12-2006

Does Size Matter? Student Outcomes, School Size, the State of Mississippi and Its Delta Region: Implications for Socioeconomic Well-Being

Leslie Taylor-Grover
Clemson University, leslie.taylorgrover@gmail.com

DOES SIZE MATTER? SCHOOL SIZE, STUDENT OUTCOMES, THE STATE OF MISSISSIPPI AND ITS DELTA REGION: IMPLICATIONS FOR SOCIOECONOMIC WELL-BEING

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Policy Studies

---

by
Leslie Taylor-Grover
December 2006

Accepted by:
Dr. M. Grant Cunningham, Committee Chair
Dr. David Barkley
Dr. Catherine Mobley
Dr. Bruce Ransom

ABSTRACT

The positive link between educational attainment and improved socioeconomic outcomes under the auspices of the current economic environment is essential to the survival of rural states like Mississippi, which has some of the nation's lowest educational attainment and income levels. One of the most promising education policies for Mississippi is related to research on school size, district size, and positive educational outcomes among students. Smaller schools and districts are increasingly being touted as the basis for rural school reform, renewed economic development efforts in rural communities, and cost effective means to overcoming barriers poor students face in graduating high school and scoring higher on state achievement tests. However, data from Mississippi indicates school size and district may function differently in the state. This study explores school size at the high school level and at the district level, using Mississippi as a case study. It incorporates socioeconomic well-being factors associated with influencing student outcomes for the state's public high schools.

DEDICATION

This is dedicated to my parents, Melba and Eugene Taylor, without whom neither I nor this work would be possible; to my brother Reginald for his love, support and level-headedness; and to my husband Kendell for his love, support and patience with me throughout this process. Thank you all for reminding me “I can”.

ACKNOWLEDGEMENTS

I would like to thank my dissertation committee: Dr. Grant Cunningham, Dr. Catherine Mobley, Dr. David Barkley and Dr. Bruce Ransom. Your support, input, guidance, and positive energy are greatly appreciated.

I would also like to thank Dr. Kathy Wilson and Curtis Askew. Your mentoring, support and kindness have been invaluable.

I would also like to thank my aunt, Dr. Geraldyne Brinkley North. You are a walking example of how I wish to pattern myself. Thank you for your ongoing input and support.

I would like to thank Mr. Byron Wiley and the staff of the Office of Access and Equity. Your support and encouragement are greatly appreciated.

TABLE OF CONTENTS

Table of Contents (Continued)

Table of Contents (Continued)

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE
INTRODUCTION

Education and Socioeconomic Well-Being

Education levels are important indicators of the socioeconomic well-being of rural communities, as they affect both social and economic outcomes in communities. Education levels are perhaps even more important within the confines of today's economy – an economy characterized by globalization, new production technologies, instantaneous exchange of information, and new consumer demands – as the level of education a community embodies provides clues to the types of economic and social opportunities available to community members. Now, many of the factory jobs and low-skill jobs many Americans worked for generations in the rural south are increasingly relocating to other countries in search of cheaper, more profitable labor force. Employers in the U.S. today, particularly in manufacturing, are increasingly attracted to rural areas offering pools of well-educated and skilled labor. Extractive industries, such as agriculture and mining, have historically relied on the large supply of less-educated workers available in these rural areas.

This legacy is visible today in the relatively low education levels of southern rural counties still economically dependent on these activities. Perhaps no region of the U.S. demonstrates this trend more than Mississippi's Delta region, which is heavily dependent on both farming and manufacturing for its economic survival. Rural public schools in Mississippi's Delta region have the lowest rural per-pupil expenditures on instruction in nation. This low level of local investment in education is characteristic of regions economically dominated by large-scale, land intensive agriculture activities that require extensive capital investments. Further, this type of agricultural activity provides relatively few employment opportunities. Those opportunities that are available are usually low-wage, low-skill seasonal jobs (Mason, 1992). Historically, these forces have meant more educated residents seek to leave the region in search of higher paying jobs, and that local officials have no economic incentives to invest in rural schools. Counties in the region tied to a low-skill labor force are finding shifts in production technologies and global competition severely limit the prospects for employment growth. These ties increase incidences of poverty among their residents in manufacturing as well (Economic Research Service, 2006). Mississippi's Delta region, which is tied to catfish manufacturing, has one of the lowest per capita incomes in the nation, with average per capita income just over $16,100 (U.S. Census, 2000).

Socioeconomic Well-Being, Education and Mississippi

For Mississippi's Delta region, educational attainment is a major factor in improving socioeconomic indicators such as income levels, poverty rates, and employment opportunities for the region. Higher levels of education are linked to higher levels of entrepreneurship, increased attraction of employers seeking to benefit from rural amenities and lower incidences of poverty. The public education system in the region, however, has experienced educational impediments based on the economic history of the region. Wealthy white planters seeking to maintain a large pool of workers usually drawn from the black population have paid little attention to public education. Local schools are segregated into public institutions (almost exclusively black) and private academies attended by whites. Many of the region's public schools have been on probationary status for years. Long neglected by all-white administrators intent on keeping costs down and programs to a minimum, they do not have the resources to provide students with adequate transferable skills (Walsh and Duncan, 2001); and until the No Child Left Behind (NCLB) Act, no federal legislation consistently held administrators accountable for poor performance.

Mississippi recognizes the importance of education in improving socioeconomic outcomes in its formal economic development plan. The most recent state plan, Blueprint Mississippi calls for improvements among schools which increase the number of high school graduates and student performance on test scores. The state's Public Education Forum of Mississippi is part of its economic development program. It seeks to "enhance the quality of life in Mississippi through the improvement of public education (Public Education Forum, 2006)". The Forum collects information on trends in improving public education and economic prospects throughout the nation.

Given the importance of educational attainment in terms of socioeconomic well-being and the types of economic opportunities available in the Delta region, perhaps one of the most promising education policies for Mississippi is related to research on school size and positive educational outcomes among students. Traditionally, manipulating organizational and structural size has served as a rural development policy aimed at improving socioeconomic outcomes via the consolidation of rural schools and districts. Building larger organizations has been viewed as a way to solve rural development problems through economics of scale and the incorporation of specialists and administrative professionals. Education was considered a means to cure many social ills such as crime and unemployment. It meant the development of human potential in an ideal modern society. As early as the 1800s, consolidating rural schools was thought to provide rural students with a more comprehensive and thorough education.

This economic interest in controlling organizational size is not arbitrary. Several factors led to the interest in consolidation: (Bard, Gardener, and Wieland, 2005): changes in transportation policy; industrialization of the US economy; private business interests; international competition; and economic downturns. One of the earliest influences in rural school and district consolidation was actually based in transportation policy. Massachusetts was the first state to realize the benefits of passing legislation that established free public transportation funded through taxes. In 1869, the state provided legislation creating free transportation throughout the state. With people now able to travel further distances with little or no cost to jobs and schools, the foundation for the consolidation of rural schools was set. Further, the invention of the automobile and infrastructure changes such as paving roads allowed many rural students to travel to schools closer to cities. The advent of free public transportation and the automobile ultimately mitigated the need for the one-room schools built by early settlers.

The Industrial Revolution also encouraged school consolidation. During that time it was commonly believed education, when managed as an organization using the industrial techniques of the day, was necessary for optimal social order (Orr, 1992). Because many industry techniques involved professional managers, work specialization, and centralized management, education policy reflected this scientific management approach. Policy encouraged schools to move toward an urban-influenced, centralized, standardized model of education (Kay, Hargood, &Russell, 1982). Under this system, the community-based, small rural schools were judged inefficient. According to this standard, such schools were undesirable and in need of drastic reform.

It was also within this efficiency driven system that school and district size began to be researched in order to make rural schools more like urban factories. Foremost among education reformers was Ellwood R. Cubberley. He contended, “to have a fully organized school board in every little district in a county, a board endowed by law with important financial and educational powers, is wholly unnecessary from any business or educational point of view, and is more likely to prevent progressive action than to secure it (1922:186).” Consolidation would not only improve education by dissolving the influences of “rural backwardness” that was counterproductive to an industrialized society, but also it would remove the governance of education from local, uninformed citizens to professionals in positions of higher authority such as the county or the state. Several decades later, the work of James Conant (1959) echoed the Industrial Revolution’s justification for rural school and district consolidation. He determined the most outstanding problem in education was the small high school, and that abolishing the small institutions would lead to greater cost effectiveness in education. Further, such actions would increase curricular offerings. The cost and efficiency in course offerings aspect of consolidation serves as the basis for much of the justification for closing small rural schools today.

Private businesses have also encouraged school consolidation in rural areas in search of profits. For example, bus companies looking to sell buses to rural districts were often advocates of rural school and district consolidation policies. Further, some states have used school and district enrollments as criteria for capital funding of school improvements. Bard, Gardener and Wieland (2005) recount such a policy instituted in West Virginia, where districts were required to meet enrollment levels in order to receive school improvement funds. Once small schools consolidated, schools were given funds for building improvements or rebuilding in order to accommodate the now larger enrollments.

The national political environment, both international and domestic, also influenced school consolidation. Internationally, the launch of Sputnik by the Soviets and the Cold War accentuated concerns small high schools, and especially those in rural areas, were sorely deficient in developing the human capital the United States needed to experience national security and prosperity (Ravitch, 1983). Large schools were considered much more efficient and able to prepare America's future workforce due to their professional staff, varied course offerings and cost efficiencies. Control of human capital should be centralized for the well-being of the country, and local control was secondary to national defense. As Tyack (1999:4) recounts, "The easiest way to curb to influence of school trustees in these rural districts was to abolish as many districts as possible....to consolidate them."

Domestically, economic downturns in rural areas increased the emphasis on school and district consolidation. Rural areas experienced an out-migration of population during the a period of rural economic decline between 1970 and 1980 as rural residents moved to urban areas in search of jobs. Rural public school rolls shrunk and educating students became more costly. The increase in cost created financial hardship for many rural districts, and many districts voluntarily consolidated in order to preserve jobs and curricula offerings. Additionally in the 1980s improvements in farming and agriculture technology favored large-scale farms, which drove many small farms out of business. This farming crisis as Lasley, Leistritz, Lobao and Mayer (1995) recount led to an economic decline in agriculture.

This decline started a ripple effect that eventually resulted in lower enrollments in rural public schools and the loss of more rural graduates to urban areas where work was more plentiful.

Is it Sound Policy?

Though consolidation has been the prescriptive policy for rural schools and districts, the wisdom of such policy is increasingly questioned, especially when socioeconomic well-being is considered. The implications of this questioning are important for southern rural public schools, especially in those schools in need of improved student outcomes, like those in the Mississippi Delta. When schools are closed or removed from poor rural communities in favor of consolidation, those communities experience negative socioeconomic consequences beyond the loss of an educational institution. Numerous studies site the harmful effects of closing rural schools on rural communities and rural socioeconomic well-being as well as efforts of rural communities to resist school and district consolidation efforts (Peshkin, 1978; Fitchen, 1991; Biere, 1995; Nachtigal, 1982; Luloff and Swanson 1990; Ilvento 1990; Tyack, 1999, Raywid, 1999; Funk and Bailey, 1999; The Rural School and Community Trust, 2004). Lyson (2002) conducted an in-depth examination of the economic consequences for rural communities that lost schools to consolidation. He finds rural communities without schools have larger income gaps between the rich and the poor. Poverty, especially child poverty is much greater in rural areas without schools. There are also implications for employment. Lyson notes rural communities without schools have fewer professional, managerial and executives; levels of entrepreneurship are much lower in these communities as well.

These observations about consolidation policy are part of a body of literature that explores school and district size and student outcomes. The empirical findings of this literature contradict the wisdom of the consolidation of rural schools and districts. This literature is based in the general school size literature, and it not only challenges the conventional wisdom of consolidating schools but also contends smaller schools can actually overcome the negative effects of poverty on student achievement. Research on school size in urban areas has shown poor students in smaller schools are more likely to graduate high school, perform better on standardized tests, and participate in extracurricular activities.

Rural schools, which generally tend to be smaller than urban schools and which also are more likely to serve low-income students, may be able to benefit from such research if the same relationships exist among rural public schools and the rural poor. For Mississippi, a state with one of the lowest per capita incomes in the nation, with 65 percent of its rural children receiving federally subsidized meals and with some of the lowest private property wealth in the nation, the implications of this research could have far-reaching implications for both strategies for improving socioeconomic outcomes in the poorest rural communities and school rebuilding efforts in rural communities in the wake of Hurricane Katrina. In study after study, links between student poverty and test scores, student poverty and high school completion, and school system poverty and overall school quality have highlighted the special challenges poor schools and district face in addressing scholastic achievement.

Moreover, because a higher level of education is linked with lower rates of income poverty and overall better socioeconomic well-being, students who do not complete high school stand an increased chance of facing lifelong chronic poverty.

This chance in greatly increased if the student is from an impoverished southern rural area with a poor quality education system. As Johnson, Howley and Howley (2002:4) point out, “If some simple structural aspect of the schooling mechanism could be marshaled so as ...to break this cycle, and diminish the power of family socioeconomic status (SES) in determining the academic performance of individuals, we should embrace it.” Smaller schools are increasingly being touted as the basis for rural school reform, renewed economic development efforts in rural communities, and cost effective means to overcoming barriers poor students face in graduating high school and scoring higher on state achievement tests (Rural School and Community Trust, 2004). The research on school size and student outcomes provides a basis for exploring student outcomes and development characteristics in Mississippi.

The Research Question

Educational trends in rural areas across all regions of the U.S. indicate rural Americans have attained historically high levels of education. According to the Economic Research Service (ERS), in 2000, 15.5 percent of rural adults 25 years and older held at least a bachelor’s degree, and 41. 2 percent completed at least one year beyond high school. Meanwhile, the share of adults in rural areas without high school diplomas and GEDs fell. This rise in educational attainment reflects greater access to public education and an economic transition from extractive and agricultural industries to services. On average, rural students perform as well as their urban counterparts on standardized tests. This trend, much research contends, may be attributed to smaller school size and closer ties between schools and communities smaller schools encourage. The literature on school size suggests smaller schools promote higher graduation rates and achievement test scores among many rural students (Stockard and Mayberry 1992; Walberg 1992; Rural Policy Matters November 2005; Rural Policy Matters September 2005).

However, upon closer analysis this improvement among rural students masks underlying trends in rural areas, particularly in Mississippi's Delta region. While some rural areas may benefit educationally and socioeconomically from small schools, education data from Mississippi suggests rural schools located in the Delta may function differently. Mississippi's Delta region has a much higher proportion of its residents living in poverty than most other rural regions in the country; and high schools in the region appear to have lower graduation rates and below average student test scores especially in smaller rural schools (Mason, 1992; Jones, Thornell and Hamom, 1992; American Progress, 2005; Rural and Community Trust, 2005).

