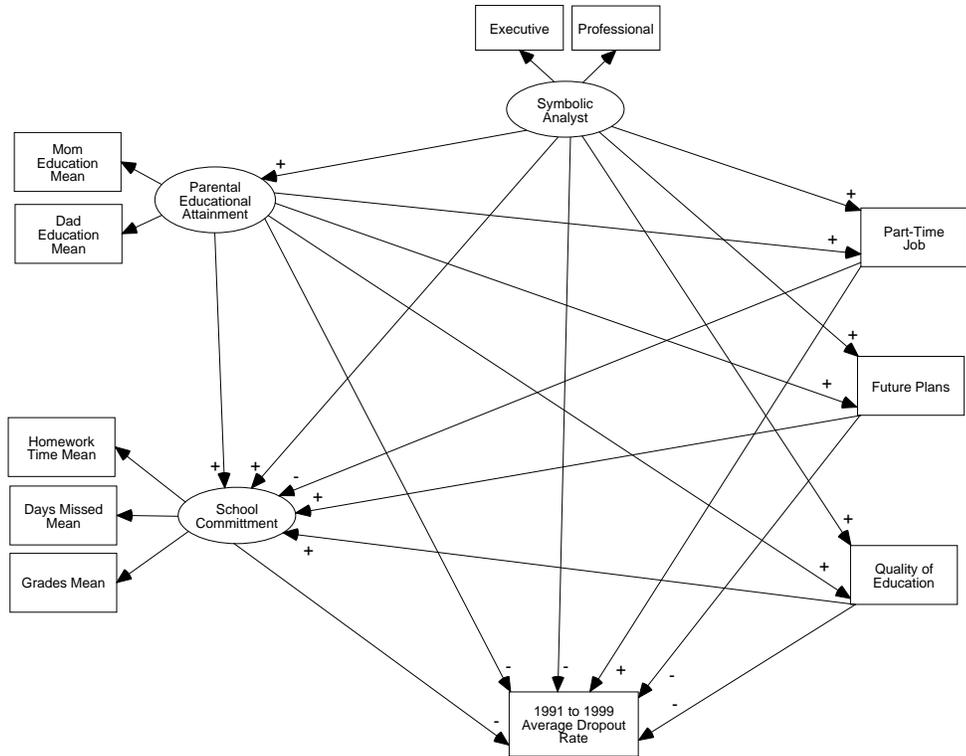
### **Research Hypotheses**

Hypotheses have been developed that are based on previous research findings put forth in the review of the literature chapter and the theoretical concepts just discussed. These hypotheses deal with the issues of occupation and employment; income and poverty; educational attainment and other salient features of the school, and family structure. This research utilized an innovative research design that did not involve normal sampling frameworks thereby necessitating a different approach to measuring significant relationships and testing hypotheses. The approach taken in this research uses the measures of goodness of fit, tied to the structural equation model, to be the method for determining support for the hypotheses. The measures of goodness of fit used in this research will be discussed further in Chapter 4 on research methodology.

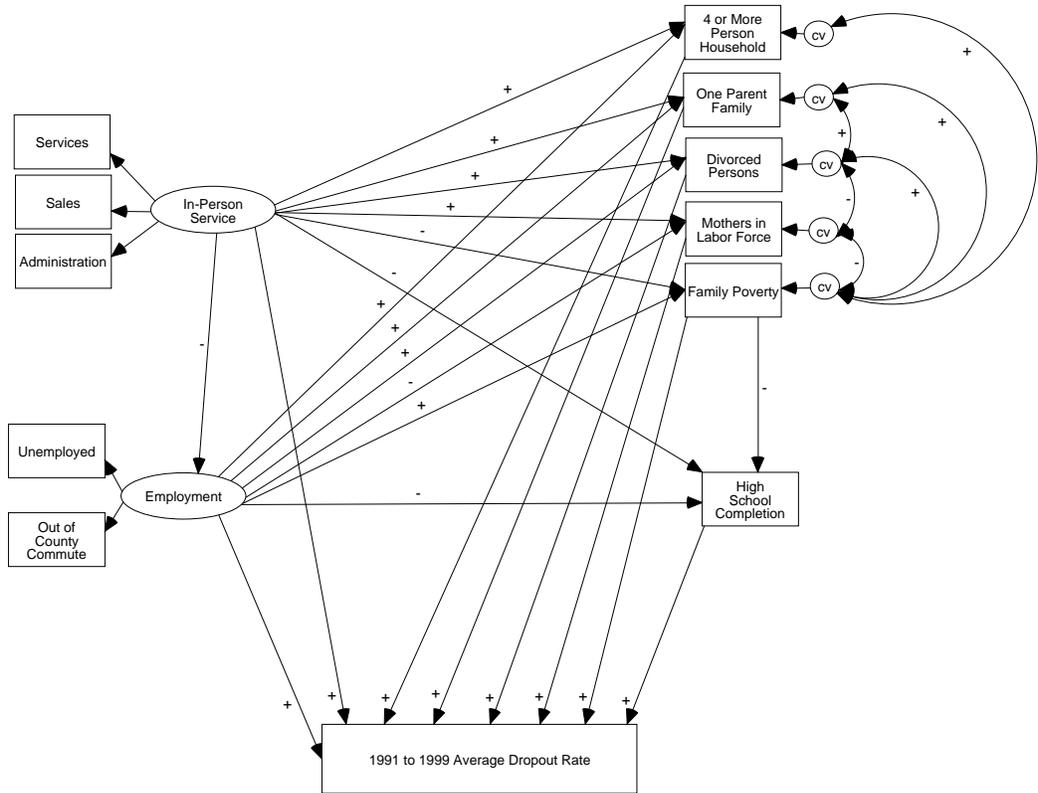
**Hypothesis 1: Symbolic Analyst, Employment, Family Characteristics, High School Completion, and Dropout Rate.**



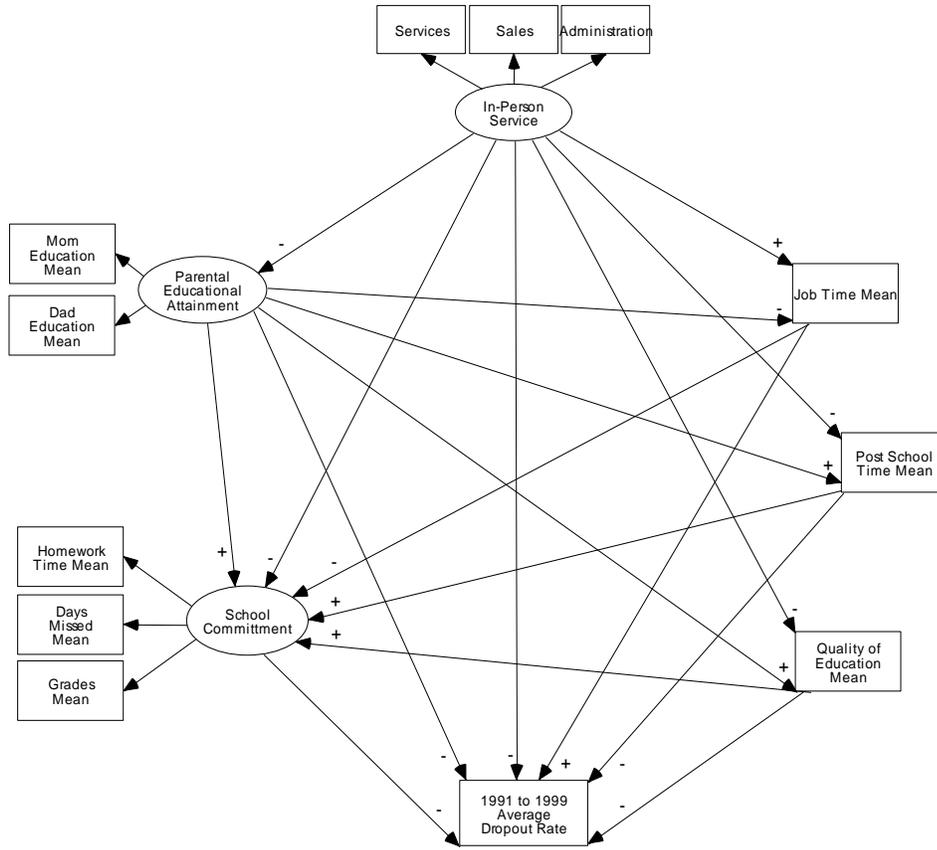
**Hypothesis 2: Symbolic Analyst, AQ Student: Time Spent Working, Plans After High School, Quality of Education, Parental Education Attainment, School Commitment and Dropout Rate.**



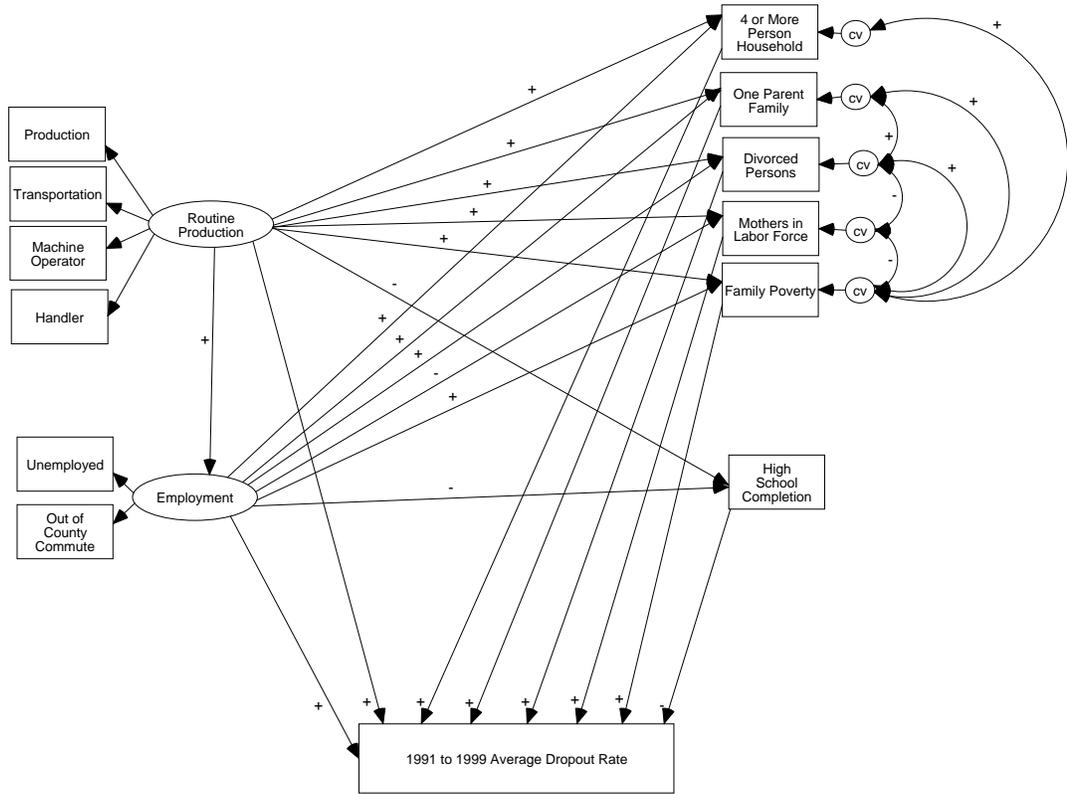
**Hypothesis 3: In-Person Service, Employment, Family Characteristics, High School Completion, and Dropout Rate.**



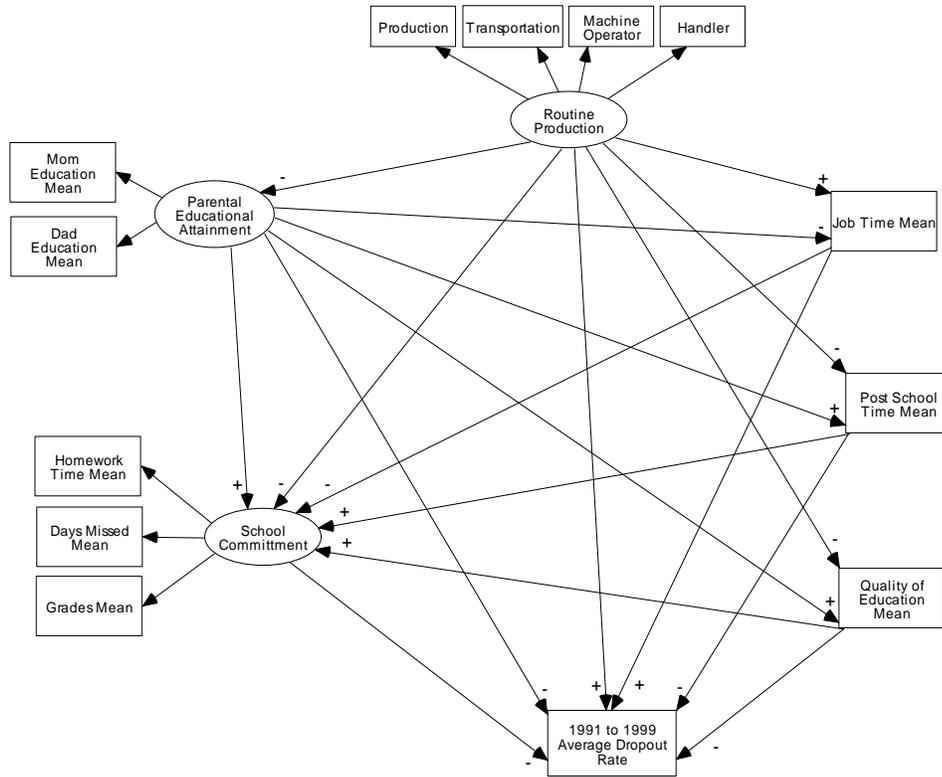
**Hypothesis 4: In-Person Service, AQ Student: Time Spent Working, Plans After High School, Quality of Education, Parental Education Attainment, School Commitment and Dropout Rate.**



**Hypothesis 5: Routine Production, Employment, Family Characteristics, High School Completion, and Dropout Rate.**



**Hypothesis 6: Routine Production, AQ Student: Time Spent Working, Plans After High School, Quality of Education, Parental Education Attainment, School Commitment and Dropout Rate.**



## **CHAPTER IV**

### **RESEARCH METHODOLOGY**

#### **Introduction**

This chapter sets forth the analytical techniques employed to test the hypothetical models generated from the theory and review of the literature. Along with testing theory, this section discusses the research methodology required to integrate four separate secondary datasets within a GIS and analyze the variables in relation to the number of teenagers dropping out of high school between 1991 and 1999. A key contribution of this dissertation is intended to develop and implement a set of methodological techniques useful in the execution of data extraction, manipulation and analysis of secondary data sources. These data sources generated the specific indicators employed to study the effects of changing employment opportunities on the family, the school and students.

#### **Unit of Analysis**

The unit of analysis was Missouri rural high schools. Several considerations guided the selection of the high school as the unit of analysis. First, there was the availability of actual measures of dropping out, dropout rate, for which data was obtainable at the individual high school level (both geographically and statistically). The high school is regarded as a micro level entity. A more macro level of analysis is regarded as being the school district or county level.

A drawback to analyzing drop out rates and economic restructuring for an entire county, rather than smaller levels of statistical geography, is the extremes and diversity of school and community conditions encountered within many counties. To use the county

as a unit of analysis would cause loss of recognition of sight regarding subtle and not so subtle variations that are taking place between individual high schools and labor markets. With the unit of analysis being the high school, it still affords anonymity of the respondent, but offers a more micro level of analytical detail than that derived from larger social/economic geographies.

Second, this research focused on developing exploratory models derived from secondary data that could be used to explain individual level decisions shaped by macro structural forces. As such, the high school, as a stationary and easily geographically locatable object, can have data attributed to it from a number of indicators both external and internal to the school, making it a statistical entity as well.

Not all Missouri high schools were used in the research. Only rural high schools in Missouri were included in the research. To determine which high schools were rural required the use of a dataset from the National Center of Educational Statistics Common Core of Data in which Missouri high schools are listed. Many indicators pertinent to this research are included in the common core database. To determine whether a high school was rural or not, the “School Locale” field of the database was used. This field includes 8 locale possibilities: 1) Large City; 2) Mid-size City; 3) Urban Fringe of Large City; 4) Urban Fringe of Mid-size City; 5) Large Town; 6) Small Town; 7) Rural, outside Metropolitan Statistical Area (MSA); and, 8) Rural, inside MSA. This research used the last three codes 6, 7 and 8, from the locale field to select the rural high schools used in the analysis. A code of 6 is defined as: “Small Town - An incorporated place or Census Designated Place with a population less than 25,000 and greater than 2,500 and located outside a CMSA or MSA”. A code of 7 is defined as: “Rural, outside MSA - Any

incorporated place, Census Designated Place, or non-place territory designated as rural by the Census Bureau”. A code of 8 is defined as: “Rural, inside MSA - Any incorporated place, Census Designated Place, or non-place territory within a CMSA or MSA of a Large or Mid-Size City and defined as rural by the Census Bureau”.

### **Methods of Data Collection**

Data collection for the research utilized two approaches: 1) geoprocessing and 2) database manipulation. Multiple geoprocessing tasks were undertaken for data collection purposes with the first geoprocessing task being the “geocoding” of the high schools. Geocoding is a process of determining the latitude and longitude coordinates for a feature on the surface of the earth, thereby providing that object with an electronically plottable location via a GIS. The other geoprocessing approach of the research required the buffering of high schools in a ten mile radius in order to capture the center points of specific census geographies that fell within the buffer’s radius and were used to aggregate the social and economic data to the high school. The database manipulation aspect of the research required that datasets created for other purposes, yet related to high schools, be able to be joined in order to perform the analysis. The following discussion will cover the steps that were taken in order to capture the data used for analysis as well the creation of the dataset that was the end product of this data capture and manipulation.

Before going into the specifics of the methods that were used to create the final dataset used for analysis, attention should be drawn to the unique sets of data that the final indicators were drawn from. Demographic data of the social and economic environment surrounding the school were drawn from the 1980 and 1990 Censuses of Population and Housing. Data relating to students’ perceptions of education and the

educational environment of the high school were drawn from the Missouri School Improvement Program Advanced Questionnaires. Finally, the dropout data were obtained from the Missouri Department of Elementary and Secondary Education's Core data set. Indicators from these three separate sets of data were ultimately fused together into one dataset capable of analyzing relationships among these indicators. The indicators were also capable of being displayed via the GIS.

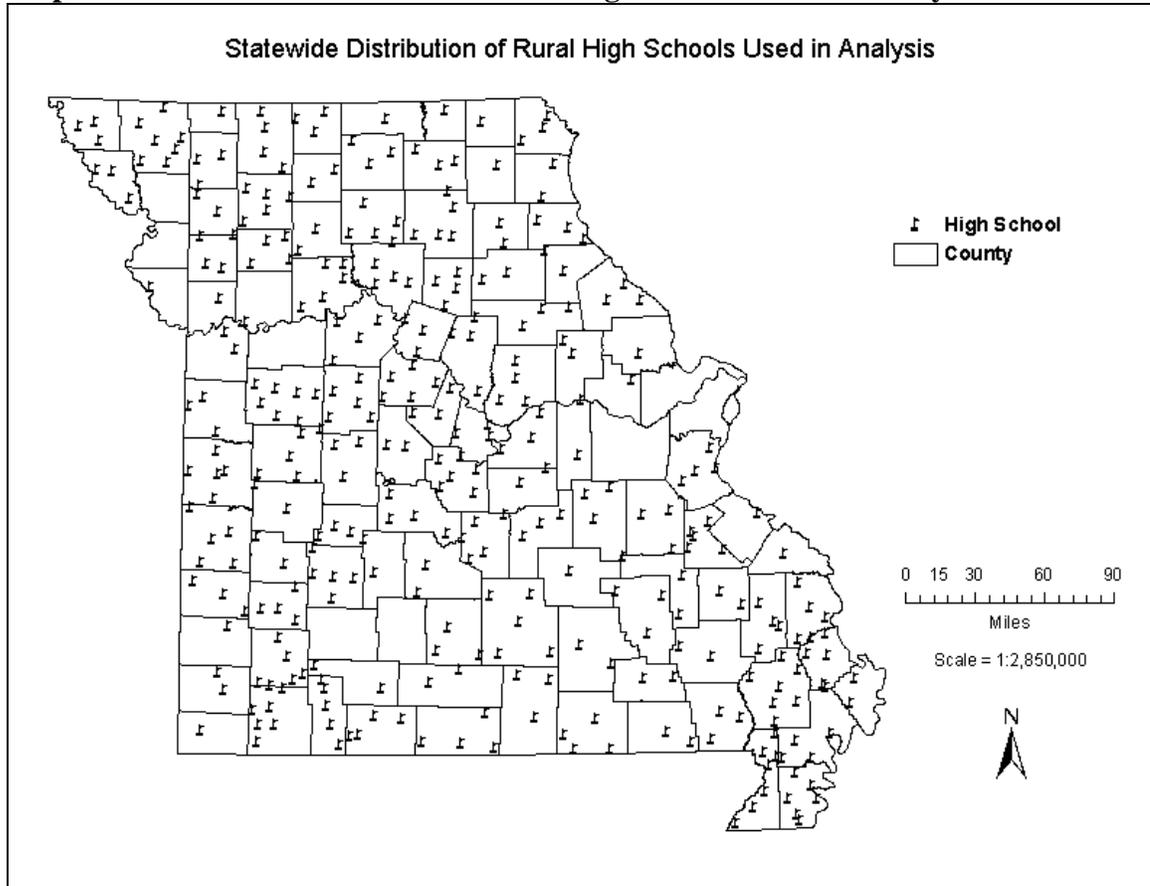
The need to create and maintain a Geographic Information System (GIS) was necessary from the outset of the data collection phase of the project. The first dataset to be constructed was simply a listing of all of the high schools in the state with their street addresses. This dataset was obtained from the Missouri Department of Elementary and Secondary Education in a dataset containing all Missouri high schools in 1999. Not only did this electronic file contain the school names, it also contained their unique ID code and their street address, as well as a zip+4 zip code field. Within this data set each school in Missouri was identified through a system of IDs that indicated whether it was an elementary school, a junior high school, a high school, or some other educational facility. This initial school dataset was then filtered on this "school type" field to include only those schools that were high schools. At this point the dataset supplied by the NCES that listed the schools locale (i.e., 6, 7, or 8) was appended to the high school dataset (by linking these two datasets together via the high school ID field), and from this only high schools meeting the specified "locale criteria" were kept in the dataset—these being the rural high schools.

## **Demographic Characteristics of Labor Market Area of Schools**

In order to link the social and economic indicators provided by the 1980 and 1990 census data to the high schools, each high school's position in geographical space had to be established. To determine the school's geographic location two methods were used. The first method took the zip+4 addresses of the high school and matched them against a zip+4 dataset that already contained the latitude and longitude coordinates of certain zip+4 entities in order to provide the latitude and longitude coordinates of the school. Those schools that did not return a latitude and longitude coordinate when compared to the zip+ 4 file were then ran through a web based program that used the school's address to determine their latitude and longitude coordinates. These two methods allowed for geocoding of all 339 rural schools used in the analysis. At this point in the project all of the rural high schools in the state had been successfully identified including their latitude and longitude coordinates (in decimal degrees). These data made possible the display of where each of the schools was located and also enabled performance of more complex geoprocessing techniques on them. The latitude and longitude coordinates were later transformed to the North American Datum 1983 Universal Transverse Mercator 15 projection, and the final GIS had all coordinates and census geographies in the NAD 83 UTM 15 projection. The NAD 83 UTM 15 projection is made of 60 pre-defined zones and was used because it is very accurate in narrow zones and preserves directions around any given point making it more accurate when creating and using buffers of point features. This enabled capture of other point features containing social and economic data that fell within the ten-mile buffer zone of each high school. Map 4.1 illustrates the

Missouri location of each high school following completion of geocoding portion of the project.

**Map 4.1. Statewide Distribution of Rural High Schools Used in Analysis**



For the analysis to take place the social and economic indicators from both the 1980 and the 1990 censuses needed to be captured and attributed to the high school geography. There were several problems encountered when trying to capture data for small area geographies for different census periods. For those unfamiliar with census data it is pertinent to know that that census data can be aggregated to several types of geographies, including states, counties, minor civil divisions, places, census tracts, block groups, and blocks. These are all geographical entities to which social and economic data

are attributed. Some of these geographical entities do not include all social and economic census data. For example, the smallest unit of geography for which census data is aggregated and reported is the census block. However due to their very small population size, and concerns for privacy and data disclosure, only census data from the 100 percent sample short form are aggregated to the census block. The basic census data which are available at the block level are population counts, by age, race and sex, some family and household characteristics and some housing characteristics. What you cannot get at the block level of geography is the detailed social and economic data that is captured in the Census long form questionnaire. This questionnaire is sent out to one in six households in the country and is comprised of over 30 questionnaire items. It is the data from this questionnaire that provides the detailed social and economic characteristics of the US population. Some of these items include income, occupations, industries, poverty, educational attainment, labor force, commuting, and unemployment to name a few. The smallest census geography for which the long form data is available is the block group, which is itself a collection of census blocks.

One of the problems with trying to compare census data for different geographies over time is that their boundaries can change from census to census. Some geographical boundaries, like states and counties are more static and rarely change, however place, tract and block group boundaries can change dramatically between censuses.

Aside from the probability of small area geographies to change boundaries between enumerations, another problem we encountered concerns the level of geography for which census data from 1980 and the 1990 census years can be compared. For the 1980 census GIS technology was not yet at the level of sophistication it had reached by

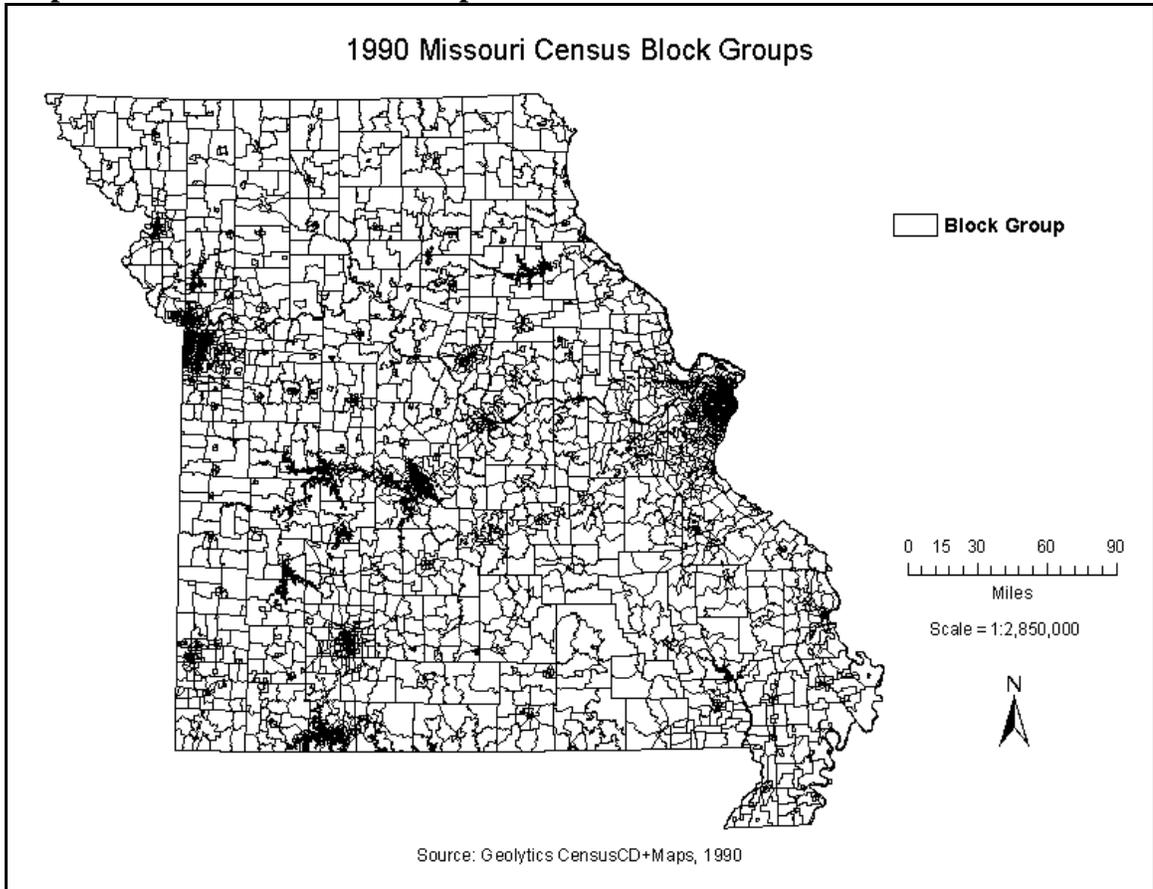
the time of the 1990 census. Thus it became clear when attempting to utilize various geography files from the 1980 census that some of the smaller units of geography available for the 1990 census data were not available in 1980. And if they were available, they were available only for metropolitan areas and not for the rural areas of the state thus rendering them useless for this study. For example, the smallest level of census geography for which the social and economic data collected by the census long form is available is the census block group. A census block group is, on average, comprised of about one-thousand people and can vary in geographic size and composition from one census period to another.

For the first time in a US census, the 1990 census was able to provide statewide coverage of the block group geography (see Map 4.2). The same cannot be said for the 1980 census. As can be seen from Map 4.3, only certain areas of the state of Missouri contained census block groups from the 1980 census. These small areas of geography containing long form data would have been useful in our analysis but, since they were not available statewide they were impossible to use for comparisons in this research.

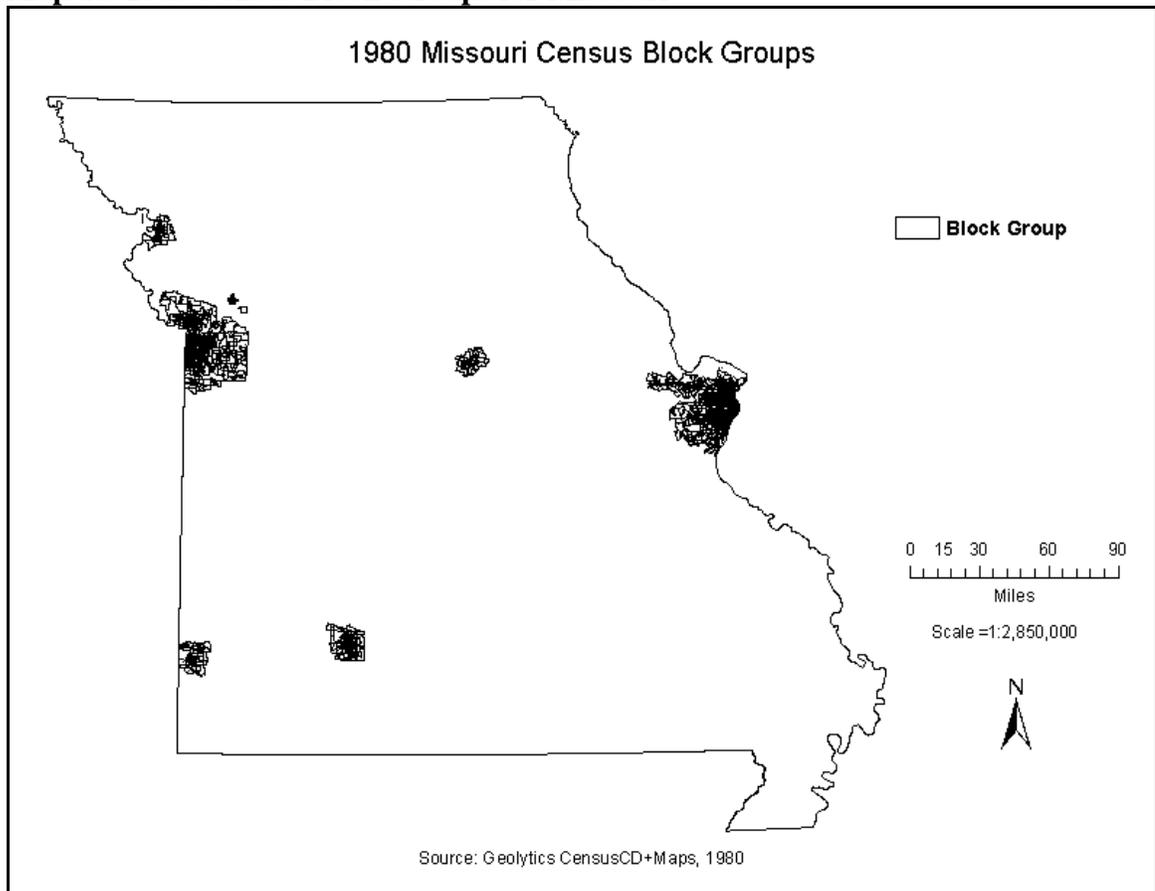
The smallest level of geography for which there were census long form census data for the 1980 census was the Minor Civil Division (MCD). According to the Census Bureau, "A minor civil division is the primary governmental or administrative division of a county or statistically equivalent entity in many states. A minor civil division is created to govern or administer an area rather than a specific population (ex. Town, Township, District). The U.S. Census Bureau recognizes minor civil divisions in 28 states, as well as the District of Columbia, Puerto Rico, and the Island Areas." For this research, the social

and economic indicators used for comparison of the 1980 and 1990 census were collected and compared at the level of minor civil division geography.

**Map 4.2 1990 Census Block Groups for Missouri**

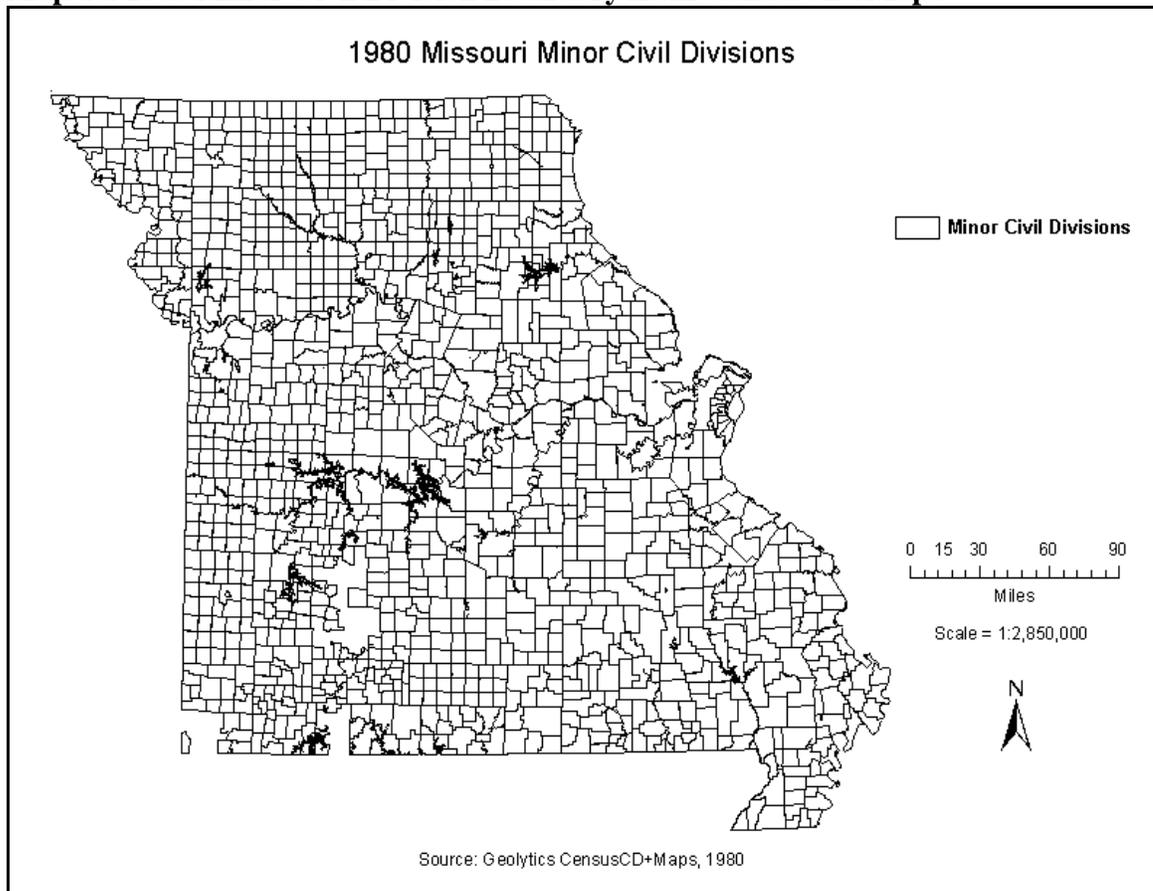


**Map 4.3 1980 Census Block Groups for Missouri**



Although minor civil divisions are located throughout the entire state, the 1980 minor civil division boundary file that was used had to be created from 1990 census blocks because there were “holes” in the 1980 boundary file originally supplied by the CensusCD+Mapping software (see Map 4.4). Using the MABLE/Geocorr web application (<http://mcdc2.missouri.edu/websas/geocorr2k.html>) developed by John Blodgett of the Office of Social and Economic Data Analysis at the University of Missouri, it was possible to ID 1990 census blocks with 1980 minor civil division ID codes. Once all of the 1990 census blocks had been identified with the appropriate 1980 minor civil division code, this dataset had to be linked to an actual 1990 census block geography file. Upon joining these two sets of data together, a specific geoprocessing technique known as a “dissolve” was performed on the newly linked geography file. The dissolve requires that a specific field be identified; in this case it was the minor civil division code field to which all of the geographies could then be “dissolved”. Upon completion of a dissolve a new geography boundary file now represents 1980 minor civil divisions (see Map 4.5.). These 1980 minor civil divisions may not correspond exactly to their boundaries in 1990 (because of changes that take place between censuses as a result of changes in population) but they do represent a complete boundary file for the entire state of Missouri of all of the minor civil divisions that existed in 1980. The minor civil divisions are important because they are the smallest level of geography to which census long form data can be applied. It was this process which was used to make possible comparisons of the social and economic data from the 1980 and 1990 censuses at a level of geography essential for this analysis.

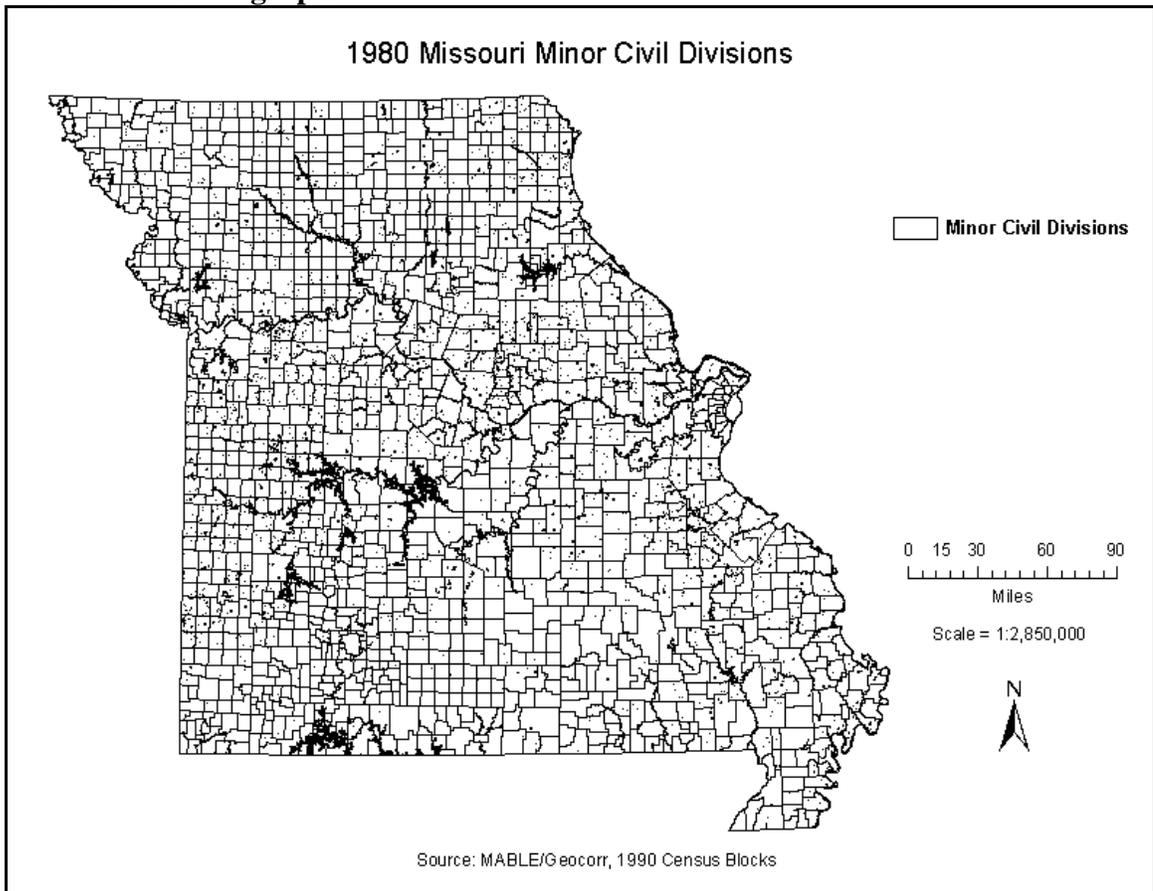
**Map 4.4 1980 Minor Civil Division Boundary from CensusCD+Maps**



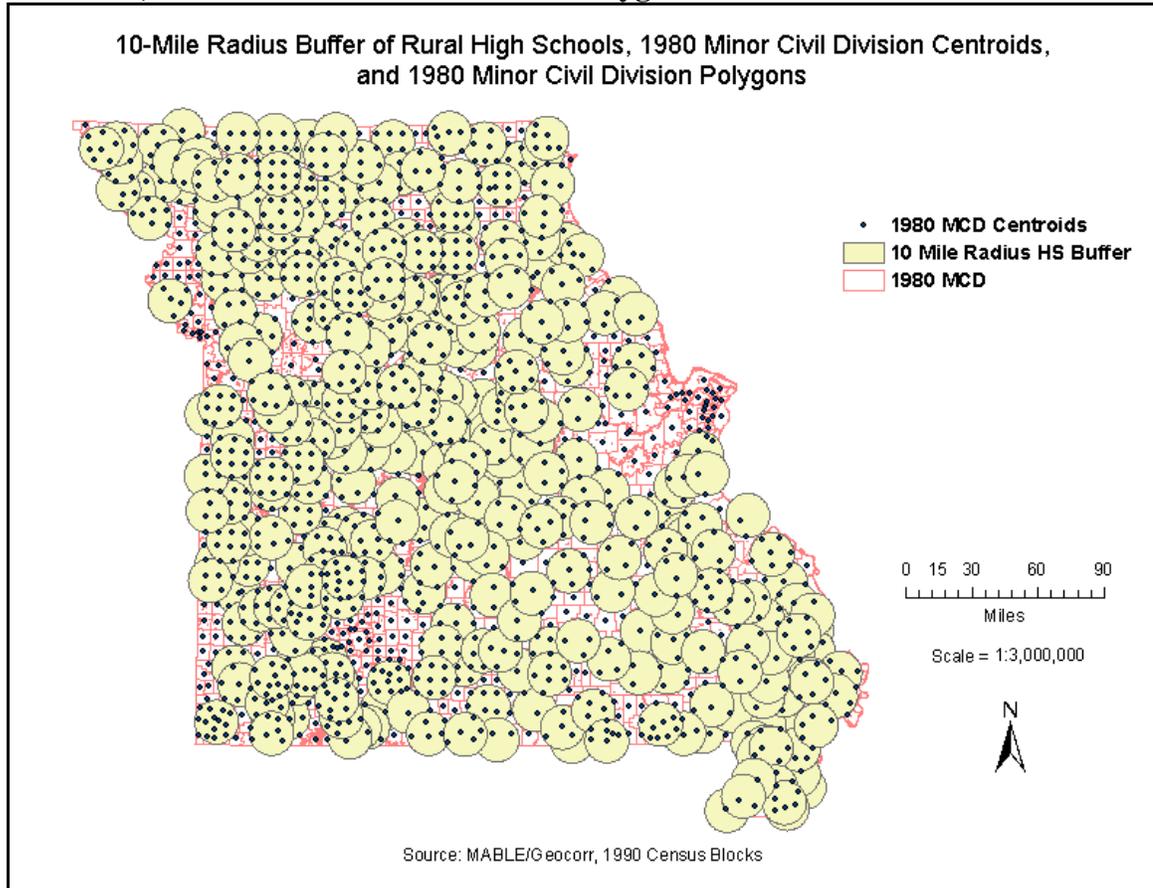
After having determined and created the geographical units from which to build the minor civil divisions, the next phase of the GIS methodology required collection and allocation of minor civil divisions to its appropriate high school. In order to study the social and economic environment in which the school is located and from which the students come, a ten-mile buffer was created around each high school point (See Map 4.6). This buffer was then used to capture the minor civil divisions that fell within the ten-mile buffer. There are several methods for determining how to include minor civil divisions that fall within the buffer. One method is to use the ten-mile high school buffer to select the actual minor civil division polygons; if any portion of the minor civil division polygon came into contact with the high school buffer then it was included in the

analysis. Another method used to capture and assign minor civil divisions involved apprehending only those minor civil divisions whose central-most latitude and longitude point fall within the ten-mile high school buffer.

**Map 4.5 1980 Minor Civil Divisions Created from MABLE/Geocorr and 1990 Census Block Geographies**



**Map 4.6 Ten-Mile Buffer of Rural High Schools, 1980 Minor Civil Division Centroids, and 1980 Minor Civil Division Polygons**



There are certain limitations that are encountered specific to each approach.

When using a buffer to select any polygon that it comes into contact with inflates the size of the research area that is being studied in somewhat unpredictable ways. This approach is not concerned with the degree to which a polygon is within or beyond the buffer.

Thus, polygons on the fringes of the buffer that are just fractionally within the buffer area will be included, thereby increasing the buffer zone in unanticipated ways. By transforming a polygon into its central-most point it is more likely that the buffer will capture only those polygons that fall within its area of data collection and therefore will be more accurate. However, this approach is susceptible to poor placement of central-

most coordinates if there are irregularly shaped polygons. The more uniform the polygon the more accurately placed the central-most point will be; the more irregularly shaped the polygon the more likely that the central-most point won't be located in the center of the polygon at all and therefore will not reflect an accurate placement of the polygon centroid. Thus, with the first condition more than what was planned for was included in the analysis, and with the latter condition there was a potential of capturing less of what was intended to be studied. With the intention of trying to capture data in only the ten-mile radius, this study utilized the centroid method of collecting polygons to a buffer.

Before actually capturing the minor civil division centroids, the 1980 and 1990 data had to be attributed to these geographies. Two separate datasets were created for each census period with the same indicators and a unique ID field identifying each minor civil division. These datasets were then joined via the GIS to their corresponding minor civil division centroid geography. Thus, when each high school buffer captured the centroids that fell within its radius it captured the social and economic data of the minor civil division as well.

The primary problem encountered with capturing and aggregating the minor civil division centroid social and economic data to the high school was that only one minor civil division could be captured by the ten-mile buffer of several high schools. Through the use of a geoprocessing technique referred to as a "spatial join", two geographical entities, the minor civil division and the high school buffer, were joined together based on their location within geographic space (as opposed to joining data to a geography through the use of an ID in a data table that is common to both the geography file and the dataset file, which is how the minor civil division census data was joined to the minor civil

division geography). Most of the indicators comprising the 1980 and 1990 minor civil division census data sets were raw counts and were summed when spatially joined to the high school. In those instances where indicators were means and medians, these too were summed and then were later divided by the number of minor civil divisions that were captured by the buffer in order to determine an average value. This was possible because the spatial join returns a field in the newly created dataset that is essentially a count of the number of features that were joined with the geography of interest, in this case the ten-mile high school buffer. Having completed the aggregation of the 1980 and 1990 census data, these 1980 and 1990 datasets were merged together to create the final dataset comprised of the high school location information and the 1980 and 1990 social and economic data that existed in a ten-mile radius around the high school. Thus, the final product of these unique methods of geoprocessing and dataset manipulation was the social and economic indicators of the high schools external environment as provided by 1980 and 1990 census data.

Upon completion of the capture and attribution of census data to each high school for use in analyzing the external social and economic environment that the high school and the students are located within, the geoprocessing techniques of the GIS gave way to the database manipulation techniques of the GIS that were used to create a dataset to be joined to the census dataset that consisted of indicators internal to the high school itself. In order to capture the types of indicators that relate to perceptions of education and the educational environment of the high school the research drew exclusively upon survey items from the Missouri School Improvement Program (MSIP) Advanced Questionnaire.

The MSIP Advanced Questionnaire (AQ) survey is administered to three types of individuals associated with each school. These are: 1) faculty; 2) parents and 3) students. This research drew upon data supplied from the student AQ. This survey not only ascertains the demographic characteristics of the respondent, it also gauges their perceptions on various facets of the school and schooling. As was the case with the census data, MSIP data is associated with the high school, and the information aggregated from the level of individual respondents. Each response is school coded. This school code is the same school ID used with the census data. All of the data used in the study is allocated to the individual high school ID.