In Mississippi, the Delta region is defined by its poverty and low educational attainment, and many indicators of socioeconomic well-being reflect this link. Overall, the largely rural state of Mississippi ranks last in both reading and math proficiency among grade school students (American Progress, 2005). The state has 220,845 public school students, and 45 percent of the state's students are enrolled in rural schools (Rural and Community Trust, 2005). The state has 152 school districts, of which, nearly 60 percent are considered rural (National Center for Education Statistics, 2006). Among rural students, over 65 percent qualify for free or reduced lunches, and nearly 20 percent of students live in poverty. The state ranks 50th in per capita state income. Jones, Thornell and Hamon (1992) examined educational attainment in the Delta and cite four major forces influencing educational trend in the region (91-92):

1. Traditionally the Delta region has depended heavily upon slave labor, and, later in its socioeconomic history, cheap labor, to run large plantations and factories. As agriculture mechanized, many of these job opportunities were lost, leaving a largely undereducated workforce in the region.

2. The poverty in the Delta has been addressed at the federal level by many public welfare policy programs. However, these programs usually have qualifications that limit participation based on income. While early federal support for farms and impoverished families improved conditions in the Delta for a short period of time, the heavy dependence on federal support programs has meant lower education levels in the region in the long run.

3. Federal efforts to integrate public schools have resulted in the flight of many wealthier white families to private schools. This flight has weakened community support and financial support for public schools.

4. The poorly supported school system and an economy dependent upon agriculture and manufacturing has resulted in the flight of younger, more educated individuals from the Delta in search of better jobs and increased social opportunities not available in the region.

Generally, the higher the level of poverty in a school, the more poorly students perform on standardized achievement tests. Further, students with lower scores are less likely to graduate high school or find employment. However, the research on school size and student achievement suggests smaller schools may contribute to diminishing the effects of poverty on student outcomes. Data from the Delta region contradicts the literature. For example, the most recent schools designated by the state as priority schools are located in the state's poorest region -- the Mississippi Delta. Schools on the priority list are designated by Department of Education administrators. Those ranked at Level 1 are the lowest-performing on state standardized tests. Of the priority schools in 2005 on the state list, all were small schools, ranging in size from 29 to 222.[1] Additionally 75 percent of priority schools were located in the Mississippi Delta. Comprehensive studies of Delta schools show the region has the smallest public school sizes and district enrollments in the state, which seemingly contradict the findings in the literature on school size, poverty and school performance. For a state seeking to improve its educational levels and socioeconomic outcomes school size alone may not be sufficient to improve student outcomes. Given the relationship between socioeconomic well being and education, could socioeconomic indicators provide insight into how school size affects student outcomes?

The purpose of this study is to examine school size based on a Mississippi's socioeconomic and educational histories. Using the state as a case study, this analysis will examine school size at the high school level and at the district level with particular attention to student outcomes in the state's most impoverished rural area, the Delta region. School level and district level models incorporating size, institutional characteristics, and county-level socioeconomic characteristics will be used to examine school size and its role in influencing the student outcomes of high school graduation rates and the percentages of high school students who pass state level achievement test scores.

High schools are particularly important in the development of rural areas as many studies have demonstrated that improving high schools can enhance the socioeconomic well-being of rural residents and communities (Gibbs, 2005). The county level is appropriate for this research as schools in Mississippi are controlled by education boards at the county level. Counties levy and collect property taxes

---

[1] School size is commonly determined in the scholarly literature by dividing the total school enrollment by the number of grades in the school.

which are used to fund schools. Districts are often created and recognized at the county level in Mississippi as well.

Investigating school size has critical implications for the socioeconomic well-being of rural areas. One feature of the current economic environment is its shift from industrial jobs to service jobs. Although many service sector jobs are high skill and pay well, rural areas may lack the density of population and infrastructure to attract those jobs. As a result, the rural service sector would generate more low-skill service jobs, which usually do not pay well. Gibbs, Kusim, and Cromartie (2005) conducted an extensive study of rural areas. They found this type of low-skill service employment is most prevalent among rural Black women – the largest demographic group in the Mississippi Delta. With increased high school completion levels in rural areas, these areas are more likely to attract or retain higher paying service jobs. Further, education is also associated with higher levels of entrepreneurial success, especially at the high school level (Economic Research Service, 2005; Lyson, 2002; Aldrich and Kusmin, 1997). Entrepreneurship is especially important for isolated rural communities unable to compete for large manufacturing firms in the current economic environment. Understanding school size particularly at the high school level may provide insight into entrepreneurial policies for Mississippi Delta rural communities.

This research asks: Why does school size seemingly play a different role among Mississippi's public high schools, and particularly in the Delta region? Further given the relationship of educational attainment and socioeconomic well-being it poses a related question: Which factors related to socioeconomic well-being are likely to influence student outcomes?

Current conditions in Mississippi's public education system and the state's economic opportunities are shaped by the state's historical treatment of educational opportunities and socioeconomic choices. By examining factors related to the socioeconomic and educational histories of the state this study examines school size and the environment in which it must function. It extends the current body of knowledge on small schools with regard to student outcomes, and it contributes to the understanding of policies that recommend school size as a prescription for improving student outcomes in impoverished communities.

The socioeconomic characteristics of the state possibly contribute to student outcomes that eventually influence the success of economic development efforts. Gjelten's (1982) rural school typology, for example, demonstrates the relationship between schools and socioeconomic outcomes. He contends rural schools have special economic and social ties to rural communities and that they are different from urban schools. Based on these relationships, he recognizes five types of relationships: high growth, reborn, stable, depressed, and isolated. High growth schools are rural schools greatly influenced by the social and economic dynamics occurring in cities due to their close geographic location to urban areas. Reborn rural communities are those saturated by city residents seeking to escape congestion, crime, polluted environments, and other perceived negative aspects of city life. Stable rural communities are still influenced by urban areas, but maintain their "ruralness" while keeping up with national trends. The stability of their economies allows a symbiotic relationship between rural amenities such as hiking trails and urban economic benefits such as diverse market activities. Depressed rural areas have underdeveloped local economies, and residents often leave these areas in search of economic opportunities in less rural places. Lastly, isolated rural communities are those far removed from transportation and commerce centers. High proportions of their populations live below federal poverty standards, and these communities are heavily dependent upon mining, sharecropping, seasonal workers and retirement incomes for socioeconomic well-being. These communities are the most likely to suffer from population and economic decline.

To comprehensively examine the research question, several scenarios with high school size, district size and socioeconomic characteristics must be addressed. Using data from districts, schools, and socioeconomic data from the Mississippi Delta counties and surrounding counties, the analysis addresses the following questions:

1. Which student outcomes are affected by the size of Mississippi's public high schools? Is there a significant difference between the student outcomes of Delta high schools and schools in other parts of the state?

2. Which socioeconomic characteristics may also influence student outcomes among the state's public high school students?

3. Which student outcomes are affected by the size of Mississippi's districts? Is there a significant difference between the student outcomes of Delta districts and districts in other parts of the state?

4. Which socioeconomic characteristics may also influence student outcomes among the state's public high school students at the district level?

School size, district size, student outcomes, and socioeconomic well-being may be defined in a number of ways. The Mississippi Delta region may also be described in a number of ways, given its multi-state location and geographical characteristics. In this study, these concepts are defined as such:

School size is defined as the number of students enrolled in a school per grade. To calculate school size, the number of students enrolled in a school is divided by the number of grades in a school. This definition is the common metric used in most of the scholarly work on school size, and it controls for different configurations of schools which may influence the allocation of school resources.

District size is defined as the total number of enrolled students in a district. This definition is the common metric used in the scholarly research on school size.

Student outcomes are measured in two facets. First, student outcomes are measured by the percentage of students who receive passing scores on state-level standardized tests. Second, student outcomes are measured by high school graduation rates. These measures are commonly used to measure student achievement. They further serve as one aspect of the evaluation of school performance under the requirements of the No Child Left Behind Act of 2001 (NCLB) and Mississippi's state law based on the NCLB legislation. These measures deal with the quality of human capital in an area by affecting adult high school completion rates and potentially the number of college-educated individuals in an area. In terms of education, these measures may give clues to the quality of educational institutions in an area as evidenced by the student performance. Both of these aspects in turn are related to socioeconomic well-being.

Socioeconomic well-being is a measure of the economic and social characteristics inherent in county-level demographic characteristics in Mississippi and its Delta region. Generally, a county's geographic context has a significant effect on its social and economic opportunities. Social and economic opportunities accrue to a place by virtue of both its size and its access to larger economies. Access to larger economies—centers of information, communication, trade, and finance—enables a smaller economy to connect to national and international marketplaces (Economic Research Service, 2005). Because much of today's economic activity is based on interactions of communication, technology and trade, the allocation of economic resources throughout rural areas may differ by access to such marketplace activities (Barkley, 1995). In Mississippi, being located in the Delta region has implications for socioeconomic outcomes based on these aspects of place, such as the types of employment opportunities; distribution of race; level of income, and the composition of households. These attributes may affect the overall quality of life available to residents who live in the region.

While Gjelten's typology is useful in describing rural places, it does not adequately provide a measure for empirically capturing socioeconomic characteristics in the Mississippi Delta. Socioeconomic well-being may be measured in a variety of ways in terms of health, income, race, location or other factors. However, this study limits such indicators to measures suggested by Mississippi's socioeconomic and education histories. A host of variables will be used to capture socioeconomic well-being: per capita income, adult population with high school diplomas, poverty rate, percentage of Blacks in the county population, farm subsidy payments, public welfare payments, and percentage of female-headed households.

*The Mississippi Delta***,** broadly defined, is an alluvial plain that begins at the southern portion of Illinois and ends in Louisiana where the Mississippi River empties into the Gulf of Mexico. The region is most commonly thought of as described by writer David Cohen in 1935, "beginning in the lobby of the Peabody Hotel in Memphis Tennessee and ending on Catfish Row in Vicksburg Mississippi." In this study, the Delta region refers to the portion of the alluvial plain that lies in the northwest portion of Mississippi between the Mississippi River and the Yazoo River.

It completely includes about 18 counties and parts of four additional counties that share a common economic history with the region (See Appendix II for Delta counties).

Significance of This Research

Examining school size has implications for education policy and for economic development strategies concerned with improving socioeconomic outcomes. Such implications are particularly important for poor rural counties in the Mississippi Delta. Various bodies of research collectively demonstrate poverty's connection with student achievement test scores and graduation rates. Little is known, however, about whether poverty acts alone or if location may exert a significant influence when poverty is present.

Investigation of location and socioeconomic resources will begin to answer many of the questions about how place affects student outcomes. This research also contributes to the research on smaller schools. While many studies suggest smaller schools contribute to positive student outcomes, these studies have focused on schools with a size of at least 300. These findings may not be generalizable to schools smaller than this, and previous studies suggest schools smaller than a certain size may actually harm students (Lee and Smith, 1997). Because Mississippi's schools tend to be smaller than the ranges covered in previous studies, especially in the Delta region, this study will enhance knowledge on schools even smaller than those mentioned in the literature.

The current education policy environment under the No Child Left Behind Act (NCLB) legislation places a premium on the achievement of students in impoverished public schools. Those schools that do not perform well face costly sanctions ranging from the mandatory provision of supplemental services to losing its status as a public school to losing federal funding. For poor schools working with fewer resources and larger populations of impoverished students, the requirements of the legislation can pose great challenges. These challenges are multiplied for impoverished rural schools that must also account for higher costs associated with providing busing and other school services to students spread across a vast geographic area. Understanding school size in Mississippi's rural context may provide greater insights into the kinds of education policies that will be helpful in improving the performance of poor, rural public schools in regions similar to Mississippi, such as the Black Belt region in Alabama, the Lowcountry regions of South Carolina and Georgia, and the Delta region of Louisiana. Understanding this relationship may also benefit those impoverished rural communities that will rebuild schools destroyed or damaged by Hurricane Katrina. Such analysis may further contribute to the dialogue on the usefulness of consolidation policy as a remedy for rural schools.

There are also development implications for this research in terms of improving socioeconomic outcomes. Low educational achievement is associated with a low-wage economy and a less stable labor force. While many of Mississippi's rural Delta counties depend heavily upon manufacturing firms for economic well-being, such firms still favor those areas in the state with higher education levels. For the state's rural areas not able to attract and maintain such industries, development efforts that emphasize rural entrepreneurship and small business development may be more effective than seeking to attract firms when it comes to improving socioeconomic outcomes. However, the successful efforts in this regard are still usually found in areas with relatively high education achievement levels.

Understanding school size in rural areas may provide clues to strengthening the educational achievement of the state's public school students, including those in the poorest Delta counties. An improved understanding may serve as a foundation for improved outcomes of rural entrepreneurship efforts and the development of small businesses in Delta communities not likely to attract new industries.

The Mississippi Delta is largely rural and composed of many geographically isolated areas. These counties are the most likely to be left behind economically. Should these counties attract businesses, they are likely to be low-skilled, low-paying activities. In order for these areas to survive in the current economic environment, they must capture larger shares of higher-skilled job opportunities. They must further find ways to develop entrepreneurship activities in the region (Barkley 1995). Understanding how student outcomes are affected by school size and socioeconomic factors will greatly support such development efforts aimed at improving socioeconomic outcomes in these areas.

Mississippi is one of the most impoverished states in the nation. Thus, the state must be selective about the strategies it pursues in seeking economic opportunities. Education reformers, think tanks, research institutions, and economic developers nationwide are giving increased attention to school size as an effective, cost-efficient way to improve student outcomes, and ultimately socioeconomic outcomes. However, as Deborah Meier, one of the first school size reformers and researchers points out, "Smaller schools are a strategy, not a panacea (Mendez, 2004)". For Mississippi a rush to create smaller schools may not be the answer to its development challenges. This study, by focusing on Mississippi and its Delta region, more comprehensively examines school size, and it may provide input to those seeking to use school size as a development strategy for the state.

This analysis aims to identify the specific socioeconomic characteristics and school/district sizes that will improve student outcomes in the state. However, before analysis, it is important to present a historical discussion of Mississippi's public schools, as doing so greatly informs the distribution of economic resources used to support schools as well as the importance of including certain high school characteristics in this study.

CHAPTER TWO
A HISTORY OF PUBLIC SCHOOLS IN MISSISSIPPI

This study incorporates high school level characteristics of public schools, purported to influence student outcomes. Mississippi, however, has a unique provides insight into how these characteristics may function alongside school size. Though consolidation is more recognized as a policy prescription for improving socioeconomic outcomes through rural economic development, it first came to urban areas via reformers who sought to fight political corruption and to increase American economic prosperity. Central to this sentiment was a focus on targeting the poor as well as a concentration on teaching subjects useful to the potential American workforce. This view of education eventually became known as the Progressive movement, and Mississippi's public school system developed quickly during this era. John Dewey, a former educator and professor, was one of the most influential Progressive reformers. Dewey believed education should reflect life "as vital to the child as that which he carries on at home, in the neighborhood or on the playground (Webb, Metha and Jordan, 2000)." He believed education was a lifelong process and that school should be an integral part of community life – schools could advance society. The Progressive school movement espoused the following principles (Ravitch, 2000: 60):

1. Education is a science, and the methods and results of education can be precisely measured.
2. The methods and ends of education can be derived from assessing the innate needs and nature of the child.
3. The proper approaches and outcomes of education can be determined by assessing the needs of society and then fitting the students for his or her role in society.