The MSIP questionnaire is administered every year to 1/5<sup>th</sup> of all Missouri school districts, roughly 105 districts a year. Thus, after a five-year span a complete cycle has been collected that includes the responses for the entire faculty, parents and students in the state of Missouri. The cycle of data used for this research fell over the time span between 1995 and 2000, specifically, the 1995-1996 school year through the 1999-2000 school year. This was the second fully completed cycle of the MSIP Advanced Questionnaire. Since this research deals only with high schools, the schools had to be sorted by whether they were a high school or some other kind of school or institution. There are many “attendance centers” in Missouri, and high schools are no exception. As noted earlier, the Missouri Department of Elementary and Secondary Education has given unique identifying numbers to all attendance centers. The numbers for high schools fall between 1050 and 1999. With this coding system, high schools are generally classified as being grades 9 through 12, but may include grades 7 through 12. However, junior highs have their own identifying numbers, and those fall between 2000 and 2999. Other

types of attendance centers are elementary schools, preschools, hospitals, juvenile detention centers, and residential treatment centers – each of which has their own unique identifying numbers. By filtering the database on the attendance center field according to what constitutes a high school, superfluous attendance centers were removed from the database.

Originally each student survey, existed as its own separate dataset for a specific cyclical year, for example the 1995 to 1996 school year, and contained the responses of individual students, parents or teachers. Thus, one record in this dataset represented one respondent's responses to the survey items. In order to get a full cycle, or the population and not a sample, all the surveys for the years 1995 through 2000 were merged together. The merging of all these data created a dataset with hundreds of thousands of records that needed to be allocated and aggregated to the individual high school. New dummy variables that represented one response out of the full possible response set were created in order to assist in the aggregation. For example, when asking a student about the quality of education that they felt they were receiving there were 5 options for their response (based on Likert Scaling). New dummy variables were created that were a count of the number of times students selected the first category, or the second category, or the third category and so forth for the high school they were associated with. This form of aggregation is different from what was done with the census data. It afforded the research a way of looking at just how many respondents answered a certain item a certain way, all aggregated at the high school level. Once this step was completed, a final variable was added to each survey item that was an average of all of the responses – thus, the average response score. To compile the average response score for any item, each part

of the item was attributed a value, with one being the lowest value and the final category being the highest value. These values were then multiplied by the number of responses that fell into that category and were finally added together and then divided by the total number of observations in order to obtain an average response score.

This method for determining the average response of a questionnaire item was used on all of the items selected from the student AQ. When completed, the data from the student questionnaires were merged together into one dataset tied to the high school ID field with the purpose of describing the internal environment of the school as reported by the students. It was this dataset that was then linked with the external indicators dataset, again by high school ID, and the dropout rate data that formed the database from which the entire analysis was conducted.

As briefly mentioned above, the final dataset to be merged with the external indicators and the internal indicators dataset was the Missouri Department of Elementary and Secondary Education Common Core Data. The Common Core Data (CCD) supplied the enrollment, transfer and dropout data for all of the high schools. The dropout formula was constructed to include enrollments, transfers and dropouts during both Fall and Spring semesters for all grades in the high school. The dropout rate used for this study is the same the Missouri Department of Secondary and Elementary Education uses:

$$\text{Dropout Rate} = \text{Dropouts} / (\text{Fall Enrollment} + \text{Spring Enrollment}) / 2$$

The CCD included the enrollment and dropout data through the years of 1991 and 1999 for each high school.

## **Summary of Data Collection Methods**

In sum, data collection methods included geocoding the location of the high schools, creating a ten-mile buffer zone around these high schools, converting the minor civil division polygons into latitude and longitude points (centroids) which were captured by the 10-mile buffer of the high school. Minor civil division centroids were joined with 1980 and 1990 census data which was aggregated to the high school when the centroids were selected via the buffer. MSIP questionnaire data were aggregated to the high school and ultimately linked to the census data. The last step in the data collection process required calculating the dropout rates for each high school for the years 1991 through 1999 and then joining these data to the dataset already containing the census and the MSIP data. Having completed all of the necessary steps required of the data collection process, the next step was to statistically test the variables and indicators within the data set.

Regarding the subsequent models shown as figures in this chapter, it must be stated that these are not the final models of the study (which will be shown in the following chapter regarding results); rather they are graphical guides relating the influence of variables on each other. However, they will be altered many times before the final models are reported. The final models will reflect significance, strength and the direction of relationship between variables. The models in this chapter are hypothetical and used to convey the general model idea for each of the different models.

## **Research Variables and Procedures**

The following is an account of the variables used in the analysis along with their operational definitions.

## **Dependent Variable**

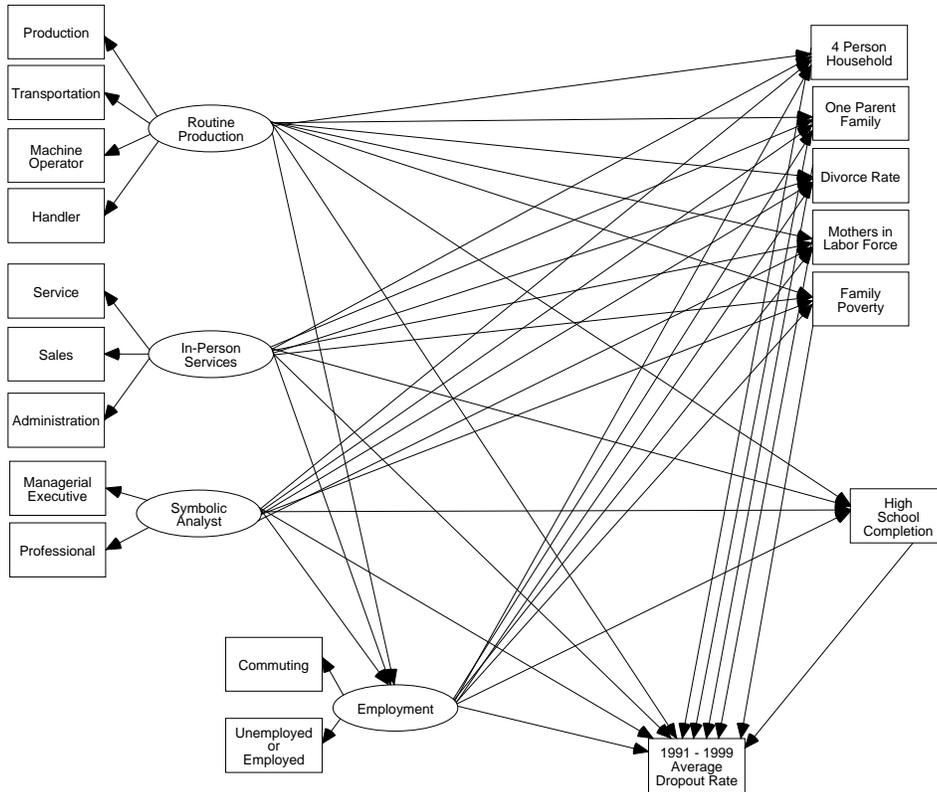
**High School Dropout Rate:** High school dropout rate used in this study was the total number of dropouts in any one year divided by total high school enrollment grades 9 through 12 for that year. (September enrollment plus transfers in minus transfers out minus dropouts added to total September enrollment then divided by two). The high school dropout rates from 1991 to 1999 for each Missouri high school were then averaged to provide for a measure of high school dropout over time.

## **Independent Variables**

The external environment models and their variables were taken from the 1980 and 1990 Population Census (See Figure 4.1). For the purpose of describing the indicators that were used in the analysis, the narrative that follows will describe each of the variables used and the reason for including it in the study. However, the data values were percent change between the variable measured in 1980 and then again in 1990. This way the models analyzed the change that took place during the 1980s and how this change influenced dropout rates in the 1990s. With many variables utilizing the percent change taking place between 1980 and 1990 resulted in skewed distributions. Structural Equation Modeling (the statistical technique employed in the analysis that will be discussed at the end of this section) requires that the variables be normally distributed. Because of issues with skewness, the data for almost all external variables were transformed in order that they exhibit characteristics of a more normally distributed form. The inverse tangent method was used to transform these variables. Most methods of data transformation require that there be no zero values and all values are positive integers. Since this research measured variable change through time via percent change, values

often involved negative measures of change, or measures of no change. Because the inverse tangent transformation is not effected by negative integers, or values of zero, it was used to transform the data. The inverse tangent method is used primarily to bring those data points falling closer to the end, in either direction, closer to the center.

**Figure 4.1 Structural Equation Model of the External Variables Influencing Dropout Rates in Respect to Occupation Category**



**Occupational Categories:** Three latent variables are used to measure the influence of occupational categories on dropping out: *Symbolic Analysts*, *In-Person Service Providers*, and *Routine Production*. Each occupational category is comprised of occupations demarcated by the Census Bureau. The grouping of occupations into their respective categories differs from traditional labor market segmentation studies (see

Piore, 1975; and Crutchfield et. al., 1999). These earlier studies consisted of a two-tiered model of primary and secondary categories of employment. Previous work by Piore suggested that primary sector jobs consist of the following Census derived occupational categories: executive, professional, technical, sales, administrative, production and transportation. Primary sector jobs are those well-paid good-benefits jobs in which employees have a reasonable expectation of future employment and opportunities for promotion. Secondary sector jobs are characterized by low pay, high turnover, poor benefits and limited prospects for the future. Piore grouped the following Census occupations into secondary sector jobs: service, machine operators, handlers, and laborers.

The categories advanced by Robert Reich were used instead of the dual labor market two-tiered approach to defining labor markets. Reich makes the argument that the occupations evolving through the 1980s were too diverse to be captured in such a rigid scale as that used by the earlier labor market segmentation theorists and to a lesser extent those occupational groupings that the Census Bureau has devised. Reich takes examples from all walks of life to indicate the relationship between these newly emerging workforce trends and their relationship to census data. He makes sure to point out that the way the Census Bureau organizes occupational data is rapidly becoming outdated, since it is based on an earlier time when the economy was extensively based on manufacturing. However Reich does provide a listing of census data occupational categories to coincide with the occupational categories of: Symbolic Analysts, In-Person Service Providers, and Routine Production Workers.

**Symbolic Analyst Services:** *Executives:* officials and administrators, public administration, management and related occupations; *Professionals:* engineers and natural scientists, health diagnosing occupations, health assessment and treatment occupations, teachers, librarians and counselors.

**In-Person Services:** *Sales:* supervisors and proprietors, sales occupations, sales representatives, commodities and finance, cashiers; *Administrative Support:* computer equipment operators, secretaries, stenographers, typists, financial records processing occupations and mail and message distributing occupations; and *Services:* service occupations, food service, and cleaning and building service occupations.

**Routine Production Services:** *Production:* mechanics and repairers, construction trades and precision production occupations; *Transportation:* transportation and motor vehicle occupations; *Machinery:* machine operators and tenders; and *Materials Handlers and Movers:* material moving equipment operators, handlers, equipment cleaners, helpers, and laborers.

**Family Characteristics:** The variables used to measure family characteristics of the areas surrounding the high schools are intended to be indicative of family disruption between the 1980 and 1990 time period.

The research literature has shown that five variables influence students' decisions to drop out and are themselves measures of adjustment within the family structure related to the economic restructuring brought about by the transition from a manufacturing based economy to one based on services. The five variables used are: (1) **Family poverty** is a measure of the percentage of families that fall at and below the Census definition of poverty status, which, for a family of 4 in 1980 was \$8,414, and in 1990 was \$13,359; (2)

**4 or more person household** is the number of households with 4 or more persons that are listed as living at that residence. Previous research has shown that students coming from larger families, families characterized by several siblings, are at an increased risk of dropping out; (3) **One parent family** consists of those families headed by a single parent, mother or father only, with at least one child. One-parent families are non-intact families; families including two parents in the household are considered intact. Intact families have been shown to be more stable and have greater earnings than single parent families; single parent families are much more likely to have an income below the poverty line than two-parent families and are therefore at a greater risk of student dropout (Chen 1999; McLaughlin 1999); (4) The **divorced persons** indicator measures population marital status at time of enumeration, specifically the percentage of individuals no longer married. Previous research has shown that marital dissolution is more likely in times of economic stress, which is often an outcome of economic restructuring; (5) The **mothers in the labor force** indicator measures the extent to which mothers are working outside the home. This indicator is not necessarily a negative measure of family structure, but rather sheds some light on the necessity of families to have more members in the household involved in earning income. This necessity was brought about by the loss of jobs in sectors of industry that traditionally were held by males. The transition from a manufacturing economy to one of services has carried with it the creation of dual earner families in order for families to retain the same standard of living that was afforded previously when the male was the primary bread winner.

**High School Completion:** The **high school completion** variable is an inverted measure of the percent change in the number of adults 25 years of age and older that did not

graduate from high school as reported in the 1980 and 1990 census. The percent change value in number of adults without a high school education was multiplied by -1, thereby inverting the value of the percent change score to reflect that a positive score measured high school completion and a negative score measured adult dropouts.

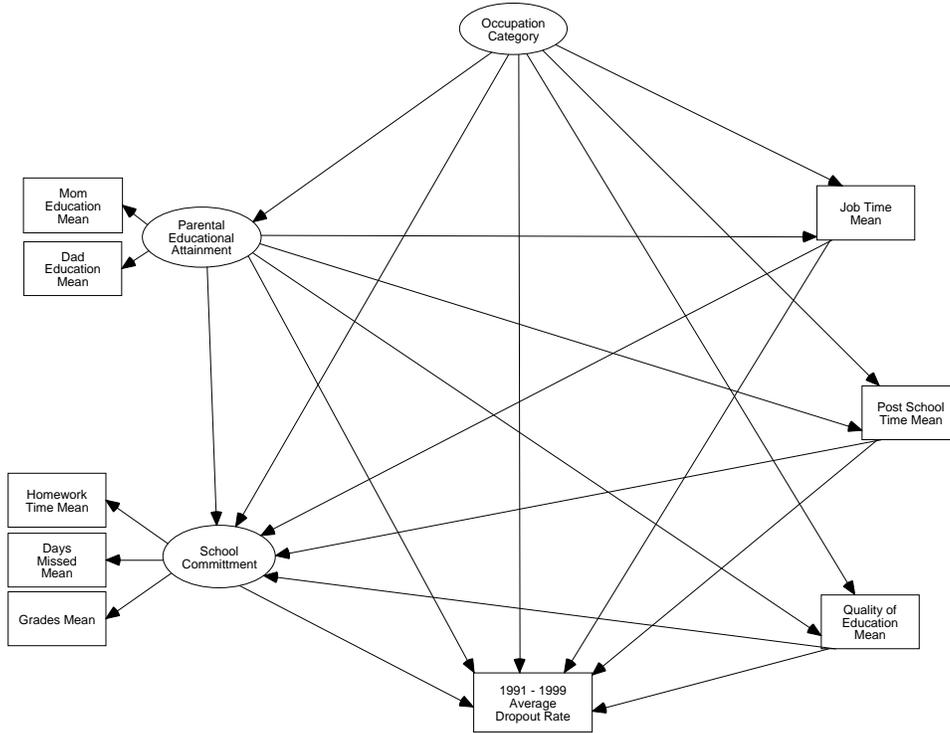
**Employment:** There are two indicators comprising the measure of employment.

**Unemployed** is a measure of the percent of persons 16 years of age and older that were eligible to work but were not working at the time of enumeration. **Out of county commute** is a measure of the percent of persons who reported that they worked in a county other than the county they resided in. This indicator is a measure of local job disruption characteristic of economic restructuring.

The external model was constructed with the social and economic indicators of the geographic area surrounding the high schools; the variables just discussed exist external to the high school (in a ten-mile radius around the school to be more precise). The other model to be discussed draws on variables that existed internally to the school; they are based on the Missouri School Improvement Program (MSIP) Advanced Questionnaire surveys. These questionnaires are administered to the actual students, parents and faculty members connected with each high school. Since these data come from persons internal to the high school, these models are termed internal models. Unlike the external model, the internal models do not measure change over time between 1980 and 1990. Rather the data that comprise the indicators used in these models were collected over a 5-year period (1995– 2000) via questionnaire with the end result being a data set drawn from all of the students, parents of students and faculty members in each high school in the state. The first internal model is the student model (see Figure 4.2).

The student model is comprised of items taken from the student MSIP Advance Questionnaire.

**Figure 4.2 Internal Model of High School Dropout, Student Characteristics**



**Working:** The **job time** variable measures the mean time students spend working at a part-time job during the school year. This variable is divided into three categories: none, less than 20 hours per week and more than 20 hours per week.

**Parental Educational Attainment:** The latent indicator of **parental educational attainment** includes the educational attainment of the **mother** as well as that of the **father**. The available responses include: less than 8<sup>th</sup> grade; less than high school; high school graduate; some education beyond high school; college graduate; and don't know.

**Quality of Education:** The **quality of education** variable measures the students' perceptions regarding the quality of education they feel they are receiving from the high

school they attend. Responses to this MSIP questionnaire item are made using the same categories usually found on a student's report card: Excellent, Good, Average, Below Average and Poor. The purpose of this question was to gauge each student's subjective evaluation of the quality of the school they attend.

**Student Mobility:** The latent variable pertaining to student mobility consists of student perceptions regarding how they will be spending their time post high school – their future plans. The **future plans** questionnaire item offers the following five possible responses: working full-time; attending a two-year, vocational-technical or business school; attending a four-year college, service academy, or university; serving in the military; or other.

**School Commitment:** The latent indicator of school commitment is comprised of three survey items containing multiple sub-responses. The **homework item** asks the students how much time they spend on homework each day, the responses available are: it's not assigned; it's assigned, but they don't do it; ½ hour or less; 1 hour; 2 hours; more than 2 hours. The **absences** item asks students the number of days of school they missed last month: none; 1-2 days; 3-4 days; 5-10 days; and more than 10 days. The final item regarding school commitment, **grades**, asks each student to describe the grades they have received so far in school: mostly A, half A and B, mostly B, half B and C, mostly C, half C and D, mostly D and below D.

## **Statistical Technique**

### **Structural Equation Models**

Structural Equation Modeling (SEM) describes relationships between variables and is similar to combining multiple regression and factor analysis (Bacon 1999). Both factor analysis and regression express linear relationships between variables, which is also true for SEMs. SEMs include two kinds of variables: observed and latent. Observed variables are comprised of data that are directly observable and usually continuous. Latent variables (indicators) are not directly observed and are typically comprised of a number of indicator variables or observed variables. There are several advantages to using SEMs instead of multiple regression: 1) SEMs allow for more flexible assumptions especially in the presence of multicollinearity; 2) the attraction of SEMs graphical modeling interface; 3) the desirability of testing models overall rather than the coefficients individually; and 4) the ability to handle complex data such as time series (Garson 1999).

The greatest critique, from a methodological standpoint, of SEM is the influence of multicollinearity among the latent variables. SEM assumes complete multicollinearity is absent. When  $r \geq .85$ , multicollinearity is considered high, and even when a solution is possible, high multicollinearity decreases the reliability of SEM estimates. Three different approaches exist to deal with multicollinearity: 1) ignore multicollinearity; 2) remove multicollinearity by using data reduction methods like principal component analysis; and 3) model multicollinearity. Ignoring multicollinearity was not acceptable. Data altering methods can result in markedly different goodness-of-fit statistics. Model the correlation among the independents explicitly. Another strategy is to remove one of

the more highly correlated variables to reduce multicollinearity. There were no issues with multicollinearity for any of the models that were used in this research.

Structural equation models report findings in three different ways. Understanding the way statistical significance is reported requires understanding the terminology of the model itself. Within the graphical display of the model there are boxes, ellipses and arrows. Boxes represent observed data, ellipses are indicative of latent variables (indicators) and the arrows represent assumed causation. Within the model a variable that receives a one-way directional influence from some other variable in the system is termed “endogenous”. The dependent variable is always endogenous. A variable that does not receive a directional influence from any other variable in the system is termed as “exogenous”—in this case, family structure. When interpreting SEMs the values attached to one-way arrows (or directional effects) are regression coefficients, whereas two-way arrows (nondirectional relationships) are correlation coefficients; regression coefficients and correlations comprise the “parameters” of the model. Besides regression coefficients and correlations, SEMs also test the overall fit of the model. Model fit is discussed below. This study used three measures of model fit to determine the overall quality of fit of the model: 1) the Goodness-of-Fit Index; 2) the Comparative Fit Index; and 3) Root Mean Square of Error Approximation.

The first measure of model fit, the Goodness-of-Fit Index (GFI), measures the relative amount of variance and covariance in the sample covariance matrix that is jointly explained by the population covariance matrix. The values range from 0 – 1; with a value of .9 or better being indicative of a good fit.

The second measure of model fit used in the analysis can be classified as incremental or comparative indices of fit. As with the GFI, incremental indexes of fit are based on a comparison of the hypothesized model against some standard. However, whereas this standard represents no model at all for the GFI, for the incremental indices, it represents a baseline model (typically the independence or null model). The reason that the Comparative Fit Index (CFI) is included as one of the goodness-of-fit tests is that it takes sample size into account. The CFI values range from 0 to 1, but whereas .9 was considered a good fit for GFI, a revised cutoff of .95 has recently been advised for CFI (Byrne, 2001).

The final measure of model fit used in the analysis focuses on the Root Mean Square of Error Approximation (RMSEA). This fit statistic has only recently been recognized as one of the most informative criteria for use in covariance structure modeling (Byrne, 2001). The RMSEA takes into account the error of approximation in the population and asks the question “How well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?” This discrepancy, as measured by the RMSEA, is expressed per degree of freedom, thus making the index sensitive to the number of estimated parameters in the model (i.e. the complexity of the model); values less than .05 indicate good fit, values between .08 and .1 indicate mediocre fit, and those greater than .1 indicate poor fit. It is also possible to use confidence intervals to assess the precision of RMSEA estimates; AMOS reports a 90% interval around the RMSEA value.

The estimation method used for all of the model parameters was based on the maximum likelihood method. Using the maximum likelihood estimation assumes that

the following conditions have been met: 1) the sample is very large; 2) the distribution of the observed variables is multivariate normal; 3) the hypothesized model is valid; and, 4) the scale of the observed variables is continuous (Byrne 2001). Special attention was given to the feasibility of parameter estimates and the appropriateness of standard errors. Regarding the feasibility of parameter estimates, parameter estimates should exhibit the correct sign and size, and be consistent with underlying theory. Any estimates falling outside the admissible range, signal a clear indication that either the model is wrong, or is lacking sufficient information. An example of a parameter exhibiting an unreasonable estimate is a coefficient that is greater than 1.00. Another indicator of poor model fit is the presence of standard errors that are excessively large or small. Unfortunately, because standard errors are influenced by the units of measurement in observed and/or latent variables, no definitive criterion of “small” and “large” has been established (Byrne 2001).

## **CHAPTER V**

### **RESEARCH FINDINGS**

#### **Introduction**

The following section presents the results of the analytical framework used to test statistical relationships regarding the likelihood of the research variables to influence high school dropout rates. This analysis incorporates both the macro and the micro levels of social organization described in the theory chapter. Macro level social organization, measured by external environment models, focused on the influence of occupation changes and opportunities, employment patterns, family characteristics and parent educational attainment on high school dropout rates of youth. Micro level social organization, measured by student internal environment characteristics, focused on student perceptions regarding various facets of the high school experience and their influence on high school dropout rates.

#### **Structural Equation Models**

The external variables were drawn from the 1980 and 1990 Population Census and the internal variables were taken from the Second Cycle (1995 thru 2000) student MSIP questionnaires. Both sets of measures were empirically arranged in Structural Equation Models (SEM). These models are shown in diagram form in the latter part of this chapter, e.g. Figure 5.1. This SEM statistical technique determines both the overall statistical significance of the model, as well as the strength of the relationships and the degree of assumed causality between variables. Structural equation models are especially useful for measuring multicollinearity – the correlational relationships that exist between

variables. To test the overall goodness of fit of the models three different goodness of fit measures of were utilized—goodness of fit index, comparative fit index, and root mean square error approximation, and the estimation method used for all of the model parameters was based on the maximum likelihood method.

### **Descriptive Statistics**

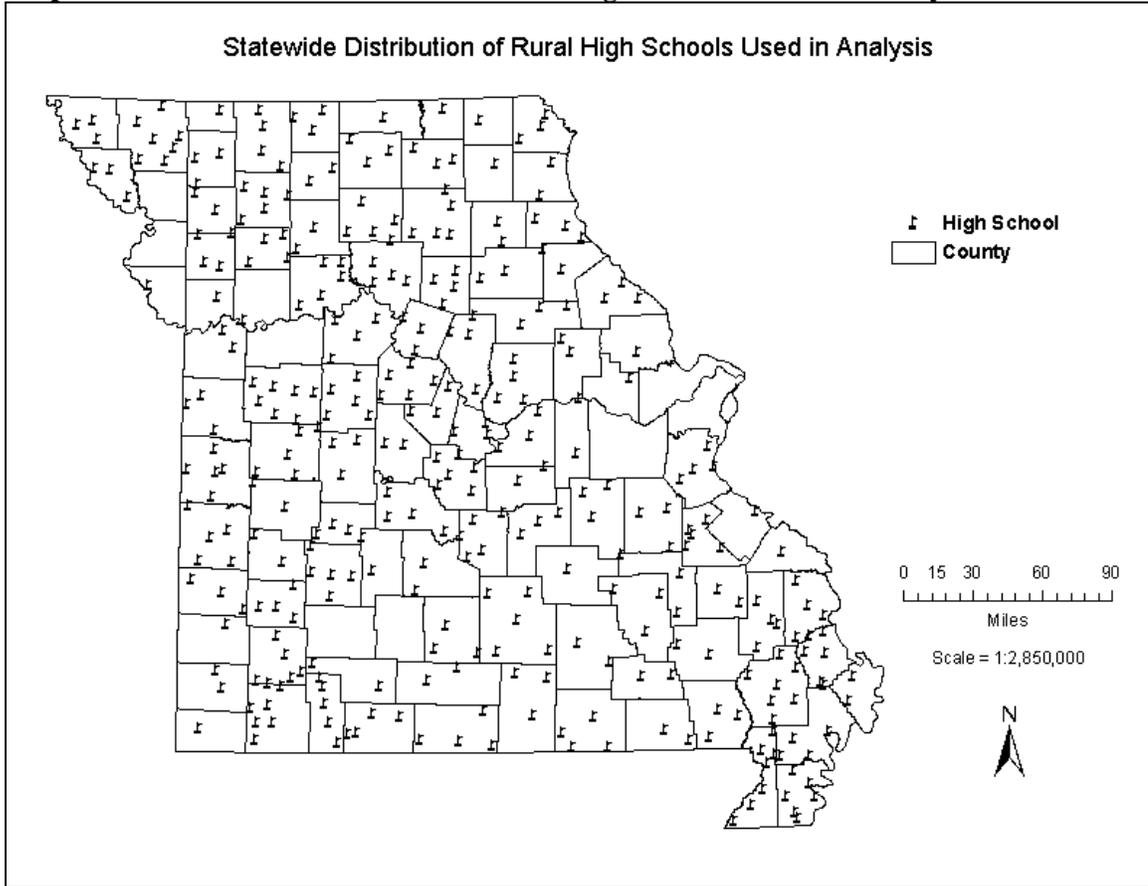
Of all 525 Missouri public high schools in 1999, 339 rural high schools were separated from the total and were used as the units of analysis for this research. Map 5.1 below shows their distribution across the state. The analysis captured census data from 1,102 of the 1,348 geographies comprising the 1980 census minor civil divisions, and 1,118 of the 1,377 geographies comprising the 1990 census minor civil divisions.

The MSIP portion of the study drew upon responses from 210,274 high school students taken from MSIP Advanced Questionnaires of schools between 1991 and 1999. The survey response rate was 81.3%. The average dropout rate for all of the rural high schools combined, between 1991 and 1999, was 4.6%. The lowest average dropout rate among the rural schools was 0.9% and the highest average dropout rate among the schools was 16.4%. Thus there was a rather sizeable range in average drop out rate among the rural high schools during the 1991 to 1999 time period.

The distribution of all the variables used in the analyses, e.g. family characteristics, employment, occupations, etc. are displayed in map form and are located in Appendix A. The reason for listing the variables this way provides the reader an idea of the spatial location of the variables, in relation to their value. They are reported in an appendix because they would consume too much space in the body of the text. The map

legend items are descriptive statistics and contain values for various measures of distribution for that variable.

**Map 5.1. Statewide Distribution of Rural High Schools Used in Analysis**



Tables 5.1 thru 5.3 are descriptive tables that reports change in number and percent between 1980 and 1990 of the external variables used in this analysis. These include family characteristics, educational attainment, labor force participation and occupations taken from the 1980 and 1990 population censuses. Included in the tables is the amount and range of change for the total number of high schools and their environments.

Table 5.1 reports the number change between the 1980 and 1990 census variables used in the external models. The first five variables in the table are family characteristics important in dropout research. There was relatively little aggregate change in the study area in the number of households having four or more persons only 7,786 more in 1990 than there were in 1980. Table 5.1 shows an average increase of only 23 households with four or more persons per school area between 1980 and 1990. The negative median (-31) on this measure shows that more than half the school areas had a decline in number of households having four or more members. The remaining four variables that comprise the group of family structure indicators show important increases between 1980 and 1990 in the number and average per school area of one parent families, divorced persons, mothers in the labor force, and families in poverty. Table 5.1 and 5.2 also show there was an important increase from 1980 to 1990 in the number of parents and/or other household residents 25 years of age or older that graduated from high school. With regard to employment, Table 5.1 also shows there was relatively little change in the unemployment rate among the school areas between 1980 and 1990. However Table 5.1 shows there was a significant increase between 1980 and 1990 in the number of persons commuting to work outside their county of residence. There was an average increase among school areas of more than 500 more workers commuting in 1990 than in 1980. That is an important economic change.

The remaining indicators report on changes in employment in various occupational categories between 1980 and 1990. Some of the occupations declined significantly while others increased substantially. The occupations with the greatest average increases between 1980 and 1990 were administration workers and professional

workers with average increases of 146 and 142 respectively. However, increases in employment in executive, professional, services and sales occupations were strong as well. The table reveals very little change in the machine operator indicator, and low growth in the production, transportation and handler occupations. This is understandable because beginning in the 1980s there has been a significant decline in rural manufacturing and other manual industries.

**Table 5.1 Number Changes among 1980 and 1990 Census Variables**

	Sum	Mean	Median	Range	
<b>Family Characteristics</b>					
4 or More Person Household	7786	23	-31	-1398	4159
One Parent Family	51417	152	68	-162	6302
Divorced Persons	104935	310	155	-25	8646
Mothers in Labor Force	256287	756	436	32	18034
Family Poverty	21342	63	23	-230	2475
High School Completion	145142	428	358	-3851	8997
<b>Employment Characteristics</b>					
Unemployed	5738	17	2	-612	1793
Out of County Commute	172358	508	236	-53	15358
<b>Occupations</b>					
Executive	39702	117	32	-253	5127
Professional	47993	142	52	-182	5242
Services	42092	124	54	-367	3334
Sales	43008	127	33	-167	5113
Administration	49560	146	49	-821	6648
Production	21829	64	13	-531	3229
Transportation	12973	38	24	-348	950
Machine Operator	12	0	4	-1898	1586
Handler	10228	30	13	-222	892

Table 5.2 reports the percent change between the 1980 and 1990 census variables used in the external models for the entire study population. As indicated in Table 5.1 there were numerous variables which realized significant changes from 1980-1990. Among the greatest average percent change among the school areas were as follows: one parent families average increase of 49 percent; divorced persons average increase of 71 percent and mothers in the work force with an average increase of 79 percent. With

regard to employment the greatest percentage increase (65%) was in the number working outside their home county. Among occupations the greatest percentage increases were in executive, professional, service, sales and administration. There was very little increase in the number of production workers, machine operators and handlers. That is consistent with a general decline in rural manufacturing plants during the 1980s.

**Table 5.2. Percent Change between 1980 and 1990 Census Variables**

	Mean	Median	Range	
<b>Family Characteristics</b>				
4 or More Person Household	-2.3%	-4.7%	-51.4%	167.4%
One Parent Family	49.0%	35.8%	-67.7%	808.9%
Divorced Persons	70.6%	56.5%	-31.6%	925.0%
Mothers in Labor Force	79.0%	74.1%	4.3%	503.9%
Family Poverty	10.8%	8.0%	-51.9%	190.7%
High School Completion	16.9%	18.5%	-55.0%	203.0%
<b>Employment Characteristics</b>				
Unemployed	5.8%	0.9%	-83.8%	375.0%
Out of County Commute	64.6%	47.9%	-40.2%	790.9%
<b>Occupations</b>				
Executive	29.9%	17.0%	-60.0%	733.3%
Professional	32.8%	24.7%	-61.0%	329.8%
Services	24.9%	15.6%	-53.7%	318.9%
Sales	29.6%	16.9%	-68.1%	629.3%
Administration	27.1%	19.9%	-43.8%	563.5%
Production	9.0%	3.9%	-52.3%	221.9%
Transportation	18.9%	14.3%	-49.5%	385.7%
Machine Operator	4.1%	1.6%	-63.0%	396.6%
Handler	14.1%	7.6%	-78.8%	266.7%

Table 5.3 reports the percent change scores that were transformed via the inverse tangent method and were the indicators used in the structural equation models. The trends in this table are generally the same as in Table 5.2.

**Table 5.3 Transformed Percent Change between 1980 and 1990 Census Variables**

	Mean	Median	Range	
<b>Family Characteristics</b>				
4 or More Person Household	-2.7%	-4.7%	-47.5%	103.2%
One Parent Family	35.1%	34.3%	-59.5%	144.8%
Divorced Persons	53.5%	51.5%	-30.6%	146.3%
Mothers in Labor Force	62.8%	63.8%	4.3%	137.5%
Family Poverty	9.7%	8.0%	-47.9%	108.8%
High School Completion	16.7%	18.3%	-51.0%	111.0%
<b>Employment Characteristics</b>				
Unemployed	4.0%	0.9%	-69.8%	131.0%
Out of County Commute	49.1%	44.7%	-38.2%	144.5%
<b>Occupations</b>				
Executive	21.1%	16.9%	-54.0%	143.5%
Professional	27.4%	24.2%	-54.8%	127.6%
Services	20.8%	15.5%	-49.2%	126.7%
Sales	20.3%	16.8%	-59.8%	141.3%
Administration	21.2%	19.7%	-41.2%	139.5%
Production	7.5%	3.9%	-48.2%	114.7%
Transportation	15.1%	14.2%	-46.0%	131.7%
Machine Operator	2.7%	1.6%	-56.2%	132.4%
Handler	11.3%	7.5%	-66.8%	121.2%

## Organization of Variables, Indicators, and Source of Data

Table 5.4 reports the variables, indicators and sources for these data which were used to better understand the influence of the social and economic environment; school and learning environment; and student perceptions of education on the high school dropout rate.

**Table 5.4 Organization of Indicators ,Variables and Source of Data**

CENSUS DATA			STUDENT DATA		
Indicator	Variable	Source	Indicator	Variable	Source
Symbolic Analyst	Executive	Census	Parent Educational Attainment	Mom Education	Student AQ
	Professional	Census		Dad Education	Student AQ
In-Person Service	Services	Census	School Commitment	Homework Time	Student AQ
	Sales	Census		Days Missed	Student AQ
	Administration	Census		Grades	Student AQ
Routine Production	Production	Census	Job Time		Student AQ
	Transportation	Census			
	Machine Operator	Census	Post School Time		Student AQ
	Handler	Census			
Employment	Unemployed	Census	Quality of Education		Student AQ
	Out of County Commute	Census			
Family Characteristics	4 or More Person Household	Census	DROPOUT DATA		
	One Parent Family	Census	Variable	Source	
	Divorced Persons	Census	Dropout Rate	DESE Core Data	
	Mothers in Labor Force	Census			
	Family Poverty	Census			
	High School Completion	Census			

## **Statistical Analysis**

The first section focuses on the actual testing of the hypothetical models that were developed in the theory chapter. Overall, the analysis tests those theoretical models found in the last section of the theory chapter. The analysis also provides an exploratory theoretical model based on the relationships between the variables that comprise the model. The theoretical models presented at the end of the theory chapter will not be repeated in this section (for sake of space); the reader is asked to return to the theoretical models in the theory chapter as needed. The structural equation analysis is being focused on the theoretical model test and the final exploratory model.

The analysis began with the models measuring the influence that occupational opportunity change has had on both the variables external to the high school as measured by indicators from the census (external models), and the variables internal to the high school as measured by indicators from the MSIP Advanced Questionnaires (internal models). Each occupation category (i.e. symbolic analysts, in-person service, routine production) tested two separate models based on the primary source of data used in that specific model—census data, and the student Advanced Questionnaire MSIP data. The first model set dealt with the individual occupation categories and the census variables, the second model set dealt with the individual occupation categories and the student survey items from the Advanced Questionnaire. Thus, the three primary occupation category models are: symbolic analyst, in-person service, and routine production, and the data that comprise them are referred to as: census or student.

The interpretation of the regression and correlation coefficients used in this study follows the following framework: a value of .70 or higher = very strong; a value of .50 to

.69 = substantial; a value of .30 to .49 = moderate; a value of .10 to .29 = low, a value of .01 to .09 = negligible; and a value of 0 = no relationship. These values were based on a schema developed by Arwood (1982) that provide a verbal interpretation of the strength of the parameter estimate. In order to demonstrate a perfect association or influence, the coefficients for both the correlation and regression parameters must reach 1 or -1. Any estimates falling outside this range, signal a clear indication that either the model is wrong, or is lacking sufficient information.

## **External and Internal Structural Equation Models**

### **Symbolic Analyst Models**

Figure 5.1 presents the model that was used to test the theoretical model for the symbolic analyst occupation category and the influence that the change in symbolic analyst occupations has had on employment patterns, family characteristics, high school completion, and the high school drop out rate. All three measures of model fit (GFI, CFI, RMSEA) indicated good model fit. The final model exhibited variation from the theoretical model with regard to the sign or direction of the parameter estimate between several variable relationships. These variations do not necessarily mean that the model is wrong; true it varies from the theoretical model, but as long as the model exhibits significant model fit, as this one does, all of the parameter estimates, regardless of the strength of the relationship, are statistically significant. Those parameter estimates whose signs vary from the theoretical model are useful for informing the overall theory.

The relationships found in Figure 5.1 reveal first and foremost that the increase in symbolic analyst occupation employment opportunities were associated with areas where the high school dropout rate decreased. The increase in symbolic analyst occupation

employment opportunities had a very strong positive influence on the latent measure of employment characteristics, increased adult high school completion and increased the family characteristic variables with the exception of the one parent family variable. The symbolic analyst occupation had a weak negative influence on the one parent family variable which indicated that increases in symbolic analyst employment opportunities decreased the number of single parent families. However, among the remaining variables that comprise the family characteristics increases in symbolic analyst employment opportunities increased adult high school completion, increased household size, increased the number of divorced persons, increased mothers in the labor force and increased family poverty, although weakly.

As noted previously, increases in symbolic analyst employment opportunities were associated with areas where the high school dropout rate decreased, increases in one parent families were also associated with areas where the high school drop out rate decreased, increases in all of the remaining family characteristic variables were associated with areas where the high school dropout rate increased. The employment characteristics had a weak positive influence on the high school dropout rate thereby indicating that increases in unemployment and commuting were associated with areas where high school dropout rates increased. The adult high school completion variable had a substantial positive influence on the high school dropout rate which indicated that the decrease in the number of adults that have not completed high school were associated with areas where the high school dropout rate increased. This relationship was contrary to what was theorized, a decrease in the number of adults without high school education was expected to decrease the number of high school dropout rates. This phenomenon

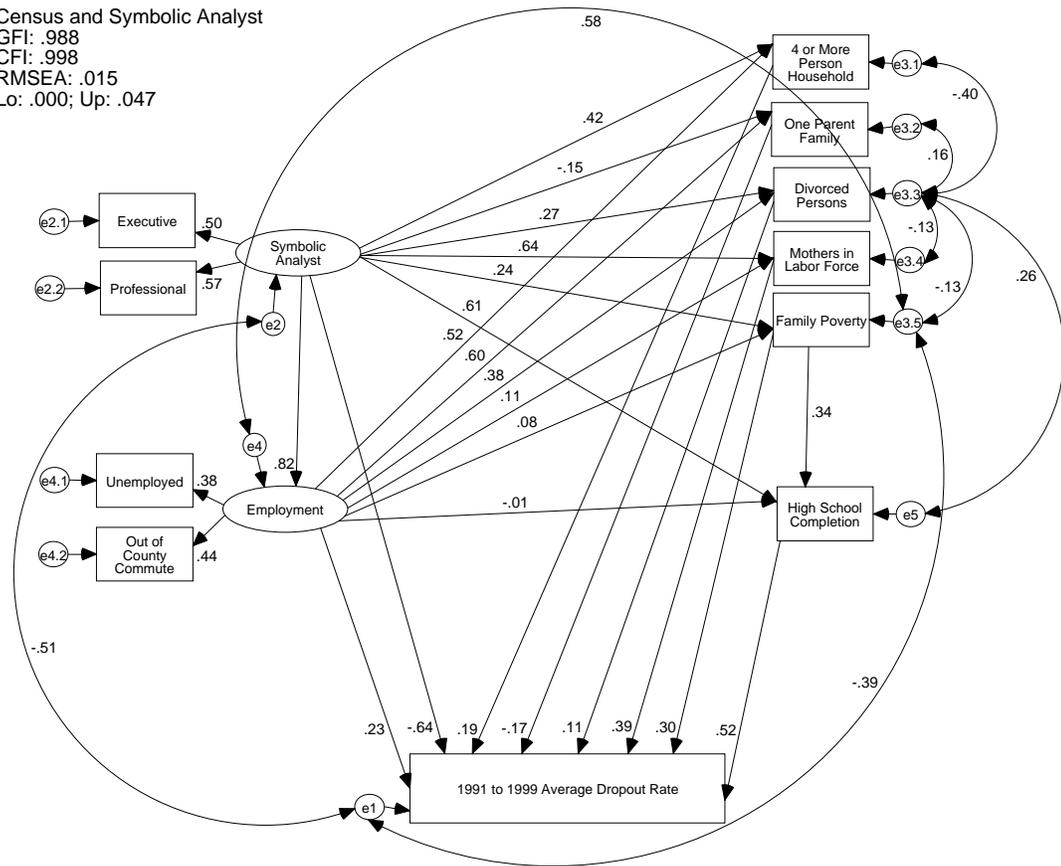
could be the result of a bias in regards to the population size of the high school study area where the larger population centers tend to have more high school dropouts as a function of population density and employment opportunities. Increases in symbolic analyst employment opportunities were strongly associated with population density.

The latent measure of employment patterns significantly influenced family characteristics in the symbolic analyst census model. Increases in unemployment and commuting were associated with areas where the high school dropout rate increased, as well as the size of the household, the number of one parent families, the number of divorced persons, and the number of mothers in the labor force and did not have a significant influence on the high school completion and family poverty variables.

Correlational relationships in the model were required in order to achieve significant model fit. The model revealed no indication of multicollinearity between the variables in the model. Several interesting relationships were found to exist between the variables that comprised the correlation parameters. Increases in unemployment and commuting were substantially associated with increases in family poverty. Increases in family size had a moderate negative association with the divorced persons which indicated that the larger the family size the less likely parents were to divorce. Persons were also less likely to divorce if they were poor, or if there was a mother working in the labor force. Increases in divorced persons was shown to have a weak positive association with high school completion which indicated that increases in high school completion was associated with increases in the number of divorced persons.

**Figure 5.1 Model of Symbolic Analyst, Employment Characteristics, Family Characteristics, High School Completion, and Dropout Rate**

Census and Symbolic Analyst  
 GFI: .988  
 CFI: .998  
 RMSEA: .015  
 Lo: .000; Up: .047



In order to successfully run the symbolic analyst and student AQ model, the executive and professional occupation variables had to be disjoined and allowed to run as their own independent variable. When this was done, there were two models testing the influence of symbolic analyst employment opportunities on various student characteristics.

Figure 5.2a illustrates the exploratory model that removed the executive occupation variable from the symbolic analyst indicator but left the professional occupation variable in the model to determine if the model was capable of obtaining a good fit with just the professional occupation variable. All tests of model fit indicated good model fit between the variables and their relationships in the symbolic analyst and census data model. The professional occupation variable had negligible influence on all of the variables in the model. On their own, the advanced questionnaire items on the other hand displayed several relationships between variables. The parental education attainment and school commitment indicators had a low positive influence on the dropout rate and the job time variable had a low negative influence on the dropout rate. The job time variable had a positive influence on the high school dropout rate and a negative influence on the school commitment indicator. The parental educational attainment variable, the future plans variable and the quality of education variable had a positive influence on the school commitment variable. The parental education attainment variable had moderate influence on the job time variable and a substantial strength influence on the future plans variable.

Correlational relationships in the model were required in order to achieve significant model fit. The model revealed no indication of multicollinearity between the

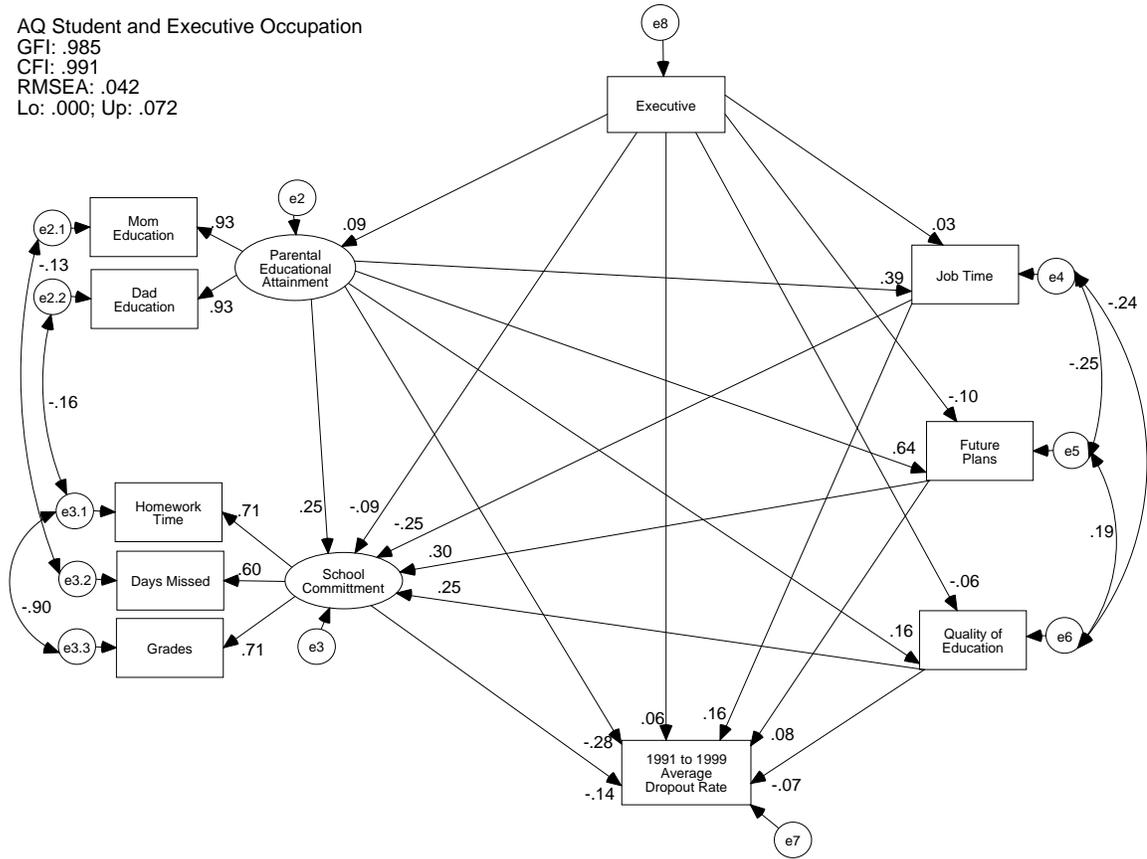


Figure 5.2b illustrates the exploratory model that removed the professional occupation variable from the symbolic analyst indicator but left the executive occupation variable in the model. This was done in order to determine if the model was capable of obtaining a good fit with just the executive occupation variable. The trends taking place in the executive model were exactly like those in the professional occupation only model. The parental education attainment and school commitment indicators had a low positive influence on the dropout rate and the job time variable had a low negative influence on the dropout rate. The job time variable had a positive influence on the high school dropout rate and a negative influence on the school commitment indicator. The parental educational attainment variable, the post-school time variable and the quality of education variable had a positive influence on the school commitment variable. The parental education attainment variable also had a moderate influence on the job time variable and a substantial influence on the future plans variable.

Correlational relationships in the model were required in order to achieve significant model fit. The model revealed no indication of multicollinearity between the variables in the model. There was a very strong negative relationship between time spent on homework and grades. The job time variable had a low negative relationship with both the post school time and quality of education variables. There was a low positive relationship between the post school time and quality of education variables.

**Figure 5.2b Model of Executive Occupation, AQ Student: Time Spent Working, Future Plans, Quality of Education, Parental Education Attainment, School Commitment and Dropout Rate**

AQ Student and Executive Occupation  
 GFI: .985  
 CFI: .991  
 RMSEA: .042  
 Lo: .000; Up: .072



## **In-Person Service Models**

Figure 5.3 presents the model used to test the theoretical model for the in-person service occupation category and the influence that change in in-person service occupations has had on employment patterns, family characteristics, adult high school completion, and the high school dropout rate. All of the tests of model fit were significant. As was the case with the symbolic analyst and census data model, the in-person service and census data model varies slightly from the theoretical model regarding the direction or the sign on some of the parameter estimates. These differences however, do not render the model useless since the overall tests of model fit indicated good model fit between the variables in the model. This model represents an exploratory model centered on better understanding the relationships that took place in the rural areas of Missouri pertaining to changes in employment opportunities in the in-person service category and how this influences various employment and family characteristics as well as the high school dropout rate.