4. Education can effectively reform society and rid society of crime, poverty and other vices to address those needs.

The earliest research literature about consolidation comes from a period prior to 1925 (Bard, Gardener, and Weiland, 2005). Common justifications for building larger schools and closing smaller ones were administrative and instructional. During that time, such policies sought to administer education in the same efficient manner factories used to mass produce goods and services during the on-going Industrial Revolution. Authority was concentrated among trained professionals and taken from local community-based entities. Professionalization was seen as a cure for corrupt urban school systems and for underdeveloped rural areas left behind in the modern, industrialized machine age. These benefits, however, could only be realized through large school size.

The urban push to overcome corruption and improve society through efficient use of public resources had more sweeping effects on rural areas. Initially, these policies led to diametrically opposed suggestions about school size in rural areas. These two perspectives are based on the work of two leading reformers: Ellwood Cubberley and Joseph Kennedy. Cubberley's work ultimately exerted the most influence on subsequent 20th century school reform. At the time they wrote, (around 1915) , America was still a mostly rural domain. Cubberley was a leading professor and former urban superintendent; he and his colleagues were engaged in an important urban project--creating schools for swelling, diverse urban populations in a quickly industrializing America. Cubberley (1922) championed rural school consolidation. He cited three arguments against small schools (Berry, 2004). First, many small schools had only one teacher; the ratio of administrators and school officials to teachers was superfluously high. Such administrative configurations were inefficient. Larger schools, on the other hand, would allow for more efficient centralized administration. Schools and districts could be led and supervised by professional education administrators, whose presence would exert the influence of informed opinion and scientific knowledge in rural communities. Second, small schools often clustered students in one classroom, regardless of grade level. According to Cubberley, students could be more efficiently taught through specialized instruction by both grade and subject area. Third, larger schools could realize the economies of scale in administration, instruction, and facilities that eluded inefficient small schools. Longer school terms could be held; transportation could be provided, and rural-appropriate curricula could be consistently offered to farm children. As Howley (1996) notes Cubberley's rural agenda placed a premium on large school size. In essence, the question Cubberley posed was "How large a school can be created?"

Joseph Kennedy was dean of the school of education at North Dakota State University. His 1915 book, *Rural Life and the Rural School*, was an ethnographic examination of rural areas and based largely on his own experiences in rural areas. Kennedy's question about size differed sharply from Cubberley's. His underlying question, Howley (1996) explains was this: "What is the lower limit of school size?" He wrote, “It might happen, as it frequently does, that a school is already sufficiently large and active, and enough to make it inadvisable to give up its identity and become merged in the larger consolidated school. If there are twenty or thirty children and an efficient teacher we have the essential factors of a good school (Kennedy, 1914: 64).” His work, though not explicitly recognized as the progenitor of the current school size research, did have secondary role in the development of the literature on school size that was to come much later – it questioned the merits of consolidation.

The impact of consolidation, as Strang (1987) noted, centralized education in two respects. First consolidation removed daily authority of education from the school community to more distant education bureaucracies at the township, county and state level. Second, state governments became more powerful in consolidation policy. Professional educators from state departments of education often organized initiatives to broaden state control over school accreditation, curriculum, and teacher certification through consolidation policy.

These changes in education policy were met with opposition, especially in rural areas where the school was the central institution of the community. Before consolidation, rural schools were typically the "key neighborhood institution binding neighbors and linking them to the larger social and cultural world around them (Reynolds, 1999:61)." The loss of schools through consolidation was deemed a threat to economic vitality, and local rural communities rarely initiated consolidation efforts themselves. State governments often induced consolidation through fiscal incentives or forced consolidation by redrawing district boundaries (Hooker and Mueller, 1970). Some rural communities even participated in "defensive consolidation", where districts rushed to consolidate in anticipation of a state-mandated forced consolidation (Reynolds, 1999). By end of World War II, Progressive movement ideology was firmly entrenched in the American school system, and the consolidation of rural schools continued.

Mississippi and the National Schooling Environment

Mississippi's public schools developed against a national backdrop of using school size to improve rural development opportunities. Prior to the Civil War, schooling of Mississippi's children was the responsibility of private schools and academies. These institutions were funded from state land sales, private donations, and student tuition. It was not until 1821 the first free school in Mississippi was established for boys in Columbus, Mississippi. Like its predecessors, this academy was created for the education of affluent children. Unlike schools that would be created later in the state's history, the school was small.

Middle class whites, poor whites, immigrants and slaves received no formal education. The Mississippi Constitution of 1868 was the first piece of legislation to mandate free public education for all children, regardless of race. Two years later enabling legislation created districts and the posts of county superintendents appointed by an elected State Superintendent of Education. Schools were funded with state-owned land sales, excise taxes on alcoholic beverages, military exemption fees, and donations from public and private entities.

Race, however, soon proved to be the demise of the state's school system. While the integration of schools was not directly addressed in the Constitution of 1868, members of the Ku Klux Klan took violent actions against blacks who tried to attend state schools. Public school buildings and teachers were often the target of vandalism and intimidation. By 1885, the state implemented massive cuts in public school funding, and many schools could barely function well enough to serve its students. Still in 1886 a new Democratic-run administration and state superintendent revised the state's education code to raise standards for teachers and schools. Teacher salaries were based on size, and the education of blacks was nullified.

By 1890, the Democratic Party dominated Mississippi's political arena. The Constitution of 1890 explicitly segregated the state's schools. It still called for the use of public funds to support black education institutions. While many whites saw this as a necessary evil, many more sought to circumvent funding laws. As such, funds earmarked for black schools were often given to white schools. Black schools often suffered structurally, and black teachers had lower salaries. These inequalities led to blacks being double taxed (they were assessed state taxes and then donated to the upkeep of black schools in their communities) and to increased dependence upon northern missionary groups and philanthropy to fund schools ("Giving Voice to a Shared Past", 2006).

The Progressive Movement was characterized by its push to use government to create social, economic and political change in the nation. In Mississippi the movement was implemented within a political system dominated by notions of white supremacy and intentions to secure a low-cost black labor force for the state's prosperous Delta region. James K. Vardaman, then governor of the state expressed the sentiment of the time in an editorial in a Delta newpaper, the *Greenwood Commonwealth* (June 30, 1889):

> In educating the Negro we implant in him all manner of aspirations and ambitions which we then refuse to allow him to gratify. . . . Yet people talk about elevating the race by education! It is not only folly, but it comes pretty nearly being criminal folly. The Negro isn't permitted to advance and their education only spoils a good field hand and makes a shyster lawyer or a fourth-rate teacher. It is money thrown away.

Nevertheless, educational strides were made for all schools, including black schools under Vardaman. State Superintendent of Education Henry L. Whitfield identified teacher quality as a major focus for policy in Mississippi. Though he closed the only black teacher's training college, he opened training institutes across the state that conducted trainings during the summer months. Both black and white teachers attended these institutions and received training. Agricultural high schools were also created during this time to meet the needs of rural communities. From 1900-1929, approximately 90 percent of the state's children lived in rural areas, and Whitfield sought to combine the day's modern agricultural and farming techniques into high school curricula to make rural life more productive and attractive. By 1910 districts could create two agricultural high schools – one for black students and one for white students. By 1926, 48 white agricultural high schools existed while one black agricultural high school was in operation.

The impact of the movement was most evident in the state's school facilities. The majority of Mississippi's schools were one-room, one teacher schools without proper heat, water or equipment. Further, compulsory laws mandated children living within 2.5 miles of an institution attend school. Under the auspices of the Progressive Movement and Whitfield's leadership, the state began to consolidate smaller schools into larger permanent and more modern facilities. By 1926, only four black high schools remained in the entire state while white schools grew larger and more modern. Since black children outnumbered white children, this also meant black tax payers ended up funding the construction of white public schools. In response to growing inequalities and consolidation, blacks in the state organized and petitioned the state to divide education funds according to race, which would allow blacks to receive the full share of taxes they paid toward public education. The state denied blacks their tax monies, but it did accept funds from northern philanthropists. Whites were also impacted by the consolidation, as the majority of the state's children in rural areas lived miles away from consolidated schools and were exempt from school attendance. The state struggled through the Great Depression and World War II. As soldiers returned from the war, black servicemen sought to expand the rights of blacks in Mississippi. As the 1940s drew to a close national events regarding school segregation laws were in the sights of civil rights advocates.

The Decline of the Progressive Movement

The 1950s marked the decline of Progressive education and the introduction of national legislation to end segregation. During this time, discontent with American schools was growing, and the Progressive Movement began to face serious challenges from the public, captured in two landmark events. First, black Americans, tired of the substandard conditions of segregated school systems buttressed by the *Plessy v. Ferguson* decision of 1896 that mandated schools to be "separate but equal", challenged the American public school system. In 1954 the U.S. Supreme Court prohibited state-imposed racial segregation in public schools via the *Brown v. Board of Education* decision. Nevertheless, black students still received substandard education. Schools in the South violently resisted segregation, while northern public schools deteriorated as white residents moved out of cities and into the suburbs.

In Mississippi, the outcome of *Brown* had been anticipated. The state took steps to demonstrate it had indeed honored the "separate but equal" law overturned by the *Brown* ruling. In an effort to secure segregation, Governor Hugh White proposed a voluntary segregation plan in 1953 which called for increased construction of black schools and increases in black teacher salaries. Black educators and civil rights advocates rejected the proposal, sighting the existence of separate facilities. Following this rejection, the state amended the constitution to allow the closing of all public schools as last resort in the event federal courts called for Mississippi to end segregation. Five separate law suits challenged desegregation in districts in the state's capital. The first was *Singleton v. Jackson Municipal Separate District*, in which parents sought to stop desegregation in the state's capital. *Holmes v. Alexander* finally settled the matter of desegregation in the state by selecting 30 districts for segregation and mandating schools desegregate with all deliberate speed.

Two years after the *Brown* ruling Mississippi still sought to maintain segregated schools. James P. Coleman was governor, and he was elected on the promise of keeping schools segregated. He created the State Sovereignty Commission which helped him keep his campaign promises. The commission was budgeted $250,000 to develop a network of investigators, spies, and informants to keep the state abreast of those who threatened segregated schools. With the election of Ross Barnett in 1906, the commission became a tool of the Citizens Council, a white supremacist group whose members filled the roles of investigators and informants to the commission. Between 1960 and 1964, the commission gave the Council nearly $200,000 in state funds ("Giving Voice to a Shared Past", 2006).

The state also began closing black schools and using the savings to sponsor scholarships for white students to attend private schools being created rapidly. This practice was ruled unconstitutional in 1969, when a federal court found the program fostered the creation of private segregated schools and supported the establishment of schools operating on a segregated basis as an alternative to white students seeking to avoid public desegregated schools. After a series of lawsuits, appeals and rulings, *Singleton* was finally settled when the court ruled the merger of student bodies of racially segregated schools within the same district must be completed by February 1, 1970. By the end of 1970, schools in Mississippi had been desegregated. However, while the state settled its segregation conflicts, the national level brought new challenges to public school environment in which the state now had to function.

On the national level the launch of the *Sputnik*, the Soviet space satellite, served as a symbol of the lack of quality in American school system (Friedman, 2004). In 1958, the National Defense Education Act called for federal aid for school construction and for funding for math, science and foreign language curriculum support. Preserving American ideals, overcoming domestic poverty and competing on a global scale were now exclusively tied to education. Further, a flurry of publications caught the attention of policymakers and education policy researchers. Hyman Rickover highlighted the shift in the role of public schools in society in his 1959 book, *Education and Freedom*:

> Life in a modern industrial state demands a great deal more 'book learning' of everyone who wants to make a good living for himself and his family... the schools must now... concentrate on bringing the intellectual powers of the child to the highest possible level. Even the average child now needs almost as good an education as the average middle and upper class child used to get in the college preparatory schools (Ravitch, 2000).

The end of the Progressive Movement did not end consolidation efforts, however. School consolidations actually increased, due largely to the work of James Conant. In his 1959 book, *The American High School Today*, he argued small schools, like the ones in rural areas, were not able to adequately provide the diverse curriculum needed to meet the needs of American high school students. The small high school, according to Conant, was the number one problem in education, and its abolition should be a top policy priority. The best schools, Conant maintained, were large comprehensive schools that could provide the array of course offerings needed to improve American high schools. In order to realize the cost effectiveness of large high schools a secondary school had to have at least 100 students in its graduating class.

New Directions

The implications of such work had far-reaching effects at the national level. As Berry (2004) recounts, the number of public schools grew from 116,000 in 1869 to 217,000 in 1920. The number of schools then declined rapidly until approximately 1970, when the pace of decline slowed. The number of schools reached a low point in the 1980s, numbering close to 83,000 schools. Since then, this trend has reversed slightly, adding approximately 10,000 new schools. Parallel with the declination of the number of schools was the decline of the number of schools districts. Though many states did not keep count of districts before 1930, the 1931-32 edition of the *Biennial Survey of Education* was the first to report statistics of districts in each state (Berry, 2004). The number of districts fell by 50 percent between 1931 and 1953, as over 60,000 districts were dissolved by consolidation. The number of districts declined by half again between 1953 and 1963, and declined once more by half by 1973. Unlike the slight increase in the number of schools, the number of districts stabilized in the early 1970s and has not changed significantly over the last 30 years (Berry, 2004).

During the 1960s, some educators began to question the wisdom of large-scale schooling. Barker and Gump (1964) concerned with the possible advantages of small-scale schooling, conducted an exhaustive study of a sample of small high schools in Kansas. They conclude small high schools offered students greater opportunities to participate in extracurricular activities and to exercise leadership roles. Although this study did not enjoy large-scale influence at the time, it did serve to keep interest in small-scale schooling alive during a time when educational thinking viewed small scale as a disadvantage.

The prominence of this study increased, however, during the urban crises of the late 1960s. Educators were concerned by the poor performance, particularly the poor academic performance, of students in large urban schools and districts. It was also during the 1960s educating the poor became an explicit policy goal of the American education system at the federal level. In his 1964 State of the Union address, Lyndon B. Johnson declared a war on poverty. Central to the war on poverty were programs intended to strengthen public schools, particularly those in poor areas. In 1965 Johnson signed into law the Elementary and Secondary Education Act of 1965 (ESEA). The Act contained five sections, of which the most relevant to impoverished urban areas was Title I. Title I was created to give schools with the highest concentration of poverty the funds to provide special aid for students at risk of educational failure or those students whose academic performances were below satisfactory levels. Title I also created the Head Start program, bilingual education programs, guidance and counseling programs and reading and instruction programs. This legislation was the largest infusion of federal funding for public schools, channeling approximately $1 billion into poor districts.

Title I did not quell the growing discord among critics of large public schools, however. Private school teacher John Holt (1964) published *Why Children Fail*, which highlighted the unsatisfactory outcomes of public school tests, grades, curricula and other aspects of public schooling. Teacher Jonathan Kozol, in 1967 offered *Death at an Early Age,* which featured appalling school conditions, unresponsive school administrators and poorly trained teachers in Boston public schools. These publications reflected an ever-growing dissatisfaction with public schooling, and in the 1980s this discontent culminated into a landmark publication, *A Nation at Risk*.

A Nation at Risk

In 1983, debate over education was in full swing. President Ronald Reagan appointed scholars and bureaucrats to the National Commission on Excellence in Education. The Commission published *A Nation at Risk*, and predicted a massive educational catastrophe if public schools were not reformed, “if an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it an act of war.” The report cited four aspects of schooling in need of reform including content, expectations, time and teaching. *A Nation at Risk* described current high school content as “homogenized, diluted, and diffused” to the point it was a “cafeteria-style” curriculum. The report asserted expectations for student achievement had been weakened by grade inflation and lax promotion policies. The study found also American students spent less time in school during the day than their international counterparts. Further, the report claimed standards for teachers were slipshod, as achievement scores for potential teachers was low. To combat the shortcomings of the schooling in the United States, *A Nation at Risk* recommended the standardization of high school graduation requirements: four years of English; three years of math; three years of science; three years of social studies; and a half year of computer science. All of these recommendations were most conducive to large schools, which policy now assumed was the best direction in terms of school size. State and local governments continued to prescribe consolidation as a means of reform in areas with small schools. The consolidation of these schools was seen as the first step to combating the problems highlighted in *A Nation at Risk*.

Mississippi, thought just settling into its newly segregated school system, was one step ahead of the nation in 1980s. The New Economy was beginning to pick up speed and economic development strategies to improve educational outcomes began to take center stage in the state. However, the public education system was thought to be a major barrier to development in the state (Emmerich, as recounted by Mullins, 1992):

> ... Mississippi's greatest problem is not its economy. It is ignorance. Until we can overcome the liabilities thrust upon our people by poor educational backgrounds or, for a large segment of our people, no schools at all, we will not wipe away the veil of ignorance.

Four months before *A Nation At Risk* appeared, Governor William Winter introduced the Education Reform Act of 1982 in a special legislative session. Winter had tried twice to get such legislation passed; however, the state legislature refused to allow for financing of the education measures (Mullins, 1992). In December of 1982, the Act finally passed along with the funding to implement it. The Act was the most significant law relating to education in the state's history. It served as a national model for other states seeking to reform their public schools. The legislation further marked an end to the legislature's seeming indifference towards public education since the integration of schools a few years earlier. The Act called for a uniform state curriculum to produce consistency in educational instruction; a school improvement plan to make schools more effective; public kindergartens; a stronger compulsory attendance law; higher teacher pay and effective staff development programs. Though the legislation applied to all public schools in the state, kindergartens were the centerpiece of the Act, and they became the symbol of the legislation's impact on Mississippi schools (Mullins, 1992).

The Changing Economy and GOALS 2000

As the economic environment of the 1980s and 1990s brought rapid changes in technology, communication, marketing, and manufacturing, schooling standards gained increased attention from politicians, the business community, and educators at the national level. Though reform efforts came from many sources, the teaching community was the most vocal. By 1989, the efforts of the largest teacher's union, the American Federation of Teachers, caught the attention of President George H.W. Bush. The efforts continued when Arkansas governor Bill Clinton became president in 1992, and in 1994 Bush and Clinton's efforts culminated into the Goals 2000: Educate America Act.

The Goals 2000: Educate America Act of 1994 encouraged states to develop challenging standards for students. The legislation provided grants for states, schools and communities to create their own approaches to improving student achievement. The Act promoted flexibility at the state level by allowing the U.S. Secretary of Education to relax or waive certain regulations for schools participating in school improvements. The legislation brought into law eight explicit goals for the national education system by the year 2000, including school readiness; school completion; student achievement and citizenship; teacher education and professional development; mathematics and science; adult literacy and learning; safe disciplined, and alcohol and drug-free schools; and parental participation. The Act established a National Education Standards and Improvement Council to examine and certify national and state curriculum content, student performance, opportunities for learning, and assessment systems: all information was voluntarily submitted by states. Mississippi's Reform Act had taken effect alongside GOALS 2000, and the state still led the nation in its reform efforts (Mullins, 1992).

Though comprehensive, GOALS 2000 only existed for a brief period. Its impact at best served to set the policy stage for the current education policy environment. Friedman (2004) chronicled how supporters of the legislation point out climbing graduation rates, the bipartisanship used to create the legislation, and improvement in professional certification and development for teachers. Opponents of the legislation described it as an "overly ambitious" piece of legislation that failed to bring out intended change. Nevertheless, low achievement rates on proficiency tests, especially among poor students, continued under GOALS 2000, just as under preceding education reform efforts that promoted school consolidation.

Mississippi continued to increase its efforts to bring jobs and increase technology in the state. Catfish factories and casino gaming began to dominate the state' development opportunities. The state also sought to preserve its current economic opportunities in the form of low-wage jobs and to become more active in the now global economy. Prominent on the state's list was improving the educational system and making students more productive by reducing the number of districts with a target of no more than one district per county (this meant the state would decrease districts from over 150 to 82); and supporting the accountability and reward standards developed in the expansion of the 1982 Reform Act (Task Force Report, 1999).

When George W. Bush took office in 2000, he announced plans for the No Child Left Behind Act (NCLB), which he described as the "cornerstone of his administration." The legislation explicitly targeted the poorest, lowest achieving students, those being “left behind.” Less than a year after Bush took office, NCLB was approved with bipartisan support. NCLB was the first major legislation passed under Bush’s administration.

The legislation updated 1965’s ESEA. Under NCLB Title I assessments were expanded, including mandatory state report cards. The state report cards included information on student outcomes by race, ethnicity, gender, disability status, English proficiency, and socioeconomic status. Further, all states were required to implement standards-based reading and math assessments for students in grades 3 through 8.

NCLB directly affects Mississippi as it ties school funding and administrative control to student performance on standardized tests and graduation rates. From a socioeconomic well-being standpoint, public education plays a major role in the state’s development plan. The plan calls for increasing efforts to improve educational outcomes for students in the state. By 2015, the state seeks to rank first among southern states in high school graduation rates (Blueprint Mississippi, 2004).

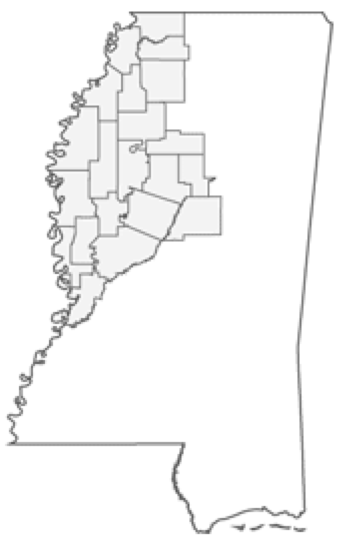
Mississippi’s public schools developed within a context that distributed resources based on race, and often prescribed consolidation as a means of closing rural, predominantly black schools in favor of more modernized schools intended to serve predominantly white student populations. The next chapter presents a socioeconomic history of Mississippi with particular attention to its Delta region that provides an additional context for understanding the environment in which public education institutions function. Poverty is an obvious characteristic of the region, but there are other socioeconomic factors, such as the distribution of racial groups and federal programs meant to address poverty which may exert powerful influences on student outcomes.

That the public school system was so heavily influenced by racial undertones suggests the issue of race may capture many socioeconomic influences of student outcomes, which may be measurable, such as local per pupil spending or implied, or it may capture influences not easily measured, such as the effects of poor resources on student outcomes. The next chapter provides a backdrop for understanding the unique mix of socioeconomic characteristics which characterizes the poverty, racial dynamics and current economic activity in the state.

CHAPTER THREE
A SOCIOECONOMIC HISTORY OF THE MISSISSIPPI DELTA

The Good Earth

The socioeconomic history of the plantation-based agricultural economy that characterizes Mississippi's Delta region is critical to understanding the forces that have shaped the current economic opportunities in the state and the racial dynamics still present in the state today. The policy choices made in order to preserve the vast amount of wealth initially realized by investors in the region is one that has influenced the region socially, economically and geographically.



Geographically, the Yazoo portion of the Mississippi Delta is diamond shaped and approximately 200 miles long and 70 miles across at its widest point. It is the result of centuries of flooding and sedimentation by the Mississippi River and its tributaries the Tallahatchie, the Yalobusha, the Coldwater and the Sunflower. Originally, the region was a lush rainforest of several types of trees: cypress, tupelo, sweet gums, sycamore, poplar, pecan, walnut, maple, hickory, hackberry, black gum, cottonwood, honey locust and slash pine. Between these trees was a thick web of vines, cane and brush. Flooding and sedimentation took turns dominating the landscape, leaving behind layers of rich alluvium over layers of decomposing vegetation. The result was some of the richest soil in the world. The richness of this soil would serve not only as an environmental benefit but also as the source of centuries of economic wealth and social discord(Cobb, 1992).

The Good Earth Becomes a State

Native Americans were the first to alter the Delta's rich soil. There were several different small tribes that originally held land within the Delta's landscape: The Yazoo, Taposa, Chakchiuma, Ibitoupa and the Chicasaw. Though the tribes were anthropologically diverse, their unifying contribution to the region was mound building (Gibson, 1971). These mounds were located among the rich high ground of the sediment soil of the region. It remained in that little-disturbed condition until 1539 when Hernando DeSoto claimed the region for Spain. It remained a territory of Spain for over 220 years until it was ceded to the British at the finale of the French and Indian War in 1763. The U.S. acquired the territory at the cessation of the Revolutionary War. Finally, in 1798 the U.S. declared the area for white settlement; it became part of the Mississippi territory (Cheatam, Jr., 1950).

By the time Mississippi officially became the 20th state in 1817, the Delta had changed dramatically. The region was now under the control of the Choctaw and had been partially settled by whites near the Mississippi River area. As the number of white settlers increased, they pressured the state to remove the Choctaw. By 1832 all Native American were removed and the lands were quickly organized into the Delta's first counties: Hinds, Yazoo, Washington, Bolivar, Coahoma, Tunica, Issaquena, and Sunflower. These counties served as the core of farming. Soon farming was the predominant economic activity in the Delta. As word traveled the Delta was soon thickly settled along the Mississippi River area by affluent farmers with both the desire to expand their plantations and the financial means to pay for transporting their slaves and material goods along the Mississippi River into the Delta's rich lands. The land also attracted enterprising free blacks and immigrants new to America skilled in carpentry, boatbuilding, lumberjacking, and other services needed for life along the river.

Settlement of the Delta did not come without costs, however. By the 1850s, many of the rich planters from places such as South Carolina, North Carolina and Georgia had amassed great amounts of debt in the quest to farm the Delta. Those successful planters had not only spent a great deal of time and money clearing their Delta plantations, but many also left the daily operations of their plantations to overseers. Slowly, the Delta began to show returns to its investors with masses of healthy cotton crops. The Delta was identified as a region where, as Cobb describes, was a place for

> ....wealthy, pleasure seeking and status conscious white elites exploited the labor of a large and thoroughly subjugated black majority. The planter's grip on both the economy and the society of the Delta seemed completely secure in 1850. Yet, from the earliest days of the region's settlement and for well over a century thereafter, regardless of how affluent they became, Delta planters never lost sight of the fact that their capacity to harness and maximize the wealth-producing potential of their land – and, hence, their freedom to indulge their legendary addiction to material finery and high living – was wholly dependent on their success in retaining and controlling a large supply of black labor (Cobb, 1992: 28).

The Delta was a place where planters, slaves and immigrants generally coexisted peacefully. However the interaction of wealthy white planters and the black labor force would serve as the basis for future economic triumphs and troubles in the Delta region.

The Good Earth Becomes a Source of Wealth

As the Delta continued to produce massive amounts of cotton, the region gained the attention of policymakers interested in preserving the economic resources of the land: self-replenishing soils and year-round work that demanded slave labor. In 1858, the General Levee Board was established. The board was charged with directing and coordinating the construction of a 262 mile levee to control the flooding that characterized the Delta's geography before it became cotton farmland (Cheatam, 1950). The move was not only taken to protect Delta lands from flooding but also to increase property values in the region. The levee did not come without, costs, however. For those located on the other side of the levee in Arkansas, flooding increased and harmed holdings in that area of the Delta. Mississippi Deltans were unconcerned with the plight of those in Arkansas, which attested to the obsession with personal wealth and regional self-interest, which contributed to its present day distribution of social opportunities and economic wealth. As one Delta planter opined, "If both sides of the river cannot be leveed, then we must protect ourselves, and let our neighbors in Arkansas suffer (Kelley, 1954: 13-14)." The levee was built, and the wealthy planters in the Delta amassed millions more resources in wealth and thousands more resources in slave labor.

As the threat of Civil War loomed over the Delta during the 1850s, Delta planters became more aware of the nation outside the Delta's wealth. Two issues dominated the concerns of planters in the Delta: slavery and state secession. With so much of their wealth concentrated in slaves and with so much of their capital and credit resources invested in clearing and farming land, Delta farmers generally supported slavery. Nevertheless, they were wary of any action, particularly secession, that might lead to war and disrupt the normal commerce and prosperity of their cotton crops. Younger Delta farmers were more supportive of Mississippi's secession from the Union, but older, wealthier, more established Delta planters viewed secession as a threat to their wealth. They generally sought to remain part of the Union and fight for Constitutional changes that preserved slavery (Wright, 1996).

The Delta could not escape the disruption of slave-based labor or secession. Though the region was still hard to navigate for Union soldiers and difficult for Confederate soldiers to protect, the Delta was mostly destroyed during the Civil War. Plantations, cotton crops, and slave cabins were burned to the ground; remaining stores of food, water and other supplies were usurped by Union soldiers and corrupt Confederate soldiers. Slaves freed from plantations were often trained and organized into Union regiments. Those slaves not brought into the Union army experience excessive levels of hunger and the loss of their cabins as well.

The Post-Civil War Era

Such economic losses did not deter all Yazoo planters from generating money after the Civil War. While the residents of the Delta were generally economically weakened, others still sought to preserve their wealth. Once the federal government began to confiscate Delta property and cotton not destroyed in the war, many planters turned to illegal markets to sell cotton. They began to smuggle cotton from the Delta to other regions of the country, determined to preserve the pre-war wealth with which they were so familiar. With the demise of slavery, many planters refused to free their slaves, while others lost their slaves through black-led revolts against planters.

The primary economic focus after the Civil War for Delta planters was rebuilding the region, but a number of challenges made this a difficult and dangerous economic goal. In addition to the change in labor sources from free slave-based labor to new sources of labor, farming equipment and housing was needed. During the war, the levee had been neglected, and damages to the levee meant lands once protected from the flooding that characterized the Delta now lay under the waters of Delta swamps fed by the Mississippi River. Less than 10 percent of the Delta had been cleared before the Civil War. By the end of the war in 1865, the area was back to its pre-war wilderness (Branfon, 1857).