Increases in in-person service employment opportunities were associated with areas where the high school dropout rate decreased. Increases in in-person service employment opportunities increased most of the variables that comprise the family characteristics. Increases in in-person service employment decreased one parent family and had only a negligible influence on-family poverty. Increases in in-person service employment opportunities increased high school completion as well as having a positive influence on the latent variable measuring the employment characteristics. These findings indicate that increases in in-person service employment influenced increases in unemployment and commuting. However, the influence of the employment

characteristics on the high school dropout rate indicated that as unemployment and commuting increased, the perception of importance of education did as well. These employment characteristics were associated with areas where the high school dropout rate decreased, although the influence was weak at best. In this model, family characteristics had various influences on the high school dropout rate. Increases in family size and one parent families were associated with areas where the high school dropout rate decreased; increase in mothers in the labor force were associated with areas where the high school dropout rate increased; and increase in adult high school completion were associated with areas where the high school dropout rate increased. As the variables that measure the employment characteristics increased so to did the relation between the employment characteristics and the family characteristics. The influence of the employment patterns were associated with an increase in family size, one parent families, mothers in the labor force and families in poverty and a decrease in high school completion rates. Thus, in rural areas where unemployment and the number of persons working outside of the county that they reside in increased so do did family size, one parent households, divorced persons, mothers in the labor force and family poverty.

Correlational relationships in the model were required in order to achieve significant model fit. The model revealed no indication of multicollinearity between the variables in the model. Family poverty and the employment patterns were positively associated, mothers in the labor force and the family size decreased the number of divorced persons. The employment patterns had a positive association with the high school dropout rate which indicates that increases in unemployment and commuting were associated with areas where the high school dropout rate increased.

**Figure 5.3 Model of In-Person Service, Employment Characteristics, Family Characteristics, Adult High School Completion, and Dropout Rate**

Census and In-Person Service  
 GFI: .973  
 CFI: .983  
 RMSEA: .043  
 Lo: .021; Up: .062

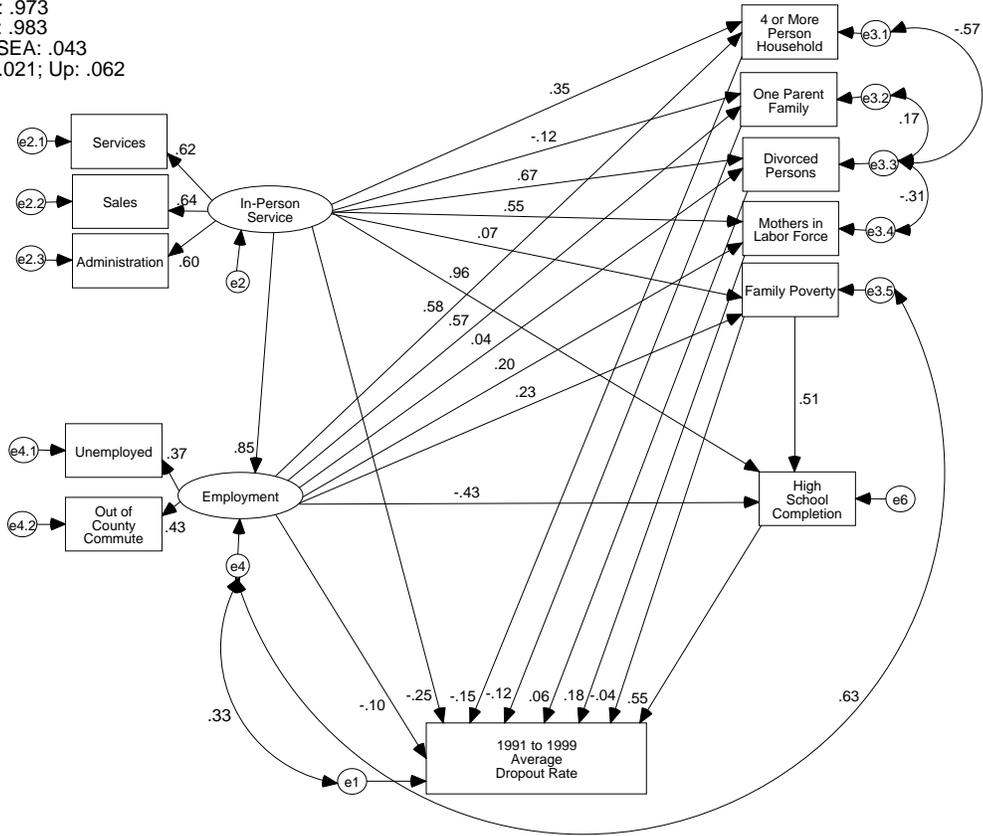
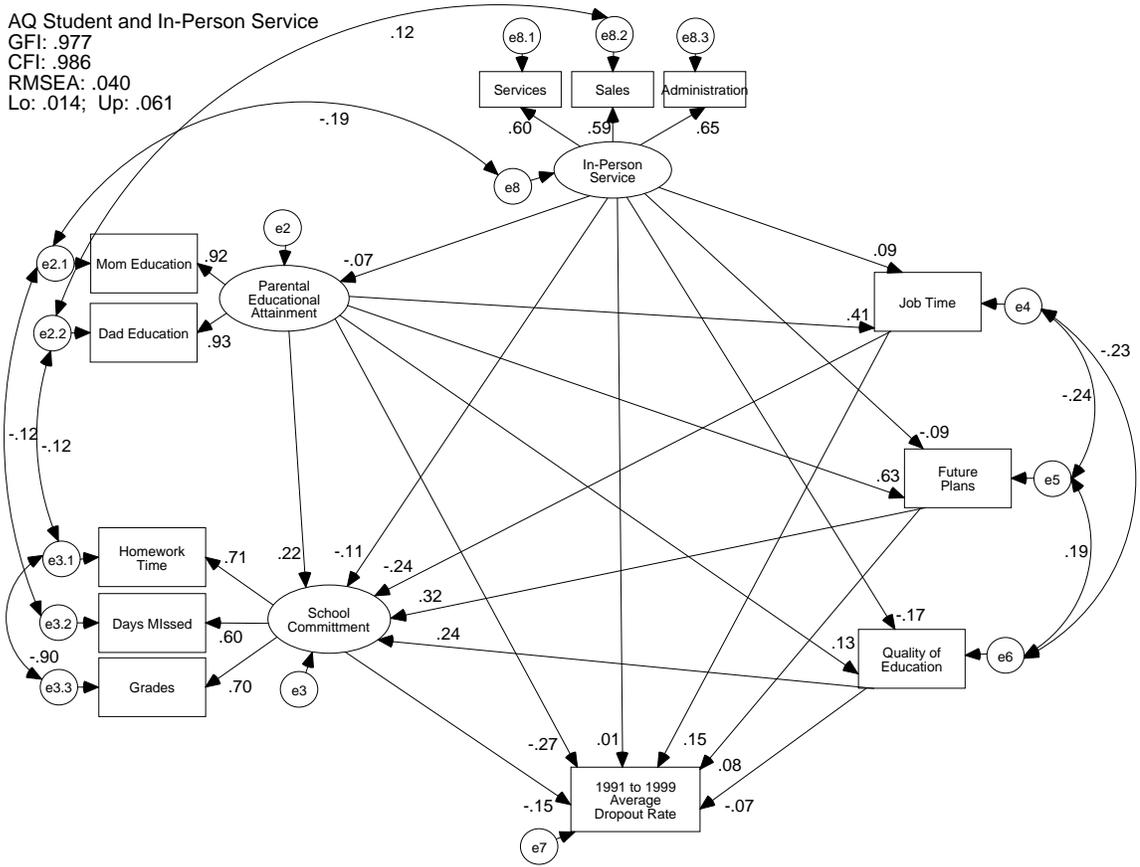


Figure 5.4 is the exploratory theoretical model for the in-person service and student AQ variables. All tests of model fit used with this model were statistically significant; there was slight variation between the exploratory and the theoretical model in the direction of influence between model variables. Overall, the in-person service variable had negligible to low influence on the other variables in the model. The job time variable had a positive influence on the high school dropout rate. The school commitment variable and the parental educational attainment variable had a negative influence on the high school dropout rate. The in-person service variable had a low negative influence on the quality of education variable. The parental educational attainment variable, the future plans variable and the quality of education variable each had a positive influence on the school commitment variable. The parental education attainment variable had moderate influence on the job time variable and a substantial influence on the future plans variable. The in-person service and the job time variables had a negative influence on the school commitment variable.

Correlational relationships in the model were required in order to achieve significant model fit. The model revealed no indication of multicollinearity between the variables in the model. There was a very strong negative relationship between time spent on homework and grades. The job time variable had a low negative relationship to both the future plans and quality of education variables. There was a low strength positive relationship between the future plans and quality of education variables.

**Figure 5.4 Model of In-Person Service, AQ Student: Time Spent Working, Future Plans, Quality of Education, Parental Education Attainment, School Commitment and Dropout Rate**

AQ Student and In-Person Service  
 GFI: .977  
 CFI: .986  
 RMSEA: .040  
 Lo: .014; Up: .061



## **Routine Production Models**

Figure 5.5 presents the model that was used to test the theoretical model for the routine production occupation category and the influence that the change in routine production occupations has had on employment patterns, family characteristic, adult high school completion, and the high school drop out rate. All of the tests of model fit were significant. As was the case with the symbolic analyst and in-person service and census data models, the routine production and census data model varies slightly from the theoretical model regarding the direction or the sign on some of the parameter estimates. These differences however, do not render the model useless since the overall tests of model fit indicated good model fit between the variables in the model. This model represents an exploratory model centered on better understanding the relationships that took place in the rural areas of Missouri pertaining to changes in employment opportunities in the routine production category and how this influences various employment and family characteristics as well as the high school dropout rate.

Increases in routine production employment opportunities were associated with areas where the high school dropout rate decreased. Increases in routine production employment opportunities increased most of the variables that comprise the family characteristics, it decreased the one parent family. Increases in routine production employment opportunities decreased the high school completion as well as had a positive influence on the latent variable measuring the employment characteristics. These findings indicated that increases in routine production employment influenced increases in unemployment and commuting. The employment patterns positively influenced all of the family characteristic variables except for family poverty, where the influence was

negligible. Increases in unemployment and commuting decreased adult high school completion. The variables that comprised the family characteristics had differing influence on the high school dropout rate. Increase in family size and one parent households were associated with areas where the high school dropout rate decreased, increases in the divorced persons and mothers in labor force variables had a negligible influence on the high school dropout rate, and increases in family poverty were associated with areas where the high school dropout rate increased. Increase in high school completion was associated with areas where the high school dropout rate decreased.

Correlational relationships in the model were required in order to achieve significant model fit. The model revealed no indication of multicollinearity between the variables in the model. The model revealed that the increase in high school completion, four more person households, and family poverty was associated with a decrease in the number of divorced persons. Family poverty had a strong association with the employment pattern indicator. Interestingly, there was a positive association between employment patterns and high school completion which indicated that high school completion rates were more significant in areas that increased in unemployment and commuting outside county of residence. There was a weak negative association between the family poverty and high school dropout rate variables.

**Figure 5.5 Model of Routine Production, Employment Patterns, Family Characteristics, Adult High School Completion, and Dropout Rate**

Census and Routine Production  
 GFI: .978  
 CFI: .994  
 RMSEA: .022  
 Lo: .000; Up: .044

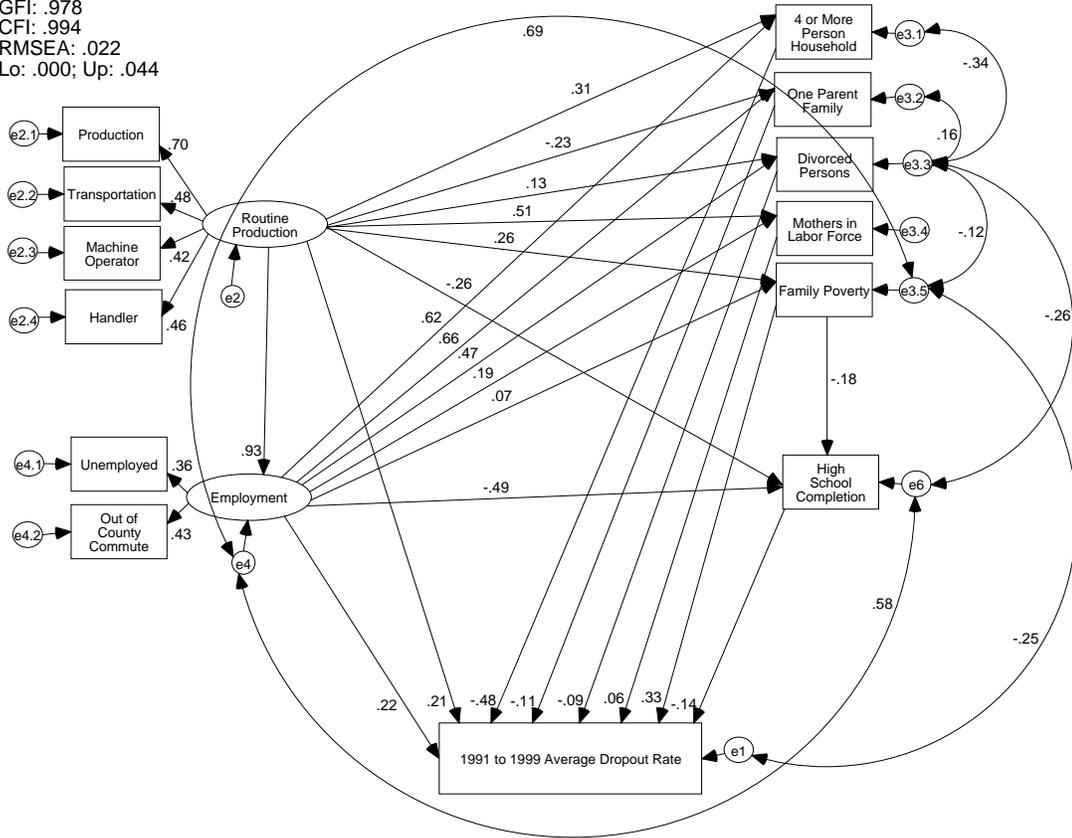
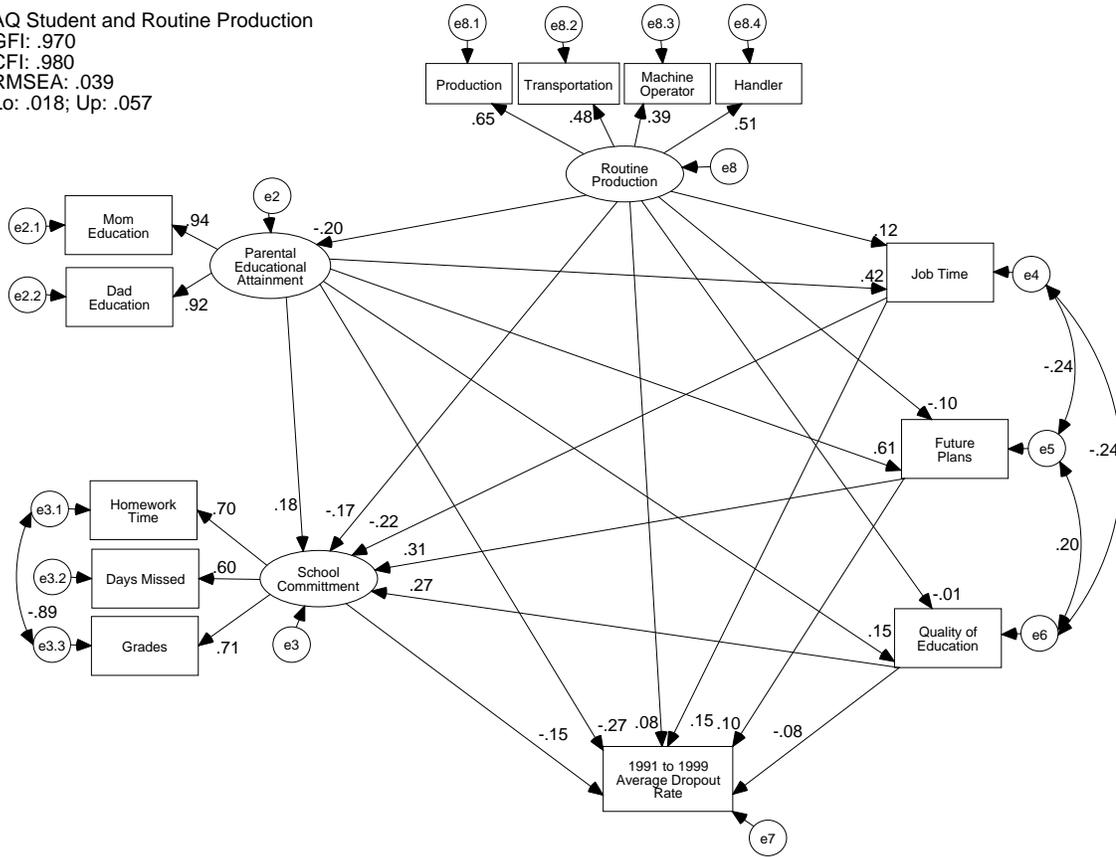


Figure 5.6 is the exploratory theoretical model for the routine production and student AQ variables. All tests of model fit used with this model were statistically significant; there was slight variation in the direction of influence between model variables between the exploratory and the theoretical model. Overall, the routine production variable had negligible to low strength influence on the variables in the model. The job time and future plans variables had a positive influence on the high school dropout rate. The parental educational attainment and the school commitment variables had a negative influence on the high school dropout rate. The future plans, quality of education and parental educational attainment variables all had a positive influence on the school commitment variable. The routine production and job time variables had a negative influence on the school commitment variable. The parental educational attainment variable had a moderate strength positive association with the job time variable and a substantial strength positive relationship with the future plans variable.

Correlational relationships in the model were required in order to achieve significant model fit. The test for multicollinearity revealed that there were no significant outliers. There was a very strong negative relationship between time spent on homework and grades. The job time variable was negatively associated with future plans and quality of education. There was a low strength positive relationship between future plans and quality of education. There was a moderate strength relationship between parental education attainment and job time mean.

**Figure 5.6 Model of Routine Production, AQ Student: Time Spent Working, Future Plans, Quality of Education, Parental Education Attainment, School Commitment and Dropout Rate**

AQ Student and Routine Production  
 GFI: .970  
 CFI: .980  
 RMSEA: .039  
 Lo: .018; Up: .057



## **CHAPTER VI**

### **RESEARCH CONCLUSIONS**

#### **Introduction**

The purpose of the research has been to explore the influence of economic restructuring on rural Missouri high school dropout rates. From a general level, this study has argued that dropping out should be examined within the context of a holistic system comprised of multiple variables at various levels of analysis. Dropping out of high school was found to be a complex affair affected by numerous factors internal and external to the high school that exert both push and pull influences. As was planned, the research successfully moved away from purely individual or structural explanations of dropping out in order to understand the behavior as nested within a complex system of resource distribution. Our perspective was that the system is comprised of numerous social and economic factors existing at different levels of scale that ultimately influence a student's decision to drop out or to remain in school.

The following is a recapitulation of the overall research objectives:

- Measure the extent to which changing employment opportunities in rural Missouri during the 1980s, brought about by economic restructuring, have influenced rural high school dropout rates during the 1990s.
- Measure the extent to which changing employment opportunities in rural Missouri during the 1980s have influenced family structure in rural Missouri in the 1980s and how those changes have influenced rural high school dropout rates during the 1990s.

- Measure the relationships between characteristics and beliefs of students regarding schooling and education and the effect of those characteristics on dropping out.
- Develop and implement baseline data, at both statewide and regional levels within the state, setting the stage for further study regarding social and economic change in rural areas and its effect on students dropping out and the consequences of those decisions.

The remainder of the chapter is organized around a summary of the research findings followed by a comparison of these findings to the literature from which ideas were drawn and how these findings relate to the theories used to guide the research. This chapter concludes with a discussion of the problems that were encountered, limitations of the study and final conclusions drawn from the study.

### **Summary of the Research Findings**

It has been said that the pursuit of understanding usually involves the orderly loss of information, not its mindless accumulation. This has certainly been the case for this research; one of the biggest challenges has been what to set aside. The utility of this research was that it coordinated and analyzed multiple datasets in numerous ways making this study more comprehensive than the usual study of dropping out. Because we were able to do this, there are too many findings to report on individually in a summary. Therefore, this summary is comprised of those findings that were most central to the argument that has been put forth with this research.

The structural equation models that tested the statistical relationships between the variables under observation produced numerous statistically significant findings for both

external and internal models. Most relationships acted in accordance with what was theorized to take place, however, there was variation between occupation category models and the relationships between the variables found in those models. These variations between occupation category models measure the differences that occur in the more rural portions of Missouri and the extent to which these differences positively or negatively influence the population that experiences them.

When looking at the three occupation category and census models differences could be seen in the relationships between the variables within the models. Increases in symbolic analyst and in-person service employment opportunities were associated with areas where the high school dropout rate decreased whereas increases in routine production employment opportunities were associated with areas where the high school dropout rate increased. Increases in any of the occupation categories favorably affected the variables that comprised the family characteristics with the exception of one parent families which decreased for all occupation category models. Increases in both symbolic analyst and in-person service employment opportunities increased adult high school completion, whereas increases in routine production employment decreased adult high school completion. Increases in unemployment and commuting, the employment patterns, increased all of the variables comprising the family characteristics for all three of the occupation category and census data models.

When looking at the structural equation models measuring occupational categories and the student AQ data and their relationship to high school dropout rates it became obvious that the occupation categories did not have much of an influence on the student variables, however, the student variables themselves had significant relationships

with other student variables as well as the high school dropout rate. Increases in in-person service and routine production employment opportunities decreased school commitment. Increases in in-person service provider employment opportunities lowered student perceptions of the quality of education. Increases in routine production employment opportunities decreased future plans of students, parental educational attainment and increased the time students spent working a part-time job.

### **Comparisons to Theory**

The theory of globalization put forth in this research was concerned primarily with the transition from an economy based on manufacturing to one based on information and services. Theories of labor market segmentation were used to delineate the three job categories of the global economy – symbolic analyst service, in-person service, and routine manufacturing and production. The theory of spatial inequality emphasized the structural-territorial bases of inequality, and extended the research of stratification to the frontier of geographic space. Still in its emerging phase, studies of spatial inequality are best considered as an ongoing project; according to Lobao and Saenz (2002) scholars only now are working out its conceptual, empirical and methodological contours.

The findings indicated that differences do exist between occupation categories as well as geographic regions regarding the influence of the different occupational categories on the variables comprising the census and student models. There are statistically significant differences between occupational models when looking at the rural region exclusively. Increases in symbolic analyst and in-person service occupation employment opportunities were associated with areas where the high school dropout rate decreased, whereas increases in the routine production occupation employment

opportunities was associated with areas where the high school dropout rate increased.

The effects of the occupation categories on variables in the various external models were also shown to have significant indirect influence on the high school dropout rate.

The transition brought about by globalization carried with it a disruptive influence on family characteristics in rural areas as well. The increase in employment opportunities in all three of the occupation categories contributed to the increase in four out of the five variables used to measure the family characteristics. The only variable to decrease was the number of single parent households, thus, regardless of occupation, an increase in jobs, any job, reduced the number of single parent households. The increase in unemployment and commuting, the employment patterns, increased all of the variables measuring family characteristics for all of the occupation categories. Regardless of occupation, in areas where the number of people both unemployed and commuting outside their county for work increased, the number of households with four or more people, the number of one parent households, divorced persons, mothers working in the labor force, and family poverty increased. Some slight variation existed between the occupation category models regarding the strengths of the individual parameters between the employment pattern and the family characteristic variables. However, even though there were subtle differences between the occupation category models and the individual parameter estimates comprising the model, there was a degree of repetition regarding the influence of variables regardless of occupation category.

Theories of labor market segmentation were used to delineate the three job categories of the global economy (symbolic analyst, in-person service, and routine production) that could be used to analyze the effects of globalization as measured by

changes in occupation opportunities and the influence these changes have had on family and student characteristics and educational attainment. Whereas the theory of globalization provides insight as to what is driving the changes in occupational employment opportunities, the theory of labor market segmentation organizes the occupations into meaningful categories to be used analytically. The economic restructuring brought about by globalization can create or take away occupational employment opportunities that take place between occupational categories.

Research employing a spatial centered approach has consistently been aware of the influence of labor market segmentation on the persons living in a specific area and specifically the inequality that exists between the segments in a specified geographic area. Spatial inequality addresses the variation that exists between the occupation models in regard to various demographic characteristics and their interactions with other variables in a rural setting. Spatial inequality was instrumental for understanding the extent employment opportunity changes influenced the demographic variables and whether or not there were significantly more negative consequences associated with change in a particular occupation category more than another. The spatial inequality approach was particularly useful for observing how macro-level social forces, like globalization, work themselves out at the micro-level of the individual. The spatial inequality theory also guided the methodology so that rather than using the term 'locality', or labor market area, which is never properly specified, the focus was on economic restructuring and its local effects using case study areas. The case study area in this research was a ten-mile radius around each rural high school used in the analysis. These individual high school study areas were analyzed collectively as part of a regional

statewide analysis, regional because it focused on rural portions of the state, and statewide analysis because it is the rural regions for the entire state that are providing data.

### **Limitations of the Study and Conclusions**

The primary limitation of the study regards the effects of proximity influences, or autocorrelation. High schools that are located close to one another will have a certain degree of overlap among their catchment areas and will therefore be drawing upon the same populations and demographic data that are being collected from the same minor civil divisions. For this research, it was not known to what extent, if any, these proximity influences biased the research results. There are techniques that can be employed by a GIS that will measure spatial autocorrelation, but this research did not employ them. It is suggested that for future research that a measure of autocorrelation be collected.

There really was a limit to the influence that the occupation categories had on the student variables. Overall, the occupation category variables had little or no influence on the Advanced Questionnaire variables in the structural equation models. The reason for such weak relationships between the data used to measure occupational category and the data supplied by the student Advanced Questionnaire could be due to their difference in methods of acquiring and analyzing data. Whereas the occupation categories are a longitudinal measure, and measured as the percent change in occupational categories between 1980 and 1990, the Advanced Questionnaire data are cross-sectional and are the mean scores for each item for that school derived from the student dataset. For future research it might be useful to create structural equation models that mix and match various variables from all of the models into one model. For example a model that

measures occupation category, family characteristics, teacher perceptions regarding school climate, parental perceptions of quality of the learning environment, and student perceptions pertaining to school commitment and their influence on the high school dropout rate and family income.

Another limitation of the study was the use of an arbitrary ten-mile radius buffer used to capture the minor civil division center points with social and economic data already joined and attribute that data to the high school for which the buffer was created. Without ever being able to find any information regarding the average distance rural high school students' travel to get to school, the ten-mile area does not necessarily represent the most optimal catchment area, and was based on a reasonable approximation of the size of the community in rural Missouri. To what degree differing buffer radii would have on the model results was not explored in this research and probably constitutes a limitation. If time, cost and permission from the Missouri Department of Elementary and Secondary Education were not a consideration this could be remedied by geocoding every student's location based on their house address and then using the combined coordinates of all students to create a catchment area for high schools based on where the students actually live in relation to the high schools that they attend.

Another limitation of the study was the reliance upon occupation classifications as they are defined by the Census Bureau. The question surrounding the census bureau's classification of occupations concerns whether or not the categories that they have constructed best reflect the modern occupational landscape. Even though the Census Bureau's categories worked well for this research, it is hard not to speculate on the kinds of findings that would result if the research had access to the individual census records

and could recode occupation into more research-useful categories. And with these new occupational categories measure how changes in employment opportunities within these categories influence the social and economic environment of social actors in various ways.

This study was particularly interested in looking at a specific time period, the decade of the 1980s, and how changes during this decade influenced families, students and schools in the 1990s. The next step in this research would be to explore the relationships between the variables, looking at the changes that have taken place during the 1990s. Thus, data from the 1990 and 2000 Census of Population and Housing would be the source for the external models. One benefit of using these time periods is that instead of using minor civil divisions, block group geographies could be the base unit from which to collect the social and economic data. This would allow for more detailed data collection and would help control for some of the autocorrelation that took place by using the minor civil division geography. However, there would be a major limitation that concerns the way that the occupation categories in the 1990 and 2000 Censuses were defined. In the 2000 Census the occupational categories were changed significantly to more accurately capture the new forms of primary employment that are taking place within the labor market in the 21<sup>st</sup> Century. However, there are questions regarding the structuring of these new occupational categories and if they can be effectively compared to those that were used for the 1980 and 1990 Censuses. Developing useable and comparable measures of occupation types from the 1990 and the 2000 census data will prove challenging because of the way that the sub occupation categories are organized into the census occupation category. One benefit of using 1980 and 1990 census data

occupation categories was that the occupation categories that the Census Bureau used were the same for both time periods.

Measuring the social and economic changes taking place in rural areas of the state is useful for understanding the unique social and economic challenges that rural communities face. However, research like that conducted here would benefit a great deal from a comparison of rural trends with urban trends. These benefits would be useful, from both a geographical as well as a sociological standpoint, for better understanding diversity in employment opportunities throughout the state as a whole. Another area of comparison that could be very illuminating to the overall research question posed here is how the rural regions of Missouri compare to the rural regions of other states and within the US.

Overall, this research has been successful in extending the work of Duncan and Savage (1989) by focusing on economic restructuring and its local effects on employment opportunity, family characteristics, student perceptions regarding education, and high school dropout rates. Furthermore, it has successfully shown that large scale macro-level social forces have an influence on small scale micro-level individual behavior. The findings of this research have shown that changing employment opportunities brought about by globalization have both positive and negative effects on schools, families and students. These effects were generally found to reproduce themselves according to occupational categories.

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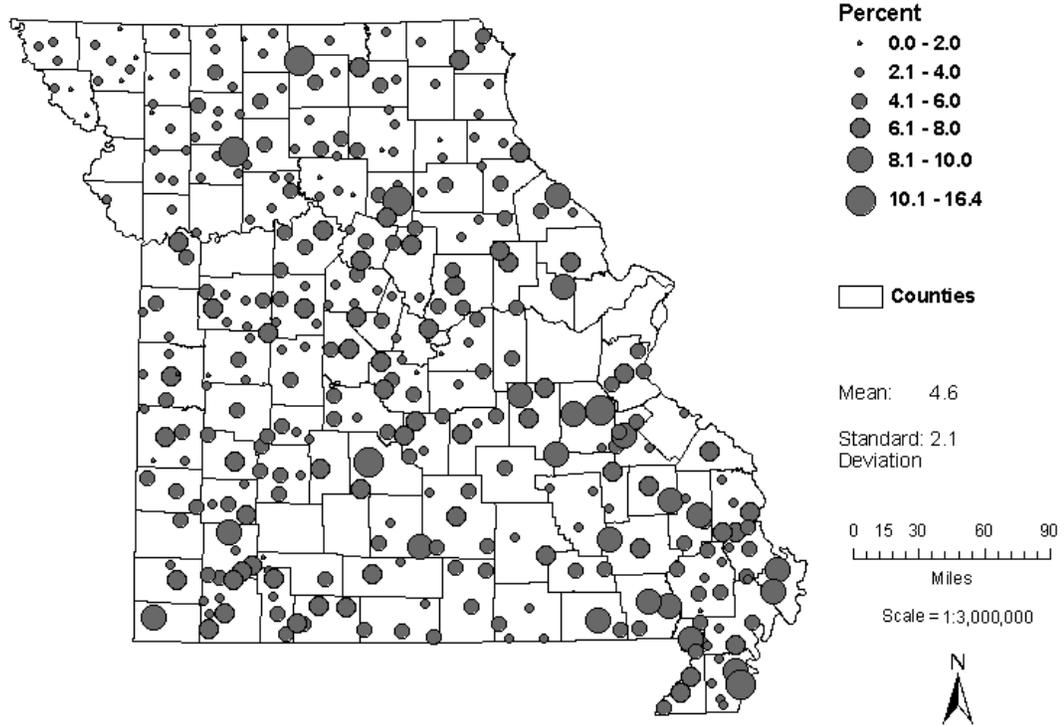
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# APPENDIX A – SPATIAL DISTRIBUTION OF RESEARCH VARIABLES

## Dropout Rate

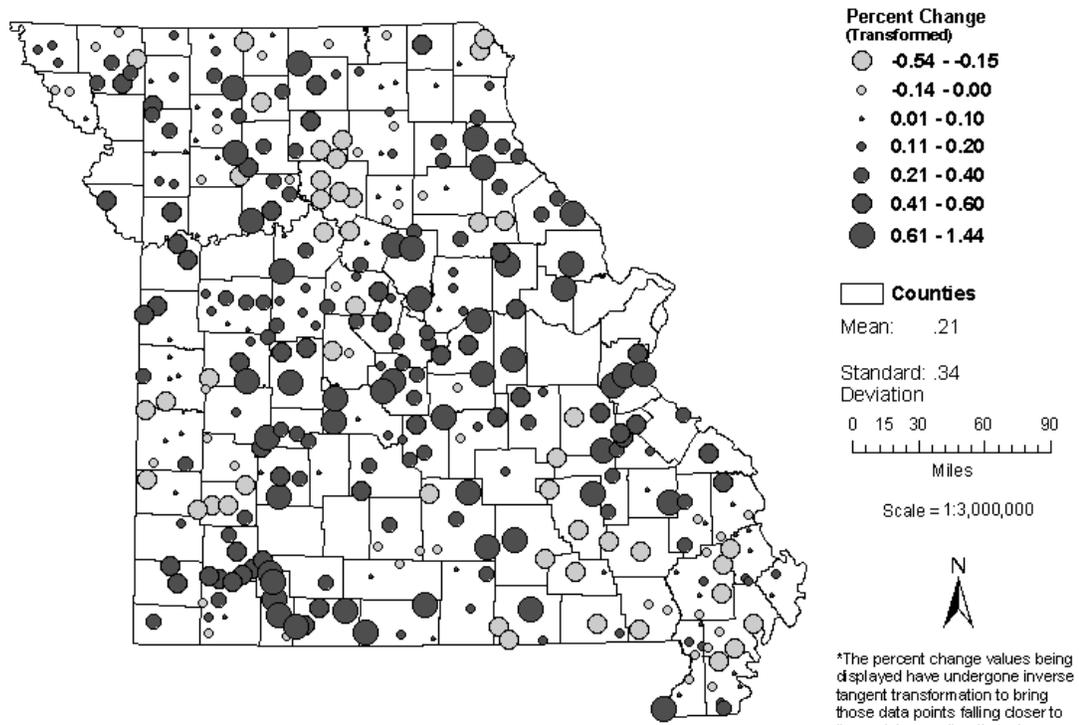
### Average High School Dropout Rate by Rural High School, 1991 - 1999



Source: CORE Data, Missouri Department of Elementary and Secondary Education (1991 thru 1999)

# Occupations

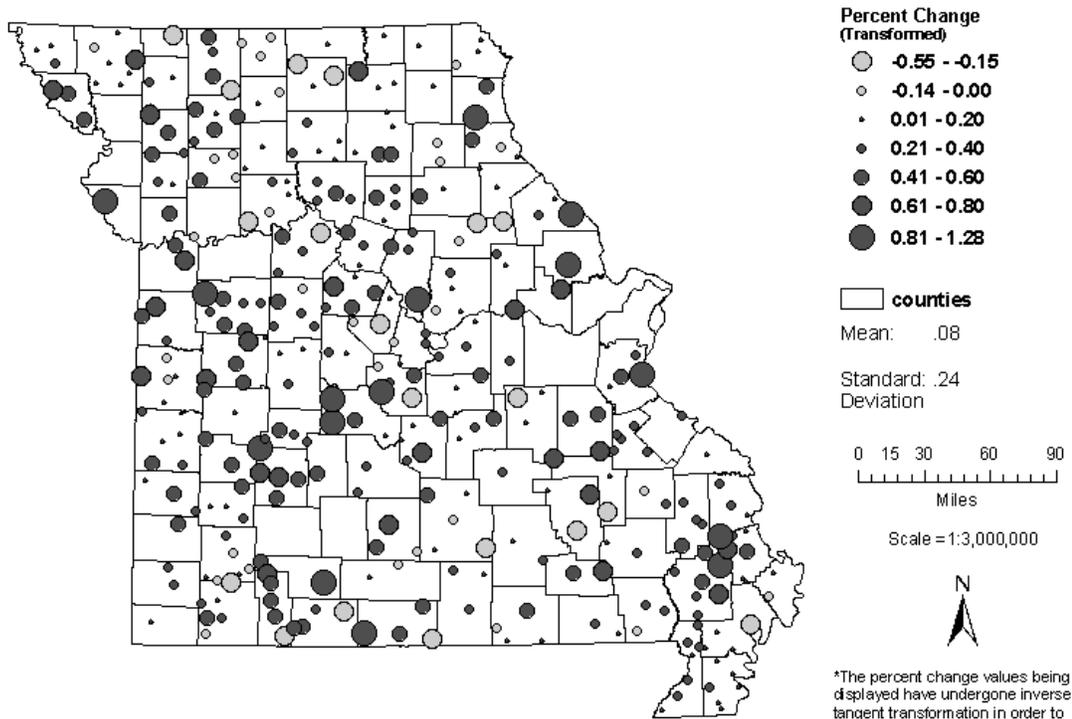
## Percent Change\* in Executive and Managerial Employment by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

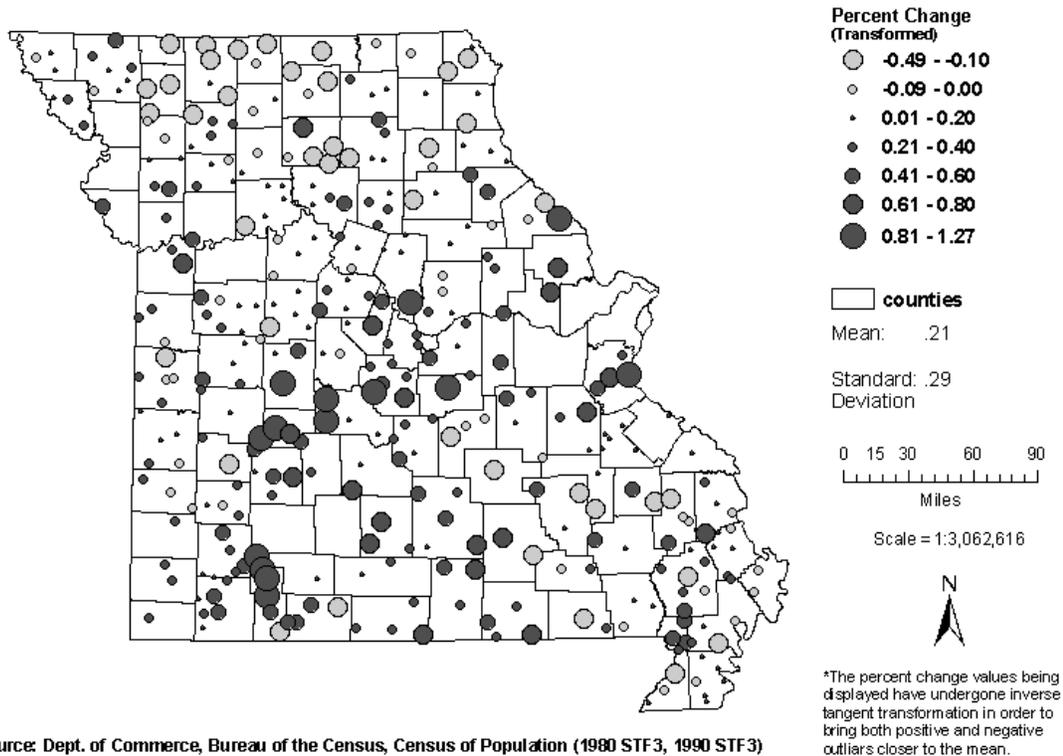
\*The percent change values being displayed have undergone inverse tangent transformation to bring those data points falling closer to the end, in any direction, closer to the center.

# Percent Change\* in Professional Employment by Rural High School, 1980 - 1990



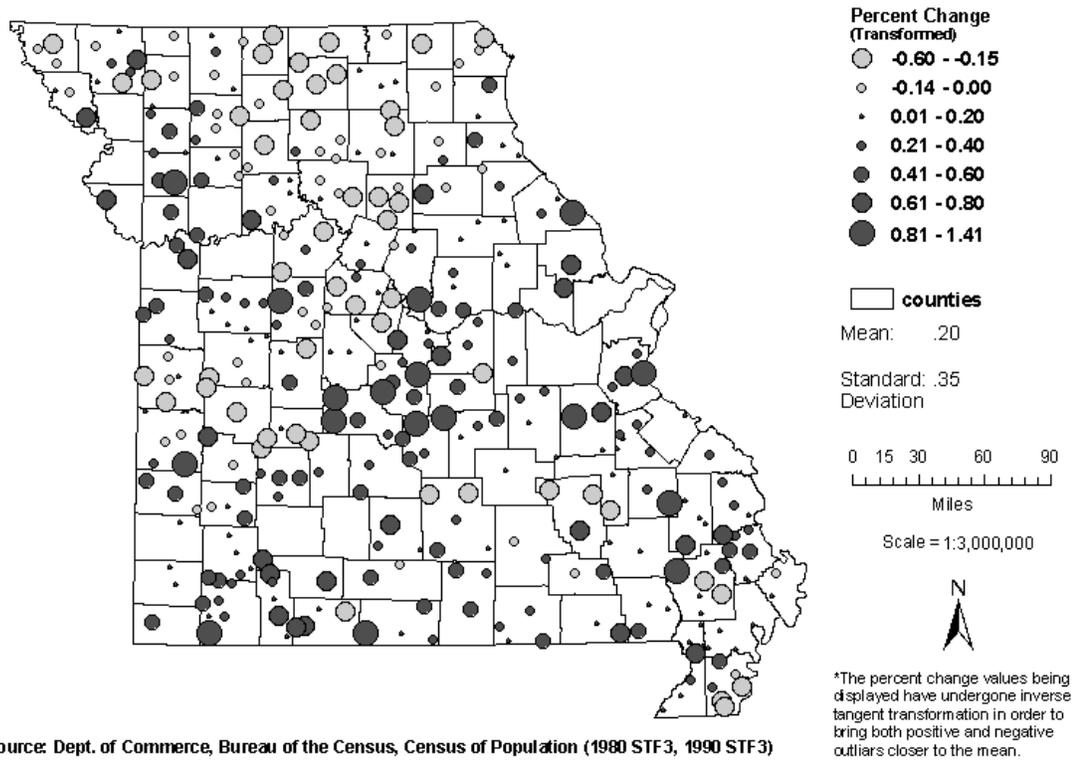
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

### Percent Change\* in Services Employment by Rural High School, 1980 - 1990



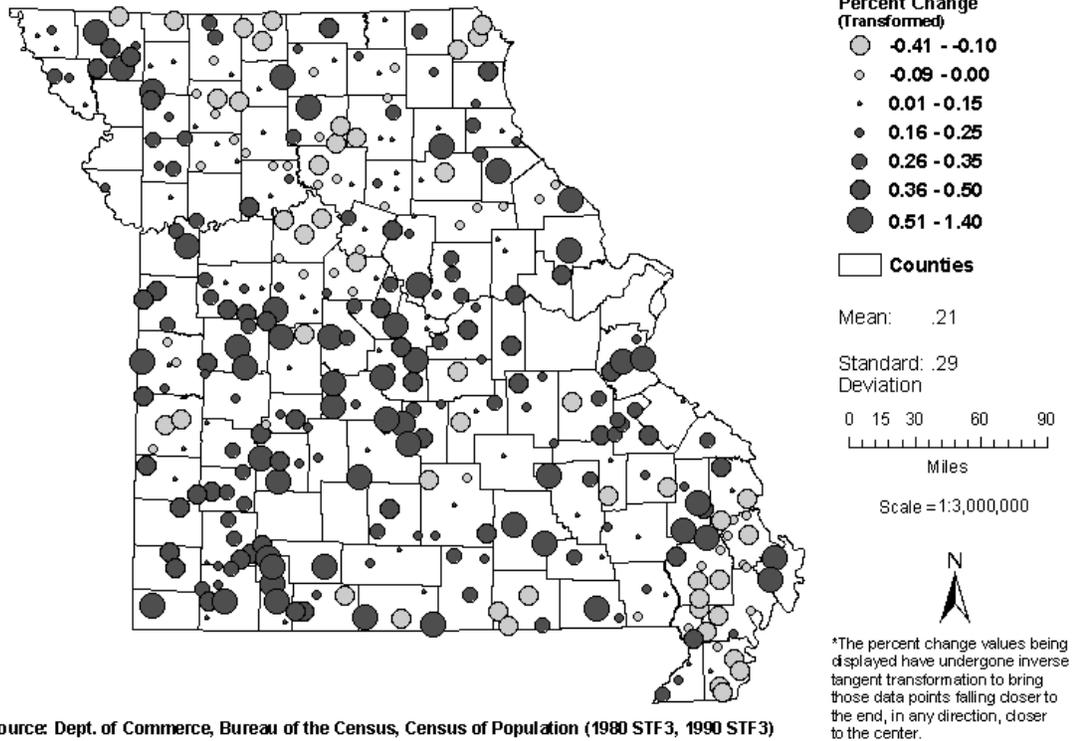
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

## Percent Change\* in Sales Employment by Rural High School, 1980 - 1990



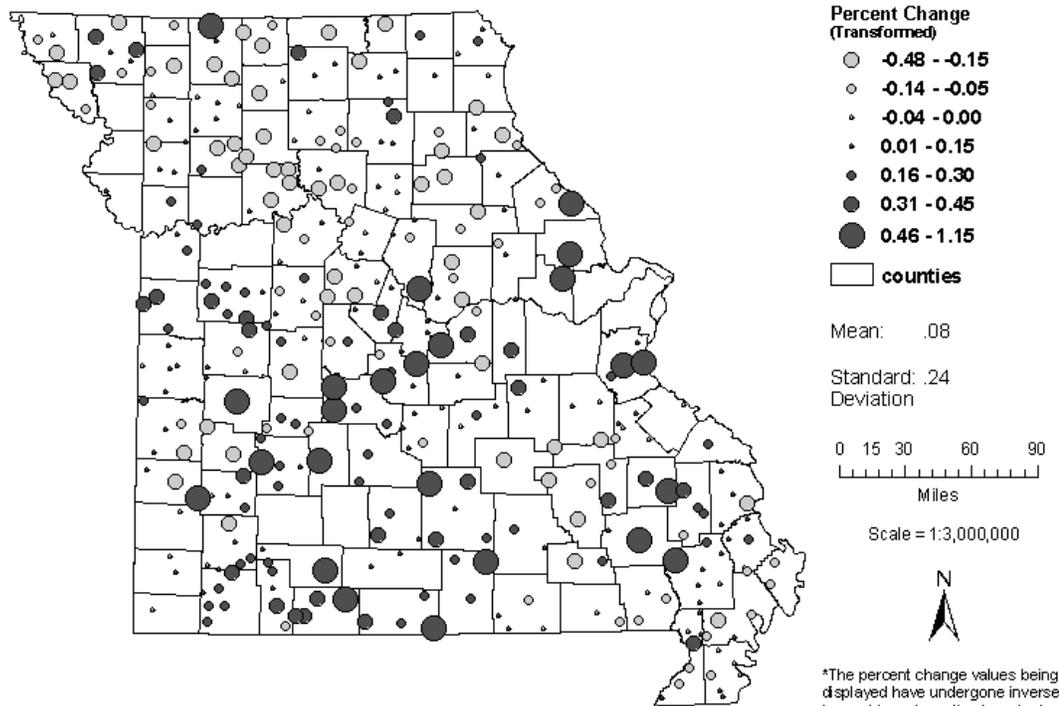
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

### Percent Change\* in Administrative Services Employment by Rural High School, 1980 - 1990



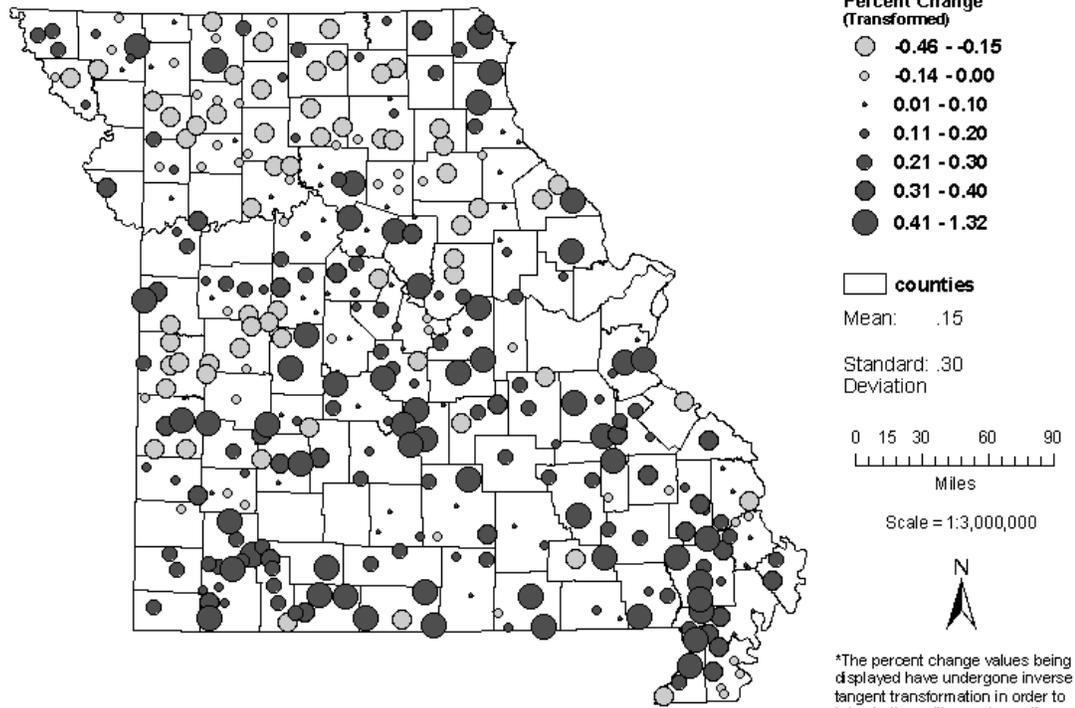
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