The end of the war in 1865 meant the beginning of the first wave of Reconstruction efforts in Mississippi. While many whites focused solely on maintaining the social mores of white superiority, others took another path. Many wealthy investors remained in the state, determined to rebuild their fortunes; while still others lured by descriptions of Delta land traveled to the region for investment opportunity. One major economic issue would have to be considered above others in this rebuilding process – the availability of labor to work farms, build homes, and reinstate economic wealth. By 1867, the state instituted its second wave of Reconstruction policies, as blacks were endowed with the right to vote and own land. As Wright (1996) points out, the planters would have to contend with the efforts of black freedmen to avoid being subjugated to pre-war slaves socially, while pursuing their own economic interests. The struggle between former slaves and former masters to determine whose interests would prevail would quickly prevail as the dominant influence on both economic and political developments in the Delta.

Between these two opposing forces lay confusion: blacks now had to negotiate with reluctant whites to sell their labor for Delta farms, and whites had to consider compensating blacks for farm labor in either land or money. Neither party found this prospect promising in realizing their post-war dreams. Many Delta planters began to lobby the state for “some systematic plan to be adopted in the State or at least in the management of the large estates in the river counties (Wharton, 1965:117).” They called for armed officers to explain to freed slaves they were required to work – regardless of their demands for land or payment. The alternative to bargaining with freed slaves also contained a component of stipulations that amounted to free labor for white planters. For example, one alternative called for every plantation to be made into a town, with the planters or plantation physicians appointed as judges and police. These officials would hear complaints and decide how to punish and inflict sentences on freed slaves. All blacks would go before the police to determine their working status or the reasonableness of their work demands. Those blacks for which decisions could not be made would “be equivalent to a sentence on the public works for the balance of the year (Pearce, 1865).”

The state addressed these concerns with legislation to restrict the rights of blacks. These Black Codes declared all the old slave code laws in full force pertaining to crimes committed by slaves, free Negroes or mulattoes. Under the Black Codes, blacks were prohibited from carrying weapons; leasing land outside city limits; bringing legal actions or testifying in other legal matters; consuming or selling alcohol or preaching the gospel. In particular, the restriction which prevented blacks from leasing land meant blacks were relegated to working on plantations instead of purchasing land independently of plantations or starting their own firms. The Black Codes required all freedmen to sign annual work contracts or be declared vagrants and have their services sold to the highest bidder; orphans of freed slaves or freedmen under the age of 18 could also be apprenticed to any competent white, with former owners granted the first opportunity to take them as apprentices (Wharton, 1965). These laws were enforced at the state level until the passage of the Civil Rights Act of 1866. In 1867, the Mississippi state legislature repealed the Black Codes.

The federal government responded to the issue of rebuilding the Delta and the rest of southern region with the Freedman's Bureau. The Bureau was created by Congress in March of 1865, but became an increasingly important aspect of Delta life. It addressed many of the concerns of white planters, while simultaneously handling incidences of violence and abuse against Delta blacks who attempted to build their own businesses or rent out their labor to those white planters willing to pay.

Neither state nor federal legislation could assuage the problems associated with cotton farming in the Delta. With the demise of the Black Codes, white planters eventually established annual wage contracts that paid black workers part of their wages before work and the rest at the conclusion of the year. Often deductions were made for sick days, medical care, transportation to and from work, and the use of cotton for clothing, bedding or pillows (Wharton, 1965). Contracts often ran several pages long, and many blacks simply refused the conditions. With such difficulties procuring labor, crop production declined, further contributing to losses among investors in the region.

Many investors put up their plantations for sale or for lease, but this highlighted another economic problem in the Delta region – the scarcity of capital and credit. This scarcity was based in an absence of banks across the rural southern portion of the nation as well as reluctance among merchants and financiers to grant credit to farmers with little more than depreciated land to offer as collateral. The state attempted to rectify this situation with the passage of the Crop Lien Law of 1867. This law sought to encourage agricultural activities by guaranteeing a first lien on the crop to anyone who provided loans or advancing supplies for the production of Delta crops. This law did not consider the laborers' wages and payments included in this first crop. As a result many labor contracts were not honored.

The crop lien law also laid the foundation for economic activity based on sharecropping. Under this system, laborers who farmed a specified acreage received a share of the crop minus the cost of clothing, food, and supplies the laborer used while farming the acreage. This system was still restrictive as blacks could not often obtain supplies without the endorsement of a white planter. On the other hand, blacks now had incentives to produce as much as they could for planters in hope of amassing their own capital with the remaining wages they were paid for work. By 1868, sharecropping was the dominant economic system across the Delta and the rest of the state as well. It had successfully supplanted the slave-labor farming system. While the Delta had still not returned to its former economic glory now the economic system was relatively stable.

Economic Stability at Last?

Underlying the seemingly stable economic system was the swirling social concerns among Delta blacks in three areas: land entitlement, political participation and reported incidences of black violence against whites. While many blacks sought to become independent landowners under the sharecropping system, they hoped to gain land from the Freedman's Bureau holdings. Under the legislation establishing the bureau, all confiscated lands could be given to freedmen. At the close of the war, the bureau held 80,000 acres of land in Mississippi. However, by 1867, this land was returned to former owners who pledged allegiance to the union or who had taken an amnesty oath by order of President Andrew Jackson. Still many blacks felt they were owed land, and fear among whites of black revolts began to circulate in the area. Further, blacks were exercising their right to vote. By 1868 black voters had helped the Republican Party establish control of the state. Lastly, news of occasional bouts of violence between blacks and whites circulated in the Delta. Reports of whites killing blacks in self-defense; blacks attacking former overseers who assaulted black planters and foiled efforts among whites attempting to exact whippings upon blacks they viewed as insolent often were topics of discussion among many whites. Instances of these isolated acts of violence, underscored by a sense of entitlement to lands along with political participation among Delta blacks served to stoke the fires of white uncertainty (Harris, 1979).

This feeling of uncertainty was not the reality for some Delta whites, however. While many were uncomfortable living and working alongside blacks others realized the benefits of cooperating with the former slaves. For these whites, a conciliatory attitude toward blacks meant possible restoration of wealth and political power. For example, the first Republican governor of the state and Delta resident, James L. Alcorn advocated limited black suffrage and ratification of the Fourteenth Amendment in 1866. He warned whites to acknowledge the political and civil rights of blacks. He suggested they follow his lead and to accept blacks in order to “pluck our common liberty and prosperity from the jaws of inevitable ruin (Cobb, 1992:61).” However, Alcorn’s pleas did nothing to quiet the growing social tensions between whites and blacks in the Delta.

Hopes for black economic independence and white restoration to political power began to erode in the early 1870s. First, controversial black leader William T. Cobash led a revolt in Sunflower and Carroll counties. He marched 20 blacks into the Delta town of Greenwood. When local whites reacted to the presence of these blacks, he threatened to return with 500 more men. Violence erupted, and two blacks were killed. The other blacks scattered, and by the end of the event, Cobash himself had been killed by troops sent by the governor to restore order (Harris, 1979). As Cobb recounts, white supremacy was the chief social and economic concern among Delta whites, followed closely by labor stability. While many whites sought to establish peaceful relations with blacks, others still sought to gain dominance, especially in political matters (Cobb, 1992).

Second, the Depression of 1873 concentrated economic losses for residents in the Delta. During the depression cotton prices declined, arresting the progress made after the civil war by the sharecropping system. Politically, blacks now had allies in power via the Republican Party in both the governorship and in increased numbers of blacks elected to the state legislature and sheriff's offices around the region. However, with the decline in cotton prices, many white planters decried the current tax rates, calling for decreases in taxes and more attention to their political and social needs through retrenchment. Whites now found themselves paying taxes for both their lands and the levee. By 1871, whites had forfeited over 1 million acres of land due to inability to pay taxes. The Democratic Party soon became the outlet for white frustrations with black political power and tax debt. By 1873 the Democratic Party controlled most of the counties in the Delta. This control allowed whites to fully control the key county offices, such as the Board of Supervisors, which was responsible for levying taxes on property and other resource allocation decisions.

Third, extensive flooding in 1874 caused great dissatisfaction among already frustrated whites. Taxpayers' leagues formed in every Delta county. Former Republicans were targets of white violence alongside the blacks who participated in political exercises. Delta whites now sought to stabilize the black labor resources.

While whites held this political power, blacks still outnumbered whites throughout the region. This inequality of power and population set the stage for current geographic patterns which contribute to the distribution of education resources in the region.

The Reconstruction ended in 1875. After white Democrats gained power in the Delta, they still struggled to attract and maintain the black laborers on which their wealth had historically depended. As an incentive to attract laborers, many planters agreed to pay laborers with three-fourths of the crops they produced (Wharton, 1965). With such huge portions of land promised to black laborers, sharecropping soon fell out of favor with whites. Blacks also preferred being able to rent their land instead of being paid in portions of crops. By the 1870s many blacks abandoned sharecropping altogether, and often bargained with whites to rent land instead. While renting was somewhat better for blacks, whites who opted to rent out their land instead of sharecropping often faced ostracism or violence from other whites. Eventually, however, these threats lessened as many whites began to realize renting the poorest quality of land as well as previously uncleared land to blacks hungry for economic independence would help clear unsettled Delta territory and raise the value of existing property. Under this system, the Delta once again gained its position as the nation's top producing cotton region.

Rivers and Railroads

With the labor force stabilized economic efforts turned to controlling the Mississippi River, which still threatened to flood the region nearly every year. Further policymakers began to focus on transportation issues among the unexplored territories further from the river. Before the Civil War, the region had focused on building and maintaining its extensive levee system. With a new labor system in place, the region once again was able to focus on protecting farmlands from flood waters. In 1877 the General Levee Board reorganized into the Mississippi Levee Commission. The Commission included the counties in the northern portion of the Delta: Tunica, Coahoma, Tallahatchie, Panola, DeSoto and Sunflower. These counties levied heavy taxes on themselves in order to strengthen and repair the levee, but corruption soon trumped any efforts the Commission made towards controlling the waters of the Mississippi River (Harrison, 1950). With the failure of the Commission, Delta planters looked for federal intervention to control flood waters. The Congress reformed the Commission in 1879, and after a severe flood in 1882, federal funds were made available every year to the region. Additionally army engineers were made available to local counties to repair levee damage. This federal support built confidence in the region and settlements and relocations to the area increased.

Transport along the Mississippi River and throughout the Delta was the second economic issue. Though the Delta boasted a series of well-connected waterways, the region still proved difficult to navigate. Yearly spring floods meant high levels of water that nearly reached the trees hanging over streams and rivers. Rushing waters made navigation dangerous during harvest time in the fall. These conditions greatly constricted the settlement, clearing, cultivation and thus the prosperity of land on the Delta's interior. Policymakers in the region set their sites on railroads. Prior to 1880 railroads were supplements to waterways in the Delta. Two single track lines, totaling approximately 70 miles of track, existed in the region.

In 1882, two wealthy entrepreneurs joined forces to complete a 454 mile track between New Orleans and Memphis. Central to that plan was nearly 775,000 acres of land directly in the Delta region. These acres would not only grant right of way privileges to investors, but would be relatively inexpensive to build and operate (Cobb, 1992). By the fall of 1884, the Louisville, New Orleans, and Texas Railway Company (LNO&T) was handling transportation between the Delta's two largest markets – New Orleans and Memphis. The railroad operated year round, and planters rushed to grant right of way privileges across their lands in order to gain access to the railroad and to establish their own stations. Cotton gins and loading areas quickly shot up along the railroad lines.

The advent of railroad transportation also benefited black Delta residents. Railroad owners encouraged black settlement along railroad right of ways. They contacted the former founder of a black settlement near Vicksburg, Isaiah T. Montgomery about establishing another settlement in the Delta. Montgomery envisioned a town of blacks with thriving economic, social and political opportunities. By 1887, he and his cousin established the town of Mound Bayou. In just three years, the settlement reached a population of 600 and eventually over 4,000 blacks settled in the region, forming a core of agricultural activity (McMillen, 1989). The Delta region flourished.

King Cotton's Debt

While the land flourished, debt among Delta planters increased. The desire to amass wealth, power and prestige by clearing more Delta land without regard to the expenses of clearing, draining, and cultivating soon pushed many planters more deeply into debt. Creditors adopted more liberal policies, and with the burgeoning and productive cotton crops, land was a more acceptable form of collateral. Land could be used to settle debts, acquire more land and raise cash for other purposes. Heavy levels of debt were common among Delta planters.

The Delta was undoubtedly the King of Cotton. By 1889, cotton output from the Delta was 160 percent of its production 10 years earlier. Land prices in the Delta doubled, and cotton prices stabilized. The sharecropping system again became popular due to the massive labor requirements of the Delta. Blacks were now recruited from other regions of the state with by the promise of good land and a more prosperous way of life (U.S. Census, 1890). So many blacks migrated to the Delta region between 1880 and 1890, many planters in other parts of the state threatened violence against Delta recruiters in search of skilled blacks to farm Delta lands. However, whites in other parts of the state continued to decry the "outright" thievery of the blacks that worked their farms, cleaned their homes, and performed other services. To the chagrin of Delta planters, the state legislature in 1884 passed anti-enticement laws. While these were vetoed by the governor, by 1890, heavy fines existed for "anyone who knowingly employed a worker already employed by someone else (McMillen, 1989:141)."

As blacks continued to enter the Delta from other parts of the state, they began to seek political offices, economic concessions and other social opportunities enjoyed by whites. By 1890, blacks outnumbered whites in the region by seven to one (U.S. Census, 1890). Generally, whites in the Delta were content to grant limited concessions to the black labor force. While the Delta was no means free of violence or anti-black sentiment, the economic prosperity of the region heavily depended upon black productivity. Blacks in the Delta region generally experienced lower levels of violence, discrimination, and intimidation by white supremacists.

The Delta continued to increase its cotton output and over prosperity. However, as the plantation economy began to stabilize at the end of the 19th century, racial relations in the region began to deteriorate. This deterioration occurred as whites sought to disenfranchise black voters in order to dilute the concentration of black votes and increase the concentration of white Democrats (Kirwan, 1951). These measures were effective. As blacks struggled to maintain their economic and political opportunities, measures to prevent their progress often resulted in lynching, beatings, and other acts of violence. Delta whites had both the retrenchment of black social opportunities and the economic wealth of the product of their labors in cotton fields:

> With its black labor force expanded and politically neutralized and its transportation and flood-control network vastly improved, the Delta's white planters and businessmen were in a position to capitalize more fully on world demand for their cotton. The overall result was impressive statistical evidence of aggregate economic expansion. The benefits of this growth, however, went primarily to a small part of the [white] population, while the dramatic curtailment of economic and political opportunities for the Delta's huge black majority stamped upon the region an image of material and human disparity that would remain its trademark for more than a century (Cobb, 1992:92).

Changing Times?

The beginning of the 20th century left the Delta's plantation economy virtually untouched. The area thrived as large numbers of black tenants lived and worked the land of white planters. Though other parts of the state and nation were moving towards other forms of agriculture and manufacturing, the Delta held on to the economic activity that had made it rich and brought it back from the destruction of civil war. The railroads, attempting to market the Delta to tourists and other travelers, described the region as a place of magnificently large plantations. The 1910 Census of agriculture described the region as a plantation system where "fertile soil and climate conditions favorable for cotton raising, together with a large Negro population" made plantation-style agriculture the "dominant" economic activity in the region (Department of Commerce, 1914: 884).

The first few years of the 20th century were exceptionally important for the Delta, as this time marked the introduction of 12 million new spindles into British textiles and the opening of new textile markets by France, Germany, Japan and the United States (Cobb, 1992). These markets expressed a preference for higher grade Egyptian cotton. Though fears about competition with Egyptian cotton initially loomed over Delta planters, they continued to remind would-be investors the Delta region was still mostly virgin rainforest. If efforts were focused on uncovering the rich soil underneath the remainder of the region, the Delta could supply the world with even more cotton. The key, they claimed, lay with building a drainage system throughout the region that would enable planters to work with drier soil. With drier soil, Delta cotton could compete with higher quality cotton from the Nile region.

These points won over British investors. A consortium of British investors purchased approximately 40,000 acres of Delta land, spending close to $3 million. Through the formation of the Delta and Pine Land Company, these investors became the world's largest producers of cotton (Cobb, 1992). The quality of cotton produced from this investment never rivaled the Egyptian quality cotton; however, the efficiency of the Delta's labor system astonished investors.

Delta planters constantly updated their management techniques and lower production costs. Delta cotton production kept pace with world demand, and the Delta prospered. Woodman (1982) described these "industrial age plantations" as centralized organizations where one main office made decisions regarding every aspect of farming: from amount and type of fertilizer, to the distribution of tools and equipment among workers to work hours for laborers. These decisions were sent down to managers, and managers ensured directives were carried about by laborers. This system ensured smaller payments for laborers, higher profits for plantation owners, and a minimum of cash advances paid to tenants (advances were paid in food, clothing or other supplies instead).

Cotton production seemed the perfect mix of plantation control and modern industrial age productivity with one exception – high turnover rates among black laborers. Though the Delta was one of the most productive regions in the South, and although blacks continued to flock to the region, blacks often made efforts to leave their tenancies, after receiving garnished wages and enduring maltreatment by farm managers. Black laborers also contended with “obsessive” planters intent on maintaining the lowest cost labor possible. One effective method of retaining black labor was peonage. To this end, many black laborers found themselves almost infinitely indebted to wealthy planters. Additionally, the state legislature enacted laws that made the acceptance of even minimal enticements to work automatic work contracts. Under these “false pretense” laws, laborers could be punished if they abandoned contracts after accepting the smallest recompense from planters. Though this law was voided at the federal level, it remained on Mississippi’s state books until 1930 (McMillen, 1989).

Peonage was to remain a source of conflict between Delta planters determined to maintain their supplies of unskilled black workers and blacks seeking more humane and economically fair work environments. When blacks continued to make peonage complaints against planters, many planters decided to find more creative ways to persuade black laborers to remain in their employment. One common method was importing labor from other countries. Most often, planters recruited workers from Italy to replace black laborers. Early on, Italian impressed many Delta planters. They worked hard, saved their money, and seemed to function well in the planter-tenant system. However, Italian workers grew tired of the oppressive labor practices employed by many large Delta farms, and they did not respond favorably to intimidation or threats of violence from whites in the area. Italian workers resented being "treated like blacks" (Wright, 1996). Using immigrant labor was quickly abandoned. White planters returned Delta blacks for continued productivity.

Blacks continued to migrate to the region and Delta farms continued to increase in size and consolidate. This continued push for efficiency and increased production further cemented the fate of blacks in the region to a life of poverty and jobs with little chance for advancement. World War I disrupted the demand for cotton both domestic and international markets, and by 1920 economic opportunities for blacks in the region declined. All the efforts to maintain the large pool of cheap labor in the region were successful: recruiting large numbers of black workers, disenfranchisement practices, and scientific management techniques designed to increase efficiency on Delta farms. Even those blacks who managed to forge themselves a prosperous life in the Delta soon fell victim to indebtedness and a scarcity of lenders willing to extend credit to blacks. Socially, blacks who rebelled or expressed any political aspirations were threatened with violence and lynching (McMillen, 1989).

The Black Exodus and Social Change

The oppressive economic environment as well as racism in the Delta prompted many blacks to leave the region as the 20^{th} century brought renewed social and economic opportunities for blacks in other parts of the US. Cobb recounts

100,000 blacks left the Delta between 1915 and 1920 during this Black Migration, most often for Chicago via the same railroad system that brought prosperity to the region. The number of Mississippi-born blacks living in Chicago increased 400 percent by the end of 1920 (Cobb, 1992: 115). Another form of escape emerged among the blacks who stayed in the region through music; it was during this time “the blues” was created in the Delta and took root in other parts of the nation as a new form of expression (Barlow, 1989). While the blues became a popular form of music, it did nothing to temper the conditions of blacks in the Delta: inadequate schools, violence against out-migrants; and the absence of legal protection.

By the 1930s, the Delta was recognized as a socially and economically distinct region – a place that attracted the attention of numerous social scientists and other academic observers. The Delta was an anomaly. It was a place of great riches and of devastating poverty; of rampant social opportunities and of social oppression. Cobb (1992) describes a caste system (153):

> ... a region where extremes of white affluence and privilege were sustained by equally striking levels of black deprivation and powerlessness. The ability of the Delta’s white minority to subjugate and exploit its black majority depended in large part on a system of caste-based social control that was rigid, pervasive, and self-perpetuating. Only if members of both races played their well-defined caste roles with inerrant consistency and an almost exaggerated vigor could white dominance of such a racially and economically imbalanced society be maintained.

As the region began to change politically, socially and economically, the remnants of the plantation-based economic system continued to shape and under gird life in the Delta. Though tempered by civil rights legislation, farming legislation and other social changes, the caste system still pervaded life in the region, especially for blacks and poor whites. The system accrued monetary benefits to white middle-class farmers, protected large planters from economic competition in terms of labor sources, and bestowed decisionmaking power to whites that allowed them to preserve the black labor force that propelled the region to economic eminence.

The Delta Cries Uncle (Sam)

Slowly, both white and black Deltans began to seek federal assistance via New Deal programs. Ironically, it was the affluent planters who benefited the most from this new federal legislation (Daniel, 1981). One particularly regressive policy was the acreage reduction program initiated by the Agricultural Adjustment Act of 1933. For program administrators in the cotton section of the program, giving full payments to planters and then allowing those planters allocate payments among tenants was the most effective method of administering aid. Payouts instructed landlords to divide funds based on the percentage of the tenant's interest in the crop. Sharecroppers were to receive one-half the payment; part-share tenants received two-thirds to three-fourths of the payments, and a cash tenant received the full amount. As Conrad (1965) recounts, many planters (and agency officials) believed tenants incapable of applying their payments to their debts and needs. Since renters often looked to planters for their needs and credit, payments made to planters were much more likely to be spent to the benefit of renters. Additionally, this system could preserve the integrity of the planter-renter relationship, while allowing government support during difficult times. Most tenants received only a fraction of their government payouts during this time, and few fraud cases or complaints were filed by blacks and poor white renters due to violence of the loss of tenancy for plaintiffs.

This program had other effects that worked to undermine the sharecropping system, most notably in production costs. The program effectively increased the cost of full-time labor and lowered the cost of mechanized equipment. Now, planters could cultivate more with fewer renters plus charge renters for the use of machines. With the program now supporting the use of machines, reduction in labor force and fewer crop yields, planters were in stable financial positions during a time when former tenants, both black and white, faced abject poverty.

The Works Administration Program (WPA) filled the gap for many former tenants. Under this program, former tenants could work in mosquito control programs or other farm-related services. However, local planters, concerned about potential shortages of workers for harvesting time or stocks of day laborers sought to maintain dominance over tenants. They sought specifically to retain black renters, whom they believed were more docile than their white counterparts. These planters used their position with government officials to “starve out” white tenants so they would leave the county and leave behind a totally black potential labor force (Daniel, 1985). While program administrators denied appropriating benefits based on race, whites generally received higher benefits than their black counterparts (Cobb, 1992).

Disparities aside, New Deal programs benefited the Delta immensely: the economy received a boost; new structures were built throughout the Delta such as paper mills, hospitals, and playgrounds; bank deposits doubled; and a small number of blacks were able in some cases to become independent landowners through participation in government programs made slightly easier by the absence of poor whites.

Race Divides the Good Earth

By the 1940s, the Delta held on to its regional distinction as a place of racially-based vast inequalities. Over 90 percent of farms were worked by tenants; high turnover rates still existed among black workers; wealthy planters now paid tenants mostly in-kind instead of with cash payments; and the number of actual full-time renters had been reduced to mostly share renters and day laborers. Economic opportunities were limited for black laborers as well. Mechanization of agricultural practices meant large operating units, high land values, the continued caste system, the need for large investments in equipment and an emphasis on managerial skills rather than unskilled labor. Tenants and workers were now absolutely controlled by wealthy planters, and had no hope for upward mobility (McMillen, 1989).

This absolute hold on black laborers as economic resources began to slip, however when the nation plunged into World War II. The effects of the war, culminating with policy outcomes from New Deal policies, translated into more opportunities for black workers. Although the war by no means destroyed the sharecropping caste system, the war meant a general increase in wages for blacks and thus less dependence upon planter handouts for socioeconomic well-being. Woodruff (1990) describes the new economic situation beginning to take hold in the Delta:

> Planters soon realized that, because of war-induced wage increases former sharecroppers could now make as much by working only a few days each week as they had once owned for a full week's work. Planters complained croppers simply moved into towns at the end of the summer when the planters stopped furnishing them and before their debts to the planters came due. Once in town these hands could take advantage of higher wages available to them as day laborers and cotton pickers. Even so, many who stayed on refused to pick or pull the less valuable scrap cotton that remained in the field at the end of the picking season (75).

Planters also experienced reductions in the domestic workforce, composed mostly of black women. As black women received money from husbands in military service, they were no longer forced to work in fields or kitchens. Whites tried to convince women it was their duty to continue serving in these capacities, and even implored black preachers and teachers to persuade the women to do so.

Delta planters lobbied for a Public Law 43, which created the Emergency Farm Labor Supply programs and transferred responsibility for the recruitment of farm labor to the Department of Agriculture (Cobb, 1992). Further, this legislation required the signature of a county extension agent in order for workers to receive federal payments or to leave one county for another in pursuit of alternative employment. Since county agents were usually sympathetic to planters and had close ties with the Delta communities, this arrangement would allow more local control over the labor force. Black county agents in majority rural counties were made responsible for vaccinating livestock, servicing farm machinery and spraying and pruning orchards instead of helping black farmers (Henderson, 1947).

Delta planters were also successful in lobbying the federal government for the alternative labor sources, such as POWs and Hispanic labor, to pick cotton. They also lobbied for Japanese internees, but made it clear this population of worker would no longer be needed after World War II had ended. Planters further lobbied for legislation that set ceilings on the amount of money laborers could receive for their work, and against a minimum wage for cotton pickers.

In the meantime, discontent continued to grow among blacks in the region. Long tired of limited economic, educational and social opportunities, many began to speak out against the Delta’s caste system. Black ministers often took the lead in such efforts as organizing strikes and encouraging social change. White planters took notice of changing attitudes among blacks increased an anti-federal government sentiment. They began to turn against the national Democratic Party citing that blacks had been given so many concessions that they would soon be socially and politically protected by the federal government. Fears of the loss of black docility were confirmed at the end of the war. Blacks returning from battle were much less likely to accept unfair treatment from planters and farm managers. With the changing black sentiment, some Delta whites desperate to recapture the black labor force began to push for improvements to black schools while others still clung to traditional methods of intimidation to squelch social change.

World War II had contributed significantly to racial tensions in the Delta, as servicemen returned to the region in search of more equal treatment, and by the 1960s veterans such as Aaron Henry and Amzie Moore took the lead in fighting against the caste system and achieving economic independence. Further, the Democratic Party that had traditionally grant planters concessions was now adopting more liberal policies, and blacks were turning to the federal government for changes in social opportunities. The region became a place of paradox: on the one hand planters welcome farm programs that had sustained them through wars and floods; on the other hand, they reviled those programs from the same federal government that provided regulatory and political assistance to the region. Many whites responded by increasing political support of the Dixiecrat Party, and organizing groups determined to maintain the system of segregation and discrimination that had kept a large, stable, black labor force available to planters for many years.

The Civil Rights Movement Stands Still

The mediocre results of the social change that swept the nation in the 1950s and 1960s was evident as the Delta entered the 1970s. While federal legislation had set minimum wage protections, provided social support, established voting rights, and mandated the integration of schools, the implementation of these programs still lay in the hands of whites who often refused service to blacks who participated in civil rights activities. As Cobb (1992) recounts:

> On the one hand, there was a degree of black political participation, activism, and assertiveness unthinkable only a few years earlier. On the other hand, there was the enduring determination of a majority of whites to utilize every coercive measure at their disposal to restrict black public facilities, to minimize social interaction among the races. In most counties, the white population of the public school consisted primarily of the children of white parents who could not borrow or beg the money to sent their offspring to one of the speedily constructed private academies that soon dotted the Delta landscape (251).

Through the 1980s and 1990s, the Delta continued to rely heavily on social support as well as farm subsidies doled out by the federal government. Economic developers and policymakers in the region sought to reduce dependence upon federal monies, but generally found little success in such measures. Among the most promising economic endeavors was catfish farming, which continues to be a source of economic prosperity for the region today. By 1990 the industry employed some 6,000 workers in the state, with the majority of the jobs located in the Delta. The predominantly black laborers met resistance when they attempted to organize and often complained of unhealthy work conditions and sexual harassment by supervisors (Alexander, 1990).

The Delta Today

The Delta continues to seen as an economically underdeveloped region. Most visible is the geographic distribution of isolated pockets of poverty which pervade all aspects of life in the region. This distribution of resources has captured the attention of federal policy makers and has manifested itself in a plethora of programs and studies aimed at improving the region, which culminated in the late 1980s and 1990s. Prominent examples include the Lower Mississippi Development Commission (1989-1990); and the designation of the area as an Empowerment Zone (1993-present).

The Lower Mississippi Delta Development Commission (LMDDC) was a group created by Congress in 1989 with the purpose of discovering the barriers which appeared to hinder the Mississippi Delta from improving socioeconomic outcomes, and to suggest policies based on addressing those barriers. LMDCC conducted its research using largely qualitative field interviews with native Deltans and interest groups such as the Tennessee Valley Authority, and the Valley Resource Center. The commission lasted eighteen months, and cost $3 million to sustain, due largely to the amount of paper required for press releases (Delta State University, 2006). The research effort culminated with the release of its 186 page final report that it presented to the White House on May 14, 1990. It also released 500 other copies within a very short time. Aside from the report, LMDDC produced a series of papers comprised of research papers, reports and news clippings (Delta State University, 2006). However, the program did little to support research findings in terms of policy creation or policy analysis. Instead it served as a repository of descriptive research.