### Percent Change\* in Production Employment by Rural High School, 1980 - 1990



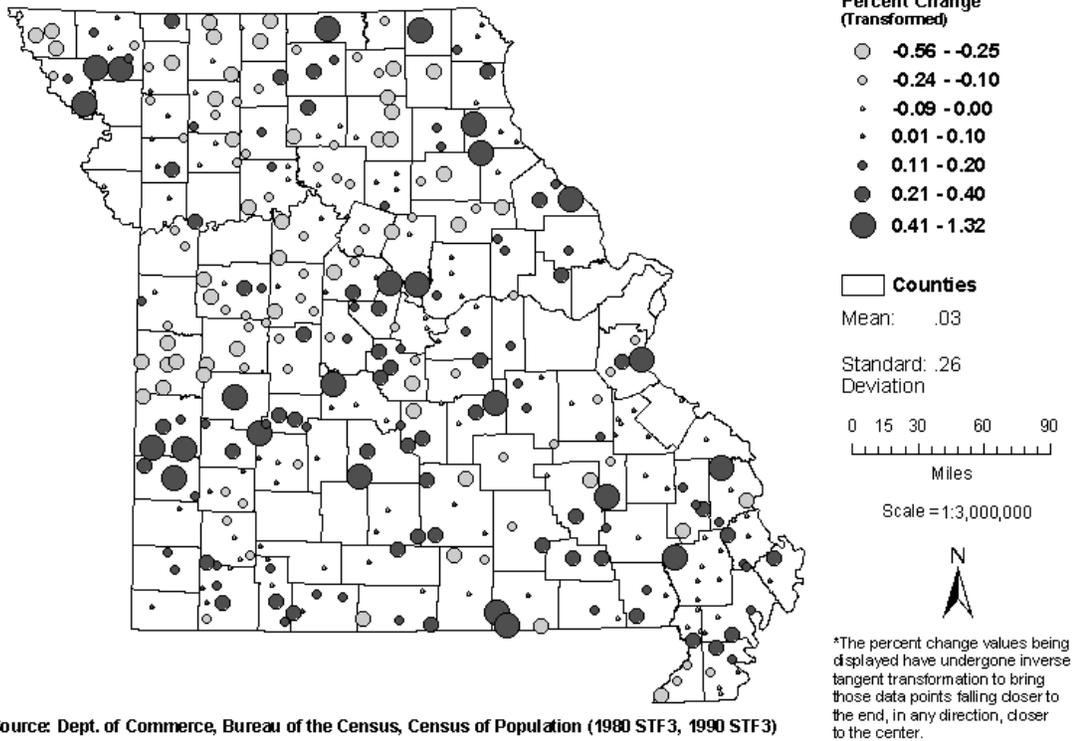
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

### Percent Change\* in Transportation Employment by Rural High School, 1980 - 1990



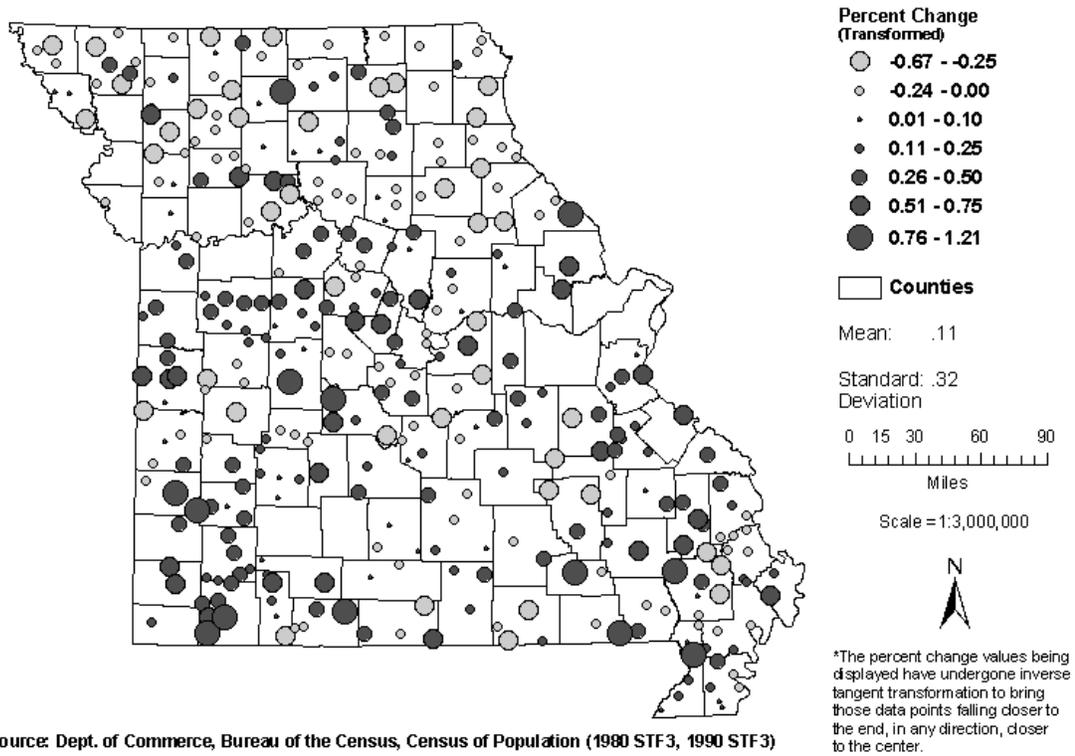
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

### Percent Change\* in Machine Operator Employment by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

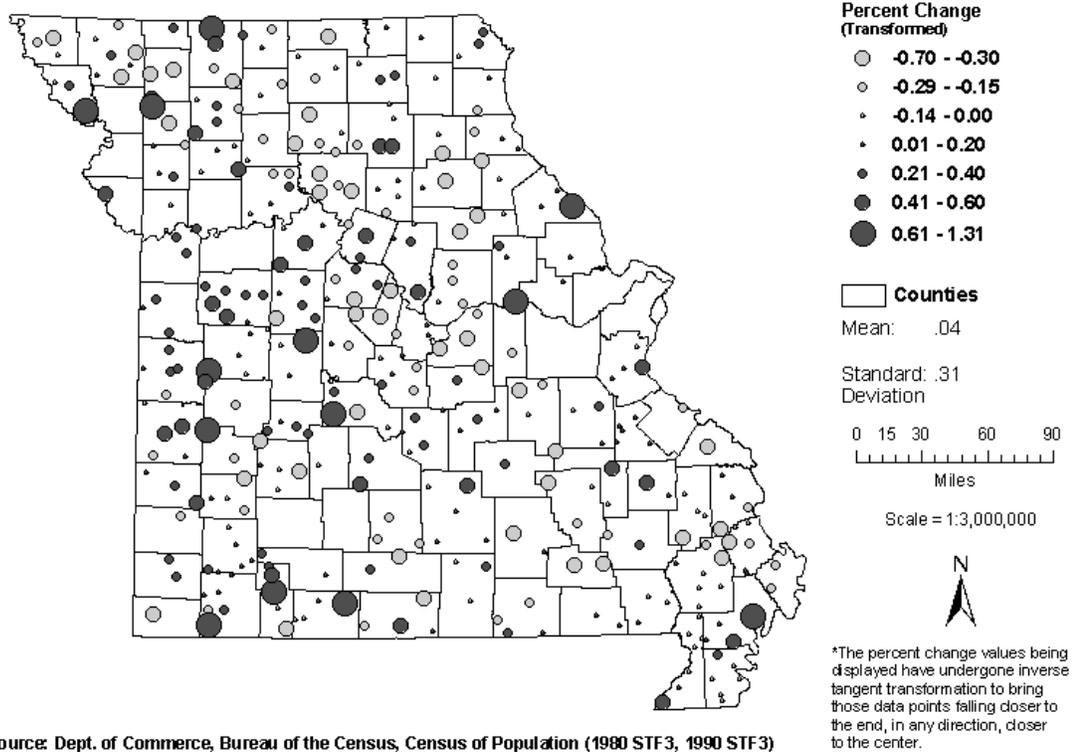
### Percent Change\* in Handler or Laborer Employment by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

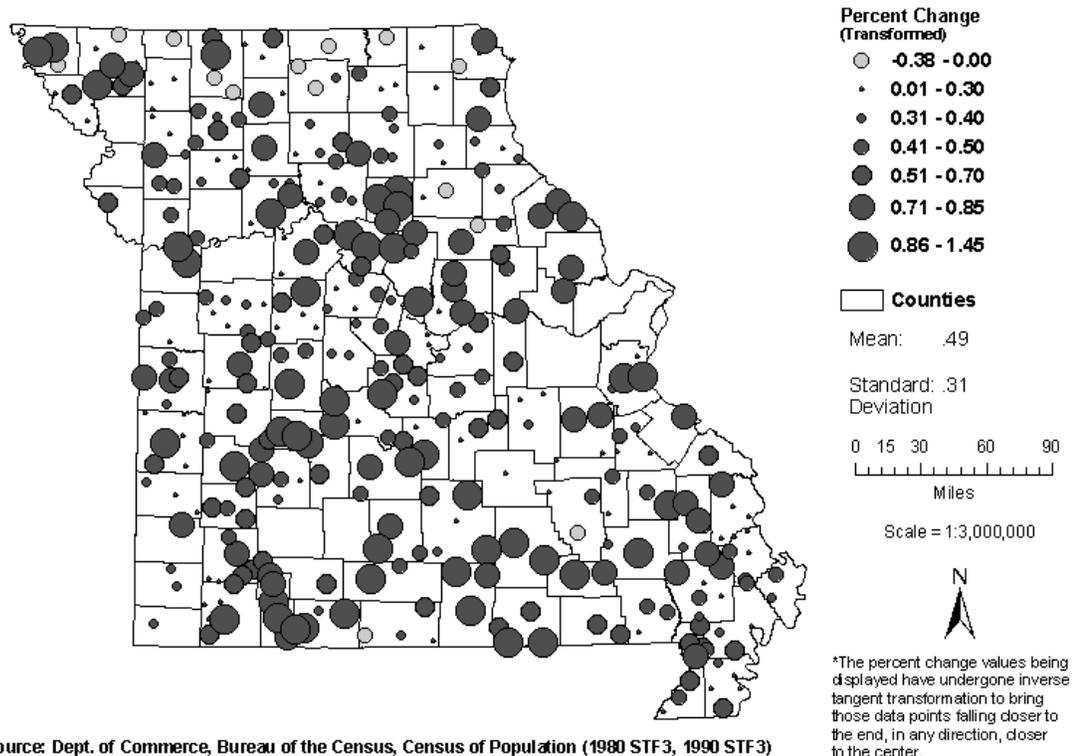
## Employment

### Percent Change\* in Number of Persons 16 Years or Older Unemployed by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

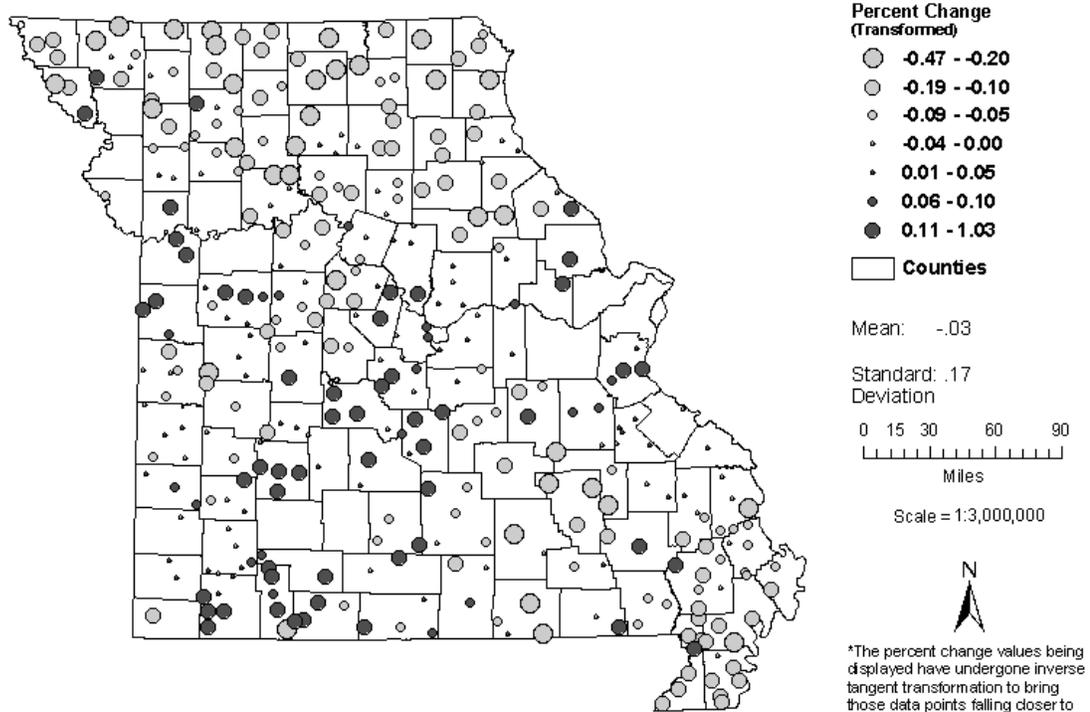
## Percent Change\* in Number of Persons 16 Years or Older Working Outside their County of Residence by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

## Family Characteristics

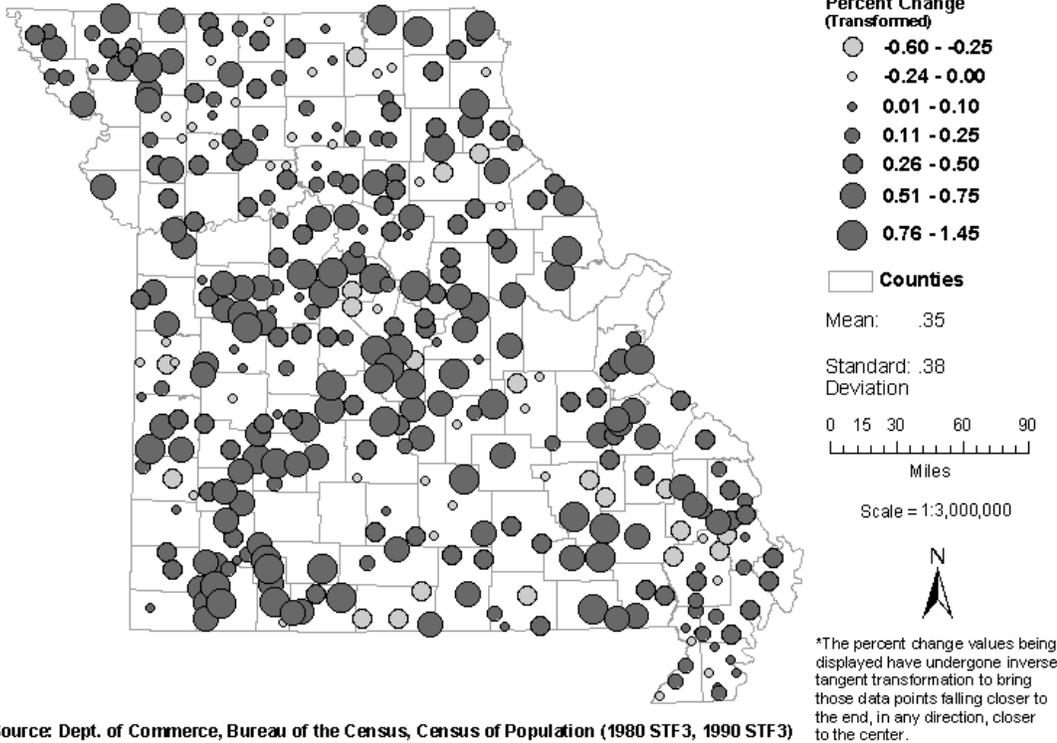
### Percent Change\* in the Number of Four or More Person Households by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

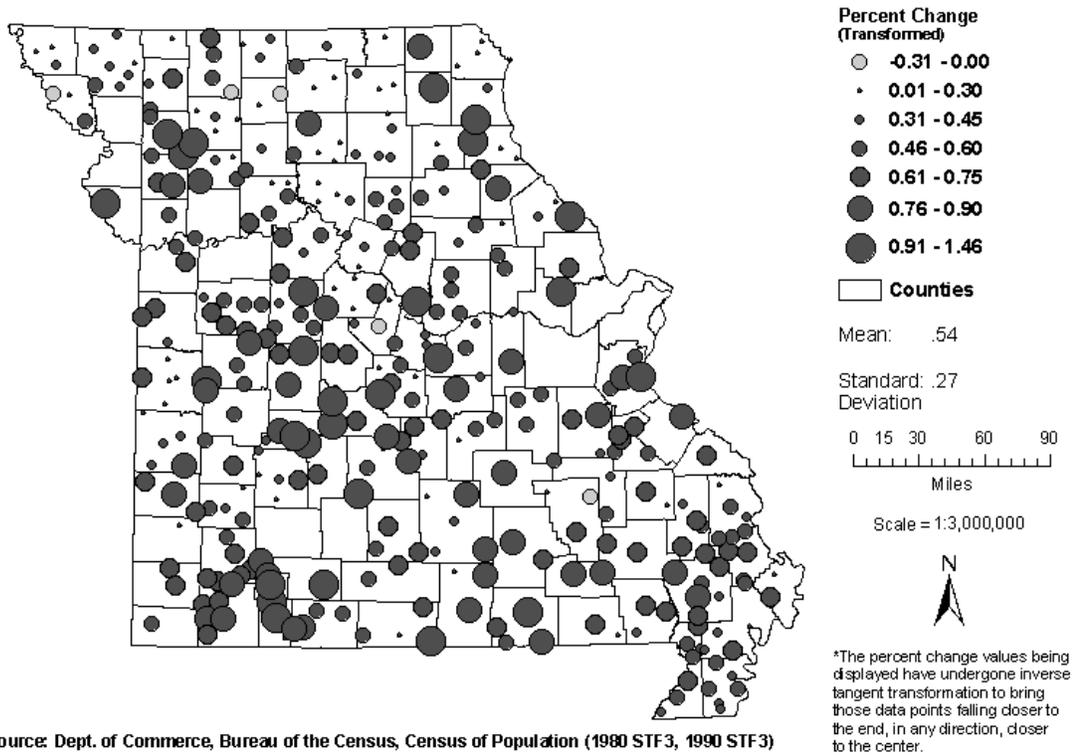
\*The percent change values being displayed have undergone inverse tangent transformation to bring those data points falling closer to the end, in any direction, closer to the center.

**Percent Change\* in Single Parent Families by Rural High School, 1980 - 1990**



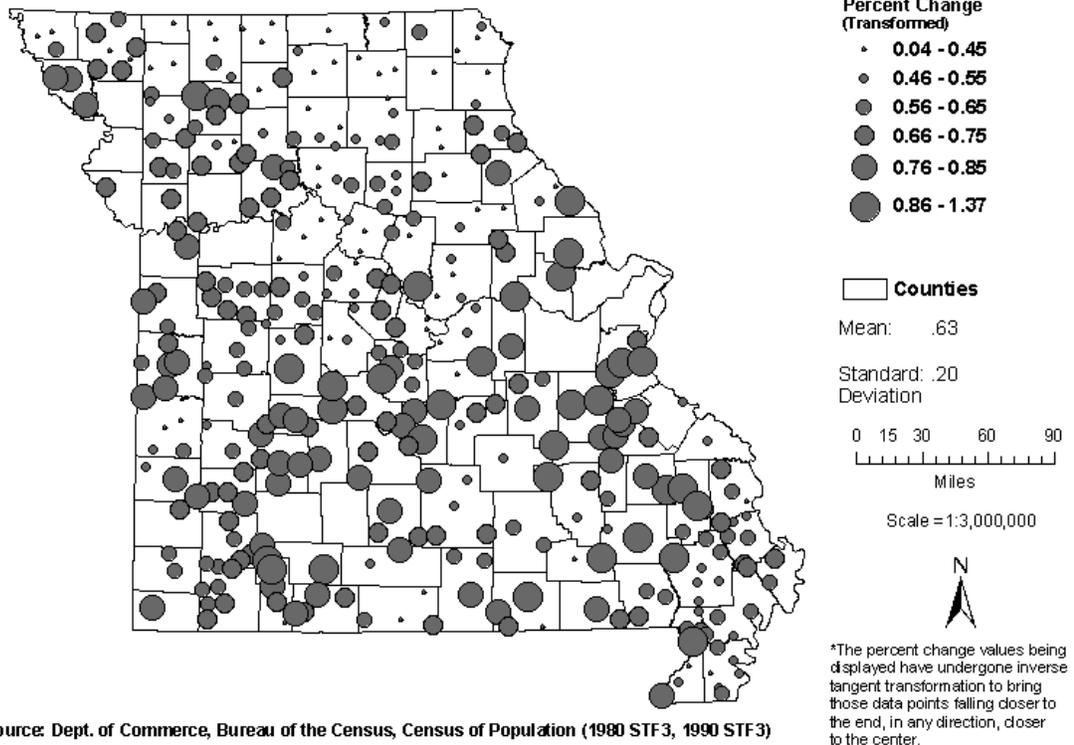
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

**Percent Change\* in Number of Persons Age 15 or Older that are Divorced  
by Rural High School, 1980 - 1990**



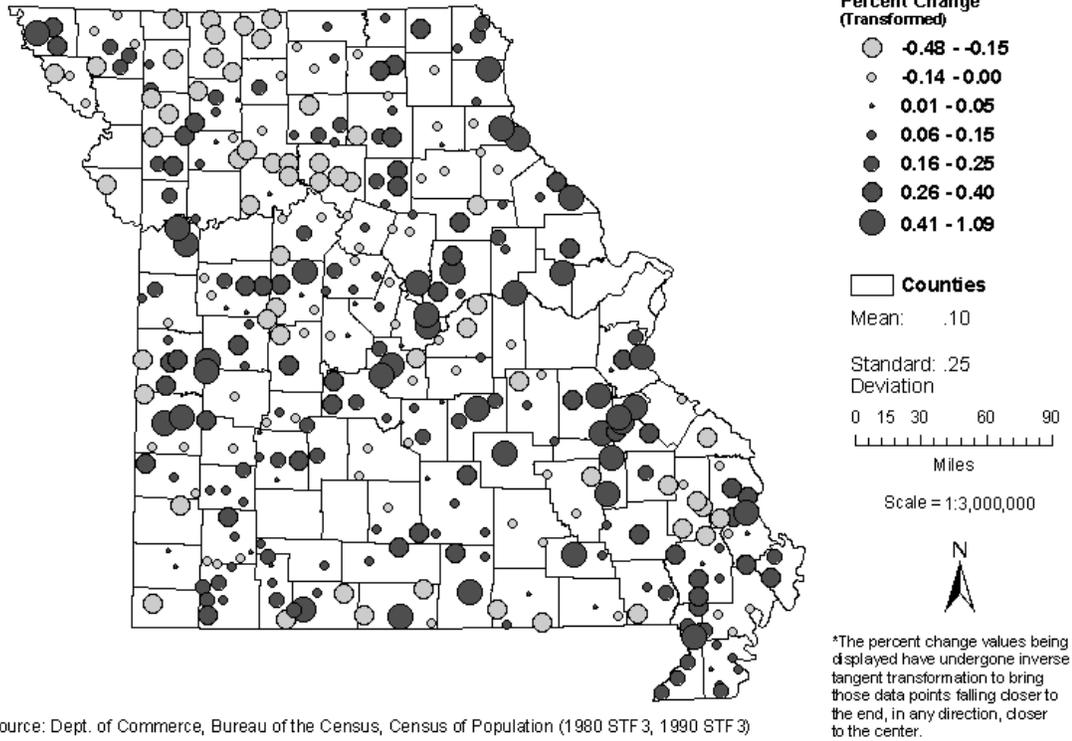
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