The Empowerment Zone/Enterprise Community program was created in 1993 to afford communities opportunities for socioeconomic growth and economic development revitalization. The program is based on four principles (United States Department of Agriculture, 2006): economic opportunity, sustainable community development, community-based partnerships, and strategic vision for change. Economic opportunity is the top priority of the program and seeks to create jobs in the Delta region and in Delta communities, mostly through small business creation and entrepreneurship activities. Sustainable community development entails improving the physical attributes of communities as well as human development in the form of improving social services available to families. The community-based partnerships principle encourages community partnerships among all aspects of community, public sources, and private sources. The strategic vision for change is a comprehensive strategic map for revitalization. It integrates economic, physical, environmental, community, and human development in a comprehensive and coordinated fashion so that families and communities can work together and thrive. This program has been effective in terms of increasing access to federal funds, but many Delta communities still suffer from the lack of human capital to develop and write grants to receive access to federal funds. From the federal perspective, participation in farm subsidy programs and public welfare programs dominate the region's interaction with the government.

Socially, the region continues to experience change, but the economic quest for a cheap and stabilized work force, as well as attempts to develop the region using industrial recruitment, has manifested itself into a geographic distribution of resources based on race. The black population that was once concentrated on farms and in neighborhoods close to white communities has changed. The revolution in agriculture, changes in employment opportunities and housing programs to assist the poor have produced a local redistribution of the black population. Such microscale spatial changes based on the availability of economic opportunities have created hamlets of blacks in isolated rural areas and concentrations of blacks in local towns and cities, alongside white residents. Blacks have also concentrated on the fringes of municipalities in these areas (Aiken, 1987).

Many of the current socioeconomic characteristics are remnants of the economic history: race, federal farm subsidy participation, public welfare participation, and income. As such, it provides a backdrop for this research and the incorporation of socioeconomic elements which may exact powerful impacts on student outcomes.

CHAPTER FOUR
REVIEW OF THE LITERATURE OF SCHOOL SIZE AND STUDENT OUTCOMES

The history of Mississippi's public school system and its socioeconomic background strongly suggest the characteristics of poverty, race, participation in federal farm subsidy and welfare programs, local school district spending and income exert great influence in affecting student outcomes. Previous research, as well as extant analyses, has addressed additional factors not suggested by Mississippi's public education system or its socioeconomic history. School size and district size are most notable in this respect, but there are other factors relevant to student outcomes not addressed in the state's history. The scholarly literature relevant to understanding school size in Mississippi and its Delta region is based in research that historically viewed the manipulation of school size as a major factor in controlling student outcomes. This research is part of a much more voluminous and disjointed body of literature that examines organizational size and output efficiencies. School size is concerned with the educational institution sector of the research. This section presents the scholarly literature on school size through the development of three separate but interconnected bodies of scholarly work, with particular attention to impoverished rural areas: research on district size and student outcomes; research on school size and student outcomes; and the socioeconomic characteristics considered in research on student outcomes in the rural development literature.

District Size and Student Outcomes

Districts are often the first organizations targeted for changes in size in development. Though controversial in practice, the scholarly research on district size and student outcomes has been treated as an afterthought when examining the general role of school size in student outcomes. The research on district size and student outcomes may be described in two waves identical to the school size literature: size economies of scale and quality of outcomes. The first wave of research appeared approximately between the 1920s through the 1970s. This research was empirically based and was focused solely on economies of scale based on empirical analyses of cost functions in education. This line of literature found larger schools superior to smaller schools in every regard. Larger schools were shown to have better facilities, more qualified staff and administrators, more extracurricular activities and a better variety of course offerings. These studies, however, did not control for district size. One later study, Chakraborty, Biswas and Lewis (2000) did emulate studies from this wave of the literature using districts in Utah. They found that holding all other factors constant, the proportion of students graduating increased with district size.

The second wave of research on district size first appeared in the 1960s with a small number of studies that focused on student outcomes as measures of educational organizational effectiveness. Though much of the early work in this wave is disjointed and unsystematic in methodology, the line of inquiry regarding district size was driven by the upsurge in the increasing sizes of schools and districts, which grew out of the research in the first wave of studies. Many researchers and policymakers began to wonder if indeed diseconomies of size existed for schools. The seminal work on districts and student achievement is *Equality of Educational*

Opportunity (1966) by James S. Coleman, E.Q. Campbell, C.I. Hobson, J. McPartland, A. Mood, F.D. Weinfield, and R.L. York. This study examined a variety of educational environmental and school level factors, and while districts were included in this analysis, they were not the focus of the analysis. The report found the effects of district attributes, such as size, teacher qualifications, district resources, and social composition played only a minor role in student outcomes. Instead, the report contended school-level effects were more responsible for student outcomes. This report, however, has been attacked on a number of grounds in the literature: errors in measurement (Jencks, 1972), failure to account for differences in district and school organization (Heyns, 1974), use of district or school resources (Bidwell and Kasarda, 1975), and the school used as the sole unit of analysis (Bidwell and Kasarda, 1975). Only one study (Mosteller and Moynihan, 1972) which replicated the Coleman report using different statistical techniques supported the findings of the original research.

The studies that followed the Coleman report were more coherent as a body of research in terms of methodology; researchers regressed measures of outcomes, usually test scores or high school graduation rates, on measures of school and student inputs. However, the findings are still relatively inconsistent, and range from finding negative effects on student achievement (meaning that as district size increases student achievement increases) to inconclusive effects on student achievement. For example, Kiesling (1967) examined achievement scores from a 1957 sample of 100 schools in New York. He found no effect or a negative effect of district size on student achievement, depending upon how the data are grouped and what grades are examined. However, Kiesling did not control for school size in his work, which may help explain the varied results. Niskasen and Levy (1974) examined data from the west coast, investigating size and student outcomes for districts up to 2000 students in California. They found students in larger districts have lower scores on standardized tests, controlling for family poverty, minority background, and community wealth.

Bidwell and Kasarda (1975) used data from Colorado to examine short-run environmental influences on district organization and student outcomes as measured by standardized test scores. While this study did not look directly at district size, the variable was used as a proxy to capture the environmental and policy influences in the education environment. District size was examined within a community context that included community poverty, fiscal resources available to the school through the district, and education levels of community residents. They presented mixed findings. They found benefits of larger districts such as the ability to attract more qualified teachers, and disadvantages of larger districts such as larger student-teacher ratios. Overall, they conclude size had only a slight effect, which was a result of both the positive and negative consequences of larger districts.

Gooding and Wagner (1985) did a comprehensive analysis of the relationship between size and output in 31 field studies of schools, colleges, manufacturing firms, hospitals, work groups, service firms and districts. They found as organizations get bigger, they tend to produce less per-unit value. The outcomes measured with regard to districts were academic and non academic achievement, extracurricular activities, and graduation rates, and the negative relationship between district size and student outcomes was strong. This relationship, as they and others such as Buchanan (1971) and Olson (1971) before them pointed out, is strong for organizations with vague or hard to measure goals, like districts. A year after the Gooding and Wagner study, Turner, Camillia, Kroc, and Hoover (1986) investigated districts in Colorado. They found larger Colorado districts achieve less efficiently than their smaller counterparts.

Walberg and Fowler (1987), controlling for student and teacher characteristics, found a negative relationship between student outcomes and district size for districts in New Jersey. However, this study failed to control for the possible effects of school size. The researchers examined district size among a plethora of other factors again in 1991, and found only negative relationships between district sizes and test scores. In the same year as the original Walberg and Fowler study, Monk (1987) examined data from New York districts. He found after controlling for educational costs, student socioeconomic status, and other factors larger districts are more likely to produce less efficient student outcomes than smaller districts.

Conversely, Sebold and Dato (1981) examined California schools and found increasing returns to district size for high schools. Also in that year, Fox (1981) examined cost efficiencies of districts before 1980 and found the effectiveness of districts was actually U-shaped curve, with diseconomies of scale occurring for the biggest districts and smallest districts. He concluded, “savings can accrue from grouping more pupils under the same administrative district. These results indicate that small towns and less densely populated areas are likely to experience higher costs for providing the same quality of education than are medium size areas (20)”. This seminal work appears to capture the general trends between district size and student outcomes among district size studies.

Nevertheless, more recent research on district size is still scattered in terms of size and student outcomes at the micro level. When taken as a whole, however, the majority of research since 1989 finds a negative relationship between district size and student outcomes. Ferguson (1991) found a negative relationship between student achievement and district size with a similar study using data from Texas districts. Walberg (1992), examining district size and student outcomes within a fiscal environment also found a negative relationship between district size and student achievement, using data from 37 states and the District of Columbia. That same year, Oakerson examined a variety of public services in Missouri, including public districts. He found a negative relationship between district size and student performance on standardized tests.

Ferguson and Ladd (1996) investigating elementary school student outcomes in Alabama also found increasing returns to district size for elementary schools. However, since elementary schools tend to be smaller than their middle school and high school counterparts, the results of this study should be approached with caution. A similar study using Tennessee data found little impact of district size on student achievement scores, even when considered with other factors. Overall, the study found no effect of school size for elementary schools, and only slight effects for middle school and high school students. However, for the middle and high schools the negative effect was statistically significant (Bobbett, Gordon C., Russell L. French, and Charles M. Achilles, 1993).

Hoxby (2000) in her examination of district size and student outcomes takes a different approach. Instead of examining district size through enrollment, she focuses on competition among districts of different sizes in urban areas, rather than the issue of district size alone. She found a negative relationship between student achievement and the concentration of enrollment in a small number of districts. Driscoll, Halcoussis and Svorny (2003) used data from California to investigate the effects of district size on student achievement as a means of school reform. Unlike other studies that controlled only for school size or for the characteristics of the student population, these authors also controlled for differences in class size. They found district size impedes student outcomes, as measured by standardized test scores. While previous studies generally found the weakest relationship between district size and student outcomes at the elementary level, this study found evidence of a stronger negative relationship at the elementary and middle school level, rather than at the high school level, supporting previous trends in the literature regarding these levels of schooling.

The South Carolina State Education Oversight Committee sponsored research on district organization and fiscal efficiency in the state. Like other studies, the Committee explored the relationship between districts and student achievement, using the state's standardized test (PACT). Public school districts were investigated in the context of public school support based on the concentration of population throughout the state. Examining each district in the state, the Committee reported results in contrast to the Driscoll study. Based on South Carolina data, district size functions differently based on the level of schooling: size does not affect elementary school student outcomes, but it does have a negative relationship with student outcomes at the high school level.

It is difficult to find a baseline for comparison across this array of studies. This discord among studies may be due to the nature of the research itself. Districts function differently in states and at the county level, and different economic histories among states and counties may give rise to a variety of factors that influence student outcomes at the district level. However, the literature suggests at least three possible explanations. First, studies on district size and student outcomes focus on students at different levels of schooling (elementary, middle school or high school). Second the studies often use data from different states, which have different district configurations (Ramirez ,1992). Third, the general body of research dealing explicitly with rural areas is scant when compared to urban studies. Because of the different economic and social environments in urban areas as compared to rural areas, findings of studies on school size from urban areas may not be applicable to rural communities in general. This is particularly true in the case of Mississippi, as the state is over 70 percent rural.

School Size and Student Outcomes

The body of research on school size and student outcomes is extensive, and until recently it has been conducted without regard to the influence of district size. Instead it has been part of a larger body of research based on public administration research regarding economies of size. As early as the mid 1800s, larger schools were thought to be superior in providing students a more comprehensive education.

The trend to consolidate rural schools in order to improve the social outlook of rural students continued well into the 1960s. One of the largest studies that included school size was conducted in 1965 by the George Peabody College of Vanderbilt University in Nashville, Tennessee (Vance, 1966). *High Schools in the South* investigated eleven high schools and the relationships among school size, finances, personnel, professional qualifications, education programs, and teacher load. This report indicated the small size of schools in the South was the biggest obstacle to improving the quality of education in this region. The report linked schools with an enrollment of less than 500 students to fewer course offerings, less qualified staff, and inefficient organizational patterns.

This report was integral in educational reform efforts to consolidate rural schools in the southern United States as well as schools in other parts of the country.

Kleinfield, McDiarmid, Williamson, and Hagstrom (1985) studied rural high schools in Alaska. They found school size had no effect on student outcomes. However, as Ramirez (1992) recognizes, these earlier studies placed a great deal of emphasis on personal interpretation and testimonials from the schools under study. He points out the study "lacked appropriate objective standards of control, and, accordingly, findings are suspect (p. 6)." The study relied on surveys, telephone interviews, site visits and student achievement data for analysis.

Cotton (1996) reviewed 103 articles on school size and some aspect of education. School size has been examined with respect to attitudes toward school or particular school subjects; social behavior problems; levels of extracurricular activity; feelings of community or alienation; attendance; interpersonal relationships with other students and school staff; drop out rates; self realization; and college-related variables. Of all the scholarly literature, school size and student outcomes is by far the largest branch of research on school size.

The research on school size and student outcomes occurred in two movements: size economies of scale and quality of student outcomes. The first wave of research appeared approximately between the 1920s through the 1970s. This research was empirically based and emphasized economies of scale based on empirical analyses of cost functions in education, usually based on analyses of school size. These studies attempted to determine an optimum size for both elementary and secondary schools, and focused heavily on school inputs such as costs, and teacher credentials. This line of literature found larger schools superior to smaller schools in all categories: facilities, extracurricular activities, and course offerings. They recommended schools needed to be about twice the size they were in order to improve student achievement (Howley, 1989).

The second wave of research on district size first appeared in the 1960s with a small number of studies that focused on student outcomes as indicators of educational organizational effectiveness. This line of research was driven by data availability – specifically student test scores and high school graduation statistics. With such data available, many researchers were now in a position to more closely examine diseconomies of size for schools. Researchers regress measures of outcomes, typically test scores or high school graduation rates on measures of school size. From the 1960s through the late 1980s about half the literature found no difference between student outcomes in large and small schools. The other half of the literature found a negative relationship between school size and student achievement. None of the research during this period found large schools to be superior to small schools in affecting student achievement.

One line of this body of research is particularly important to understanding school size and student outcomes in Mississippi. This line of research gained prominence in the 1970s with a court cases challenging resource distribution in Washington, DC public schools. Plaintiffs in *Hobson v. Hanson* contended expenditures for teachers' salaries should not be permitted to vary by more than 5 percent from school to school. The prevailing belief among school size researchers during that time was a relationship existed among teachers' salaries, teachers' benefits and student outcomes. Michelson (1972), conducted a study for the plaintiffs in the Hobson case. He examined 110 elementary schools in the Washington DC area and found no indication of teacher-pupil ratio exerting influence on student outcomes. Instead he found reading achievement was a function of the median income of the school area and the percentage of pupils participating in the free lunch program. He concluded “an increase in size of school is detrimental to test scores, all else considered (p.304).”

That same year, Chambers (1972) found private schools were often only about 60 percent of the size of public schools. He concluded large school size has a potential negative effect on achievement and other student outcomes, after reviewing the extant literature at the time of his study.