### Percent Change\* in Number of Mothers in the Labor Force by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

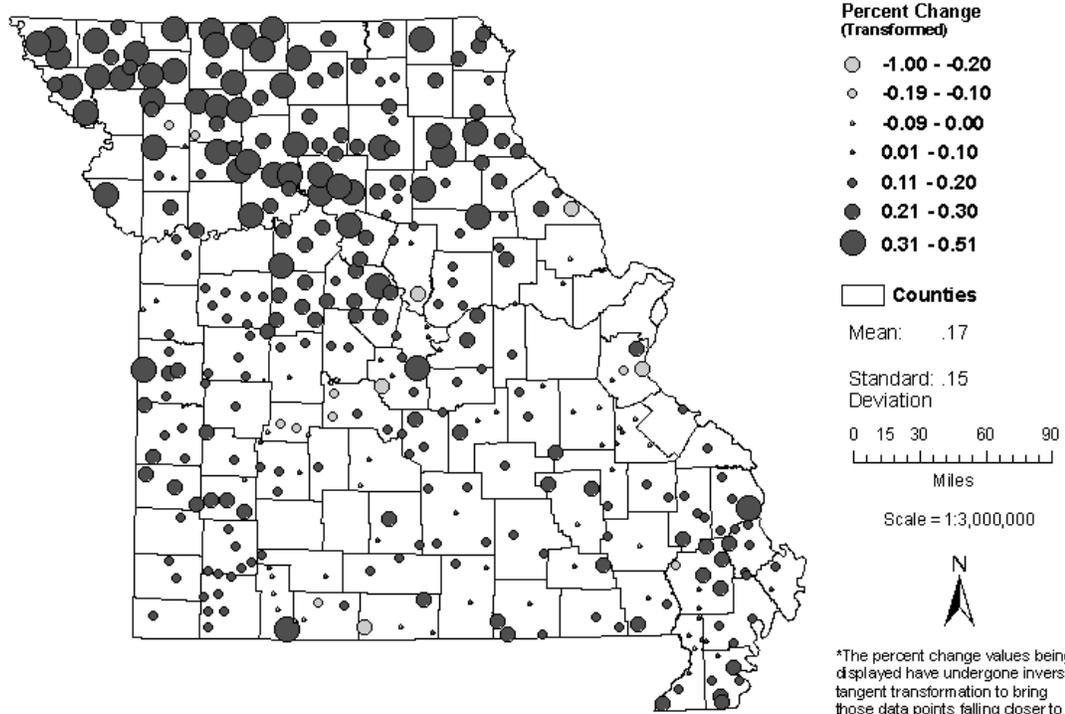
### Percent Change\* in Number of Families in Poverty by Rural High School, 1980 - 1990



Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF 3, 1990 STF 3)

## Education Attainment

### Percent Change\* in Number of Persons 25 Years or Older that Completed High School Degree by Rural High School, 1980 - 1990



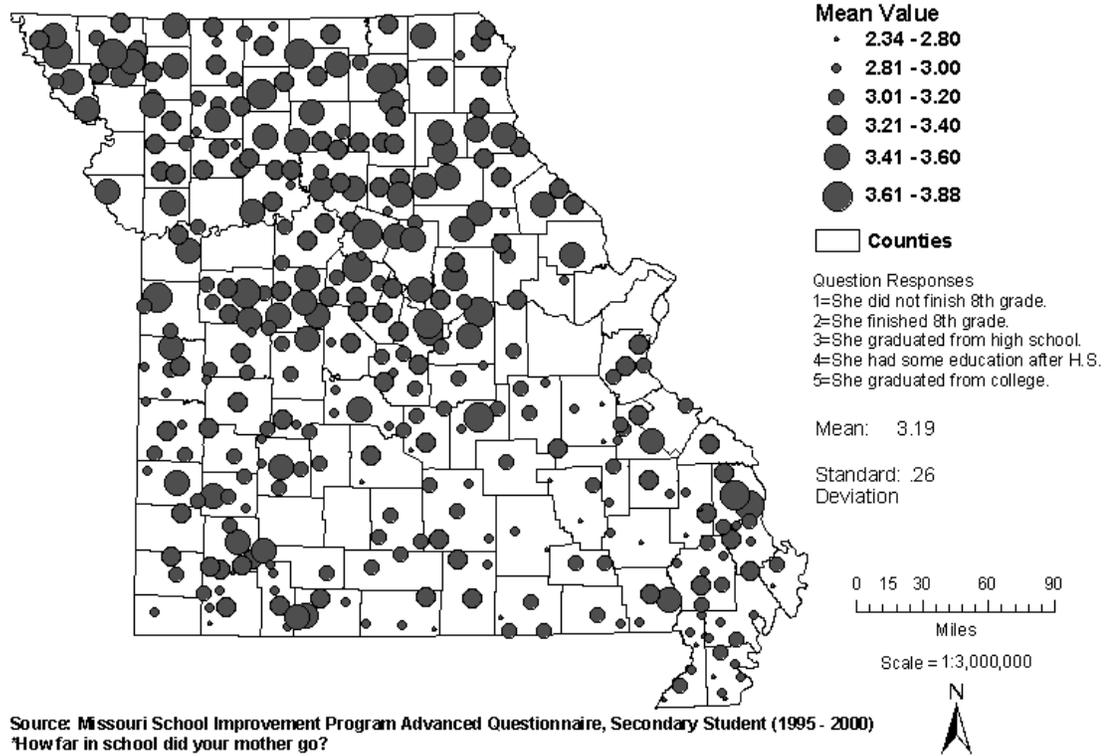
Source: Dept. of Commerce, Bureau of the Census, Census of Population (1980 STF3, 1990 STF3)

\*The percent change values being displayed have undergone inverse tangent transformation to bring those data points falling closer to the end, in any direction, closer to the center.

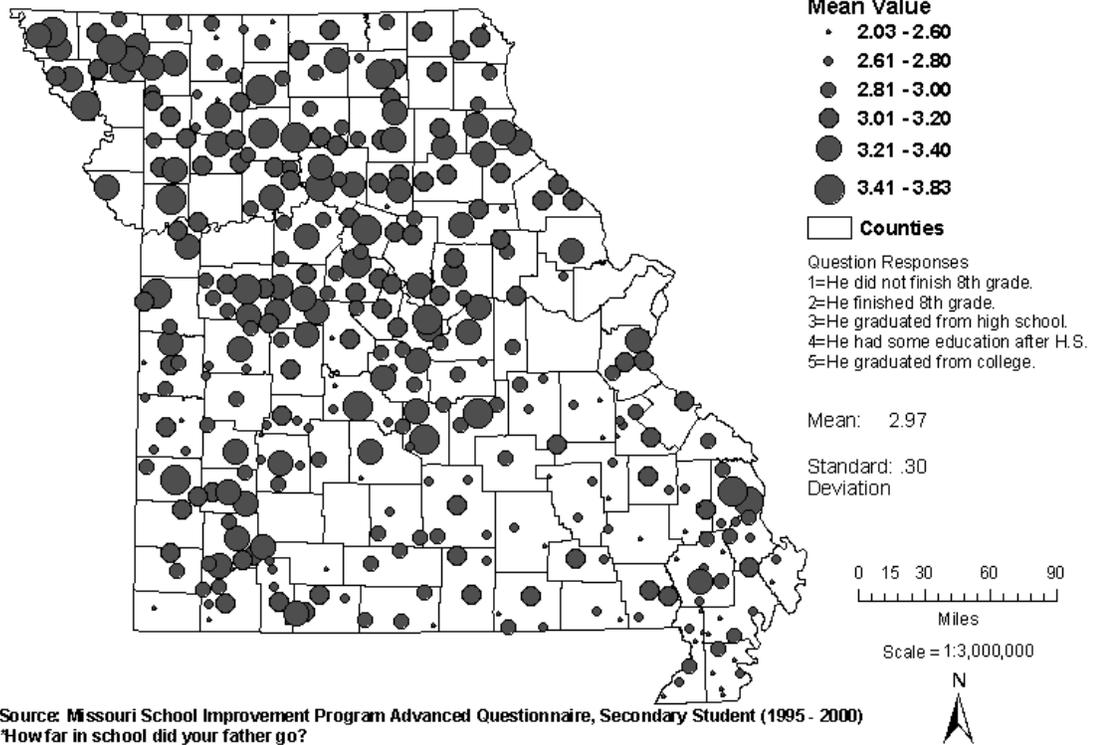
# AQ Student

## Parental Educational Attainment

### Mother's Level of Education\* by Rural High School, 1995 - 2000



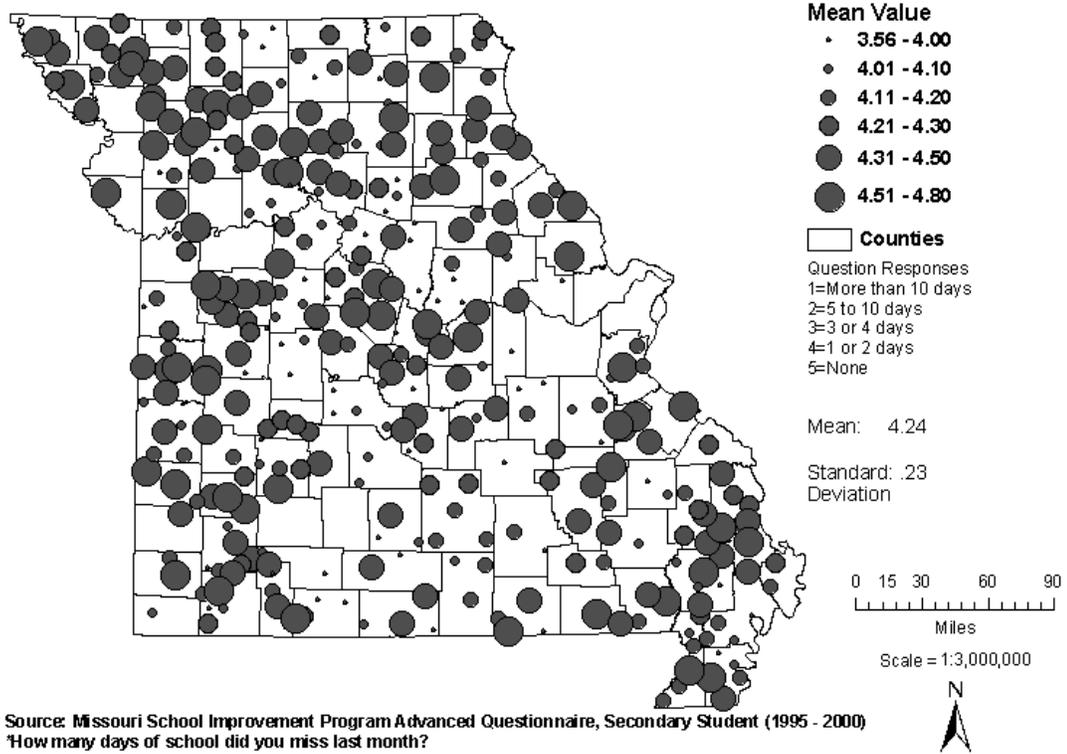
### Father's Level of Education\* by Rural High School, 1995 - 2000



Source: Missouri School Improvement Program Advanced Questionnaire, Secondary Student (1995 - 2000)  
\*How far in school did your father go?

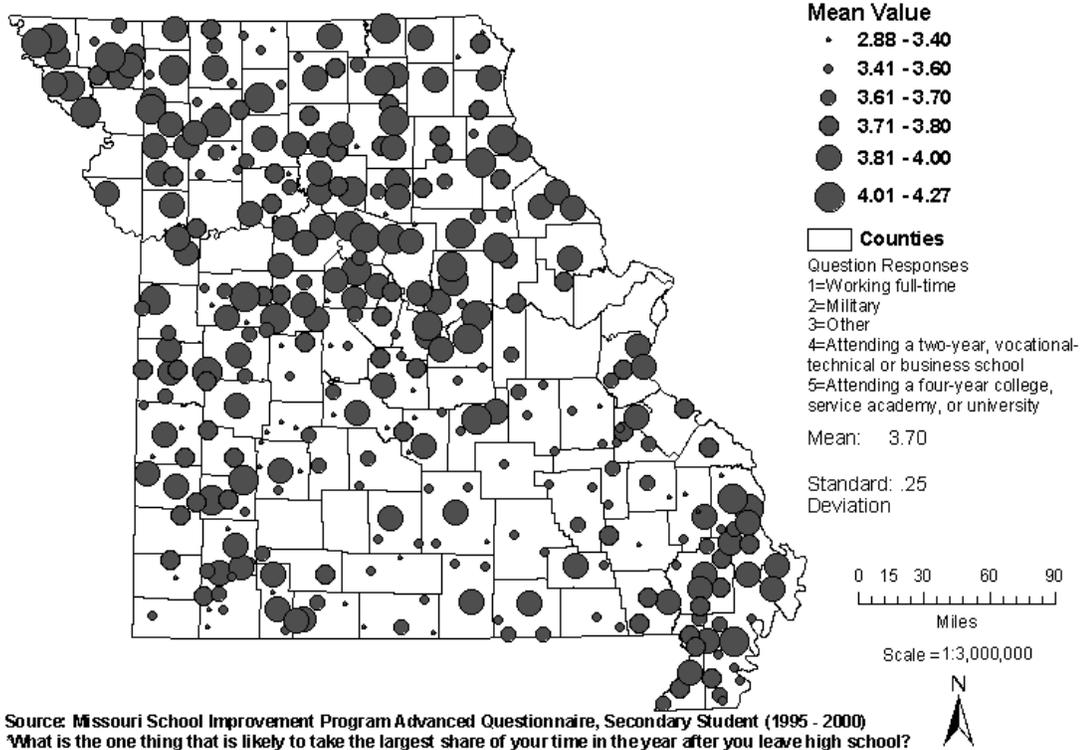
# Absences

## Days of School Missed\* by Rural High School, 1995 - 2000



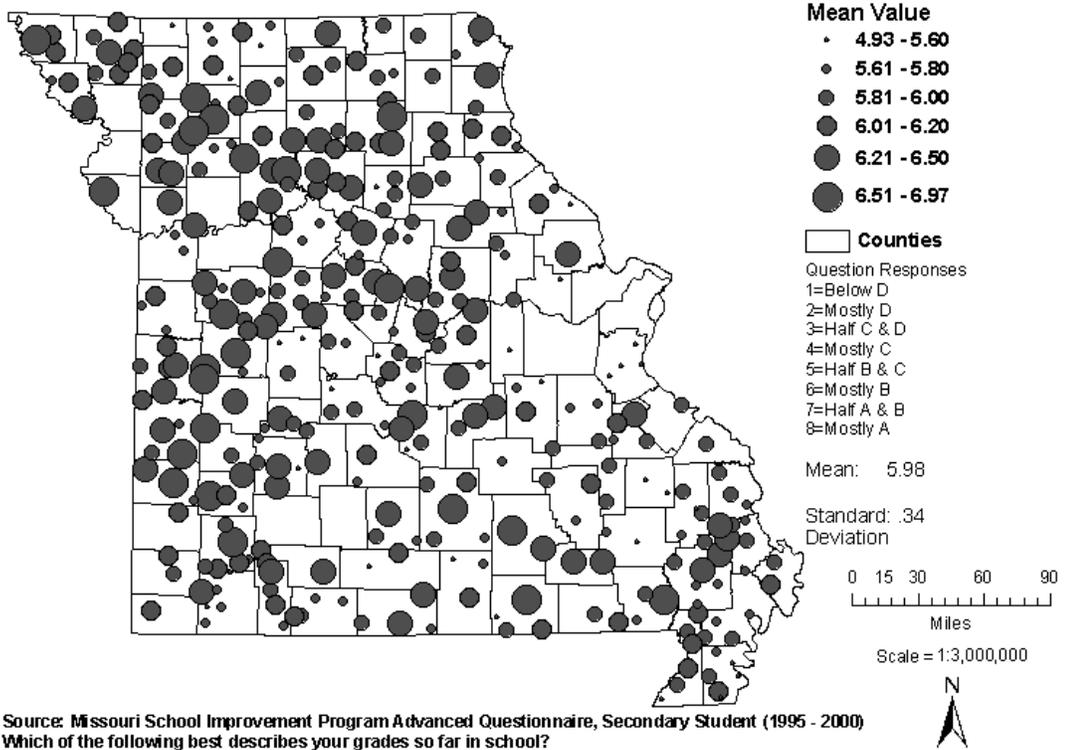
## Future Expectations

### Student's Future Plans\* by Rural High School, 1995 - 2000



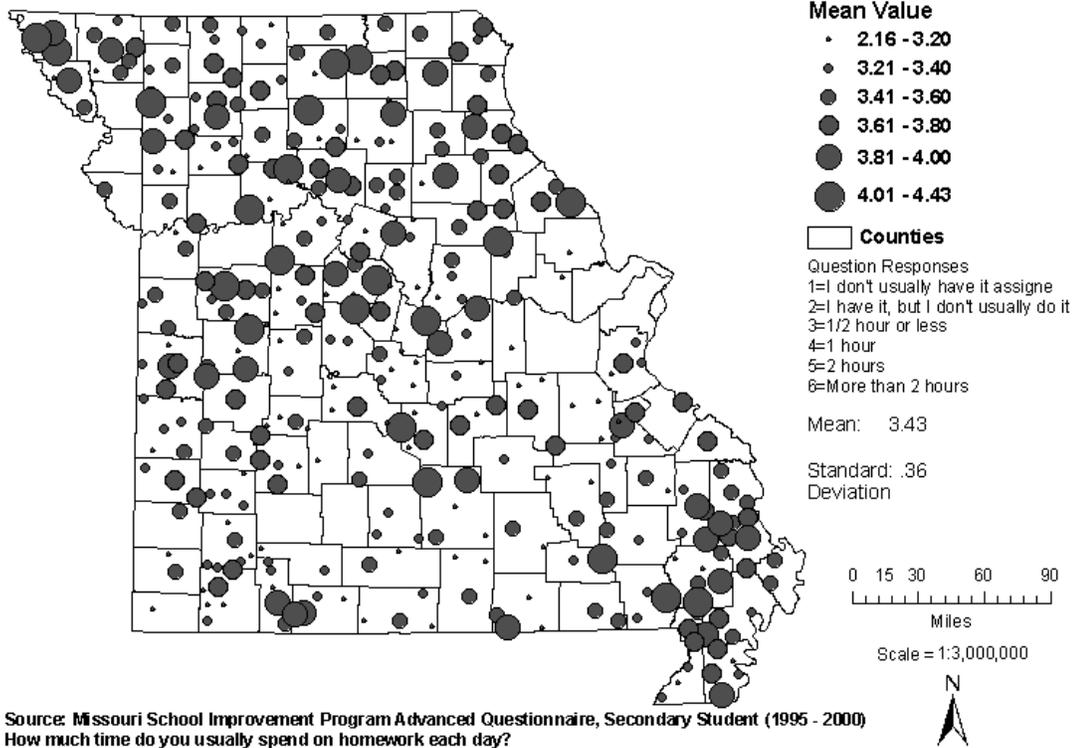
# Grades

## Report Card Grades\* by Rural High School, 1995 - 2000

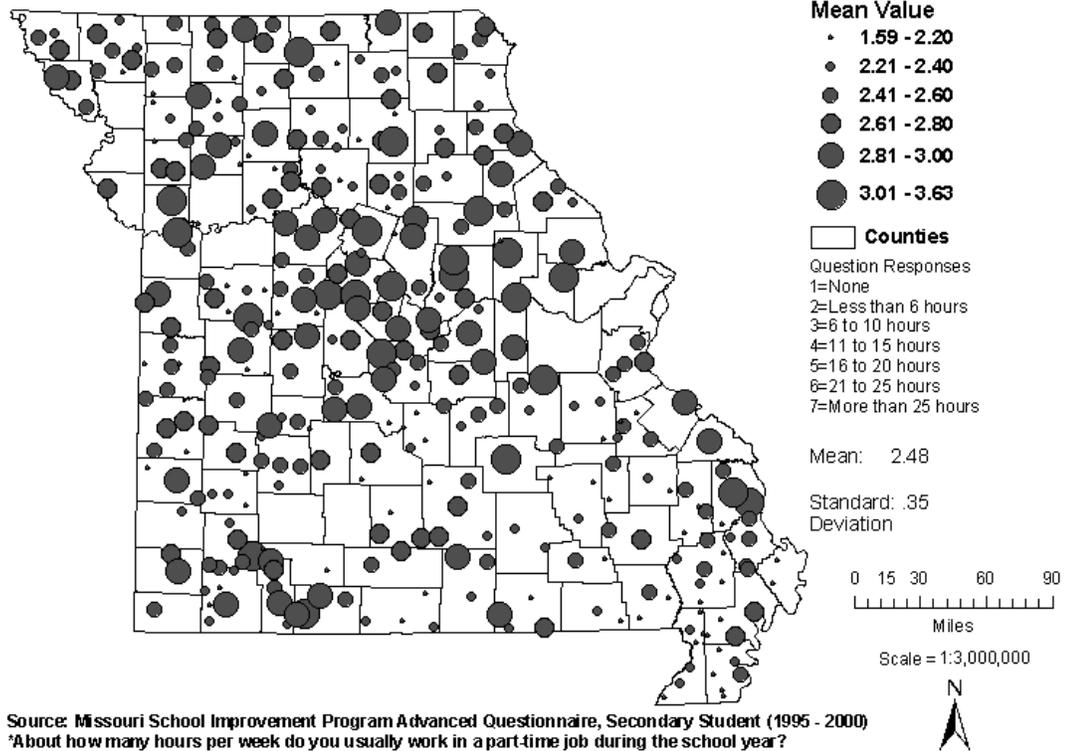


# Time Spent Doing Homework

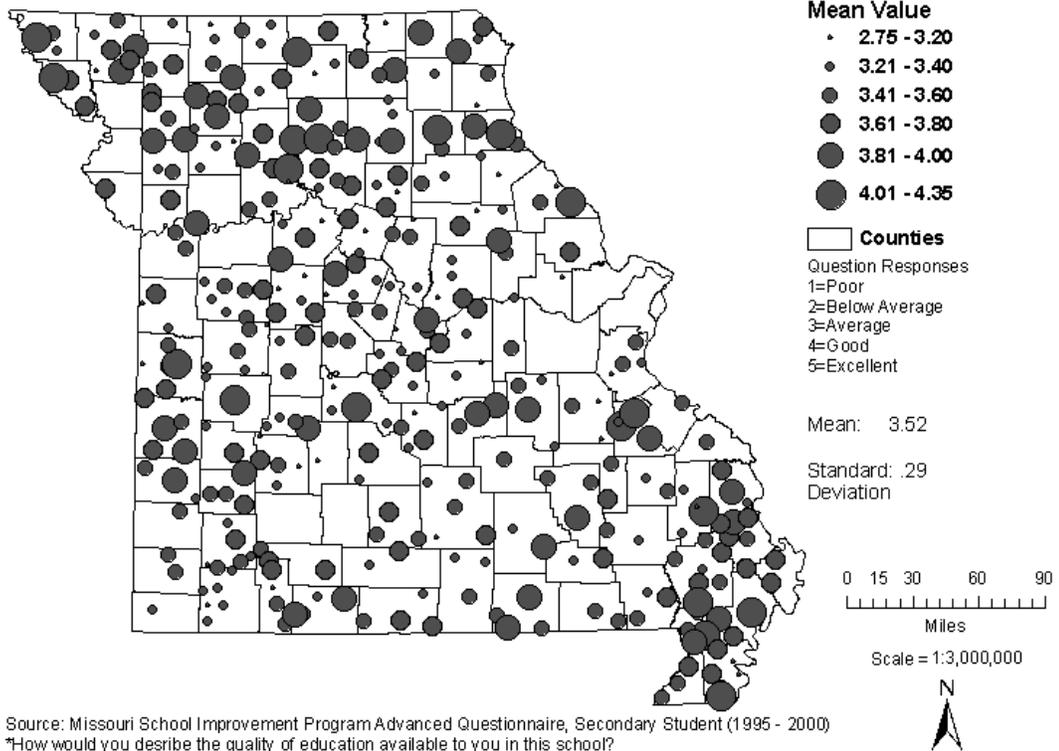
## Time Spent on Homework\* by Rural High School, 1995 - 2000



## Time Spent Working at a Job\* by Rural High School, 1995 - 2000



### Quality of Education\* by Rural High School, 1995 - 2000



Source: Missouri School Improvement Program Advanced Questionnaire, Secondary Student (1995 - 2000)  
\*How would you describe the quality of education available to you in this school?

## VITA

Lance Huntley was born March 17, 1972, in Moline, Illinois. After attending public schools in Illinois, he received the following degrees: B.S. in Psychology from Culver-Stockton College at Canton, Missouri (1994); M.S. in Rural Sociology from South Dakota State University at Brookings, South Dakota (1997); Ph.D. in Rural Sociology from the University of Missouri-Columbia (2005). He is married to the former Karyn Hendrix of St. Louis, Missouri, and is the father of two truly exceptional children, Hayley and Cole. He is presently a research associate with the Office of Social and Economic Data Analysis at the University of Missouri-Columbia