Summers and Wolfe (1976) examined schools in Philadelphia. They found the socioeconomic status of students determined achievement outcomes. The further found smaller schools benefited the achievement of black students at the elementary levels and low achievers at the high school level. During the same period, Kimble (1976) investigated the relationship between school size and student achievement in rural Montana. He administered the Stanford Achievement Test to five percent of the high school students in the state, a sample of 1,311 sophomores and 875 seniors. While the results of different schools sizes and student achievement scores were scattered for high school sophomores, high school seniors showed no differences based on school size. However, in line with the literature on poverty and student outcomes, socioeconomic status was significantly related to student outcomes; it was the most consistent predictor of student achievement across school sizes.

Wendling and Cohen (1981) studied the effect of school size and student outcomes for 1,021 New York state elementary schools. They found a negative relationship between school size and reading and mathematics scores for third grade students when controlling for socioeconomic status. These authors measured socioeconomic status by both years of parental schooling and percentage of students in a school below the federal poverty threshold.

The seminal work in this vein of the school size literature is based on a study of the state of California. Friedkin and Necochea (1988) examined school size using data from the California Assessment Program on schools and districts. They expanded the literature on school size by adding the socioeconomic status of school systems as a dimension for understanding the relationship between school size and student outcomes on achievement tests. They also deviated from all previous works on school size by incorporating an interaction term alongside school size, which allowed measures of equity and efficiency for student outcomes – two measures particularly important in the distribution of scarce rural resources. They hypothesized the direction and strength of influence of school size on student outcomes depended upon the socioeconomic status of a given school or district. They found as socioeconomic status of a district increases, the weaker becomes the relationship between school size and student outcomes.

The study was among the first to note smaller schools size improved the academic outcomes of impoverished students. For students with higher socioeconomic statuses, however, larger schools were more influential in improving student performance. This study, which set the tone for other studies including those in largely rural areas like the ones in Mississippi, had one major shortcoming from a socioeconomic well-being perspective. It focused on city and urban schools and designated all other locations as rural, thus overlooking the socioeconomic implications of the diversity of rural areas.

Fowler and Walberg (1991), following Friedkin and Nechochea, examined data from New Jersey elementary schools. They investigated size and its effect on elementary students in 18 areas of achievement, and their conclusions supported the earlier study. They found the most significant influences on achievement to be related to socioeconomic status and poverty status of students and school environment: district socioeconomic status; the percentage of students with low incomes attending a school; school size and the number of schools in a district.

Two years later, Huang and Howley (1993) studied individual achievement and school size. They found small elementary schools benefited disadvantaged students the most by weakening the negative influence of family characteristics that lowered test achievement. Like most of the studies conducted on school size and student achievement they relied on standardized achievement tests as a proxy of basic skills. However, Haller, Monk and Tien (1993) hypothesized large schools actually did a better job teaching higher order skills than small schools. They did not use achievement tests, however. Instead they focused on a series of other tests that measured higher order skills such as critical thinking. They found there were no significant differences in the performance of students in small rural high schools and larger more urban high schools.

Lee and Smith (1997) in their much noted study attempted to find actual enrollment sizes for student achievement levels. While nearly all other previous studies focused on public schools, these authors included data from Catholic schools and private schools. They asked which high school size works best and for whom? They found the ideal size of high schools should be moderate -- between 600 and 900 students -- to improve student outcomes, regardless of student socioeconomic status. Schools can be too large or too small for students. Thus the moderate-sized high school will garner the best results from all students. However, in line with the post-Friedkin and Necochea studies, they noted for disadvantaged students, size is especially important. They contended achievement for these students sharply declines as school size gets too large or too small, which supports the Fox (1981) study. As such, special attention should be paid to the schools such students are likely to attend (urban schools or schools larger than the moderate size). A few of their earlier studies investigated school size as a feature of school restructuring, the most important of which is the 1997 work mentioned here. It has further importance to this study because the authors pinpoint specific school enrollments and their relationships to student outcomes. The authors attempted to assess the impact of specific ranges of high school size on student test scores using data from a nation wide 1988 study by the National Center for Education Statistics. The Lee and Smith study found equity effects were the most robust in high schools in the three smallest categories. Stated differently, small school size appeared to equalize achievement among students with disparities in socioeconomic status, thus disrupting the negative relationship between achievement and socioeconomic status almost always supported in the literature on student achievement. These authors did, however, have a finding reminiscent of the traditional rural development policy that treats rural areas the same, regardless of the diversity of economic opportunities. The authors conclude a one-size-fits-all ideal size (600-900 students) is the best way to improve the performance of all students, especially at risk students and students with low socioeconomic status. This ideal size had both equity and excellence effects in the original study.

Roeder (2002) presented finding contrary to the vast majority of the current findings on school size and student outcomes. He questioned the existence of the relationship between school size and improved outcomes purported in the literature. Using data from the two largest districts in Kentucky, he found no significant relationship to student outcomes when school level variables were added into the regressions on school size and student outcomes. Further, he contended, smaller school size did not directly reduce the negative effects of poverty on achievement. At the elementary school level especially, socioeconomic status was the most important predictor of student achievement, not school size.

Two recent studies reviewed the literature on school size and student achievement, with particular implications for the Mississippi Delta. Overbay (2003) reviewed the scholarly literature on school size issues. She recounts a study (Johnson et al, 2002) conducted in Arkansas. This study found a negative relationship between school size and student outcomes across the socioeconomic status of students. However, for the quartile of schools with the highest concentration of black students (who also tended to be from impoverished families in this study), Johnson claimed "the negative effects of poverty, size and the interaction between poverty and size are compounded (p. iv)." This suggests smaller schools may improve student outcomes, especially for populations the most at risk for school failure – minorities and impoverished students.

Berry (2004) explored the issue of school size and the consolidation movement from 1930 to 1970. He examined the effects of school consolidation policy on school size's relationship with student achievement. Using the Public-Use Micro-Sample of the U.S. Census (PUMS), he tested consolidation effects by equating the effects to educational returns in the labor market. He found district size was correlated with school size and that both variables had a significant negative relationship with student achievement. His findings are more specific than previous studies in that he specified policy implications for school size, district size, and rural areas. Specifically, he found socioeconomic status (measured as income) was unrelated to district size and positively related to school size. State differently, larger schools performed better in larger districts. Additionally, Berry found school size is strongly negatively correlated with the proportion of the population classified as rural. The more rural an area the smaller the size of the schools. However, since incomes tend to be less in rural areas, this finding is not necessarily related to the issue of ruralness. Rather, it warns against assuming rural schools perform better simply because they are rural, which many proponents of small schools tend to dol. He contends such an assumption is a mistake in understanding the effects of school size on student outcomes. He points out when the variable of ruralness is isolated in his model rural population does not approach statistical significance at all.

While this study does attempt to account for the possible effects of locale on rural schools, it does not recognize the diversity of rural areas in terms of population and economic opportunities. Moreover, Berry's work is ironic in that after an extensive review of the history of ruralness and school size, the concept is treated as a little more than a geographic measure. Like Friedkin and Necochea, he overlooks the economic and geographic diversity of rural areas.

The most recent studies in this body of research usually examine school size, district socioeconomic status, school socioeconomic status, student socioeconomic status and various interactions among these variables in relation to student outcomes. Grounded in the extensively researched and well-proven supposition poverty has a harmful effect on student achievement, these studies typically replicate Friedkin and Necochea's work using data from different states. Studies may also add in other variables that may affect the outcomes of impoverished students, or include other variables that may work alongside size variables.

The inclusion of other variables into school size research suffers from a lack of ease of replication. While many anecdotal or professionally-based interaction studies do exist, three types of studies have explicitly addressed school size and poverty in a manner that may be replicated. As Molnar (2002) points out, this shortcoming in the literature may stem from two sources. First, earlier assumptions from the first wave of research on school size and district size assumed smaller schools were inferior to larger ones. Second, analysis of school size and student outcomes usually controlled for student socioeconomic status (a la Walberg) or omitted measures of socioeconomic status, reinforcing the tendency of the literature to suggest there is not a significant difference between small schools and large schools, even when controlling for socioeconomic status.

The most recent slate of studies is the Howley studies concerning the states of Georgia, Ohio, Montana, and Texas. These are known collectively as the Matthew Project (1999). Based on the biblical reference found in the book of Matthew, this project is the seminal work on the interaction of school and district size with socioeconomic status to influence student achievement. The authors initially conducted four replications of the Friedkin and Necochea study for Ohio, Texas, Montana and Georgia. A simple regression was used to examine interactions: size + socioeconomic status+ (size*socioeconomic status) = student outcomes. Though the studies used slightly different measures for socioeconomic status and student outcomes due to the availability of data, all states showed the general trend of a negative relationship between school size and student achievement, especially for low-socioeconomic status students. Further the studies found a positive relationship between school size and student outcomes for higher socioeconomic status students. The only state that did not demonstrate a strong significant relationship was Montana. However, Montana has relatively small schools throughout the state which makes it likely the equity and excellence effects apparent in states with more varied sizes among schools and districts will be more robust in analyses. Income is more evenly distributed throughout the state as well, which implies poverty is spread more uniformly throughout the state.

In 2000 Bickel and Howley extended the Georgia analysis section of the Matthew Project to a multi-level analysis to explore schools within districts in the state. The authors sought to conduct a thicker analysis of school size, student achievement and poverty. The single-level analysis, while supporting the general relationship between school size and student achievement of poor students did not find strong excellence effects at the district level. This time, the examination focused on the joint influence of school and district size on school performance with eighth graders and eleventh graders. The study added interaction variables regarding district size and school socioeconomic status; school size and district socioeconomic status; district size and district socioeconomic status; and school size and school socioeconomic status. They also incorporated a number of other variables regarding race, grade sizes, student socioeconomic status and student-teacher ratio. With other variables interacting with school size, the authors found that the effects of size on achievement respond to factors other than school or district socioeconomic status in the presence of these other factors for eighth graders. For eleventh graders, student socioeconomic status and grade spans were the most influential reactors with school and district size. For both grades, however, the negative relationship between school size and student outcomes held. Moreover, the authors assert that especially for impoverished rural areas, smaller schools are better, especially at the high school level.

Bickel and Howley's study set the stage for the addition of place as a variable that could interact with school/district size and poverty to affect student outcomes. However, it is still generally not known whether location actually does interact with school size to affect student outcomes (Bauch, 2004; Khattri, Riley and Kane, 1997). Lee and McIntire explored the interaction of location (urban versus rural) with instructional resources to affect student achievement in mathematics. Using the 1992 and 1996 National Assessment of Educational Progress (NAEP) datasets, the authors found rural schools were more efficient at using their more scarce resources than their urban counterparts. At the same time those strengths were eroded by the poorer quality of curricular and instructional conditions found in rural schools. These factors interact with school size to affect student achievement, and may explain some of the gaps in rural student achievement in some rural areas. While this study provides insight into the structural forces that may possibly interact with location to influence student achievement, the study does not address socioeconomic status; nor does its definition of rural recognize the diversity of rural areas in terms of economic activity. NAEP does, however, include some measure of economic activity for certain rural areas. It has a definition of rural called "extreme rural", which includes students in nonmetropolitan areas with a population below 10,000 and where many parents are farmers or farm workers. While some rural communities are included in this definition, more southern rural areas like those in Mississippi would actually include manufacturing – not farming, since this type of economic activity is more likely to play a large role in rural development in many southern areas. NAEP has no measure for manufacturing. Further, areas with significant farming activity generate spillover benefits which keep some counties from being completely isolated from economic activity. To categorize farming activities as extremely rural overlooks updated conceptions of ruralness and has the potential to incorrectly categorize rural counties as extreme that may be economically well off.

Reeves (2001) conducted a multilevel analysis of the effect of location on student poverty, student achievement, and improvements in student outcomes. While his focus was mainly school improvement policy, his work does have findings important to this study. He cites work by Roscigno and Crowley (2001) that found rural location exerts a negative effect on academic achievement because rural school and rural families tend to be poorer than the national average. Two other studies reached similar conclusions (Friedman and Lichter, 1998; Stallmann and Johnson, 1996). These studies go against the assumptions made by many researchers in the school size literature, which treat ruralness as a positive variable since schools in rural areas tend to be smaller. Reeves concludes location mitigated but does not erase the negative influences of district and school student poverty. While he did not pinpoint the sources of this effect, he hypothesizes social capital in rural communities may play a role. However, ruralness in this study is solely a matter of population; ruralness is based on a school or district’s location to proximity to a town or city.

In 2002, attention was again placed on extensions of the Matthew Project as the authors examined school/district size, poverty and student achievement for Arkansas. As with other studies in the series, the negative relationship between school size and student achievement was confirmed. However, unlike the other studies, these negative effects are not just for low-socioeconomic status students. The effects of smaller school size held across all socioeconomic status levels from the affluent students to impoverished students. However, the negative relationship is much weaker in higher socioeconomic status communities.

The same year, Abbott, Joireman, and Stoh replicated the Matthew Project model for the state of Washington. However, this study used hierarchical linear modeling in order to specify the joint relationships and cross-level interactions of districts and schools on student performance. The study generally supported the finding of previous studies that large district size decreased the achievement of students. However, unlike the other findings, this study found no significant socioeconomic status impact on student outcomes. The authors point out the nature of the achievement test used to measure achievement and the configurations of Washington state schools as reasons for this discrepancy.

One of the most recent studies based on the Matthew Project study was conducted in 2004 by Howley and Howley. This study again used the same basic model as the original 1988 study as well as the Matthew Project, but it used individual student analysis as the unit of measure. This study used the same large data set as the Lee and Smith 1997 study, but focuses on rural areas. Nevertheless, the study reported findings consistent with the previous literature: small school size benefits the outcome of students, except the highest socioeconomic status students; small size disrupts the tendency of low-socioeconomic status students to do poorly on standardized tests; the relationship between school size and achievement is almost always linear; and size effects are as robust in rural school as they are in other schools. This study, though relatively new, has called for more analysis using student-level data, rather than data that is aggregated from the student-level to the school level. However, such analyses may be more difficult to conduct as such data is usually difficult to attain due to privacy laws and Institutional Review Board restrictions on human subjects.

Socioeconomic Factors and Student Outcomes

The district size and school size literature form a foundation for understanding how school size works in Mississippi and its Delta region. However, the literature is deficient in two major ways. First, the literature uses definitions of rural which do not account for the relationship between educational attainment and socioeconomic outcomes in rural areas. Second, the literature does not comprehensively examine how these characteristics may work with school size in rural communities. Because school size is not completely understood in terms of place, and because investigations of the linkages between school characteristics and local socioeconomic factors are infrequent, it is important to recognize the potential influences of mentioned in the rural development literature as important to student outcomes.

The research on socioeconomic factors based on rural development research provides insight into how school size may function alongside socioeconomic factors in the state and especially in the Delta region. The earliest development policy dealt with issues of organizational size, especially in the case of rural schools. However, the current school size literature has not been adequately incorporated into the dialogue on school size and student outcomes. Such dearth is ironic, as the relationship between a well-educated workforce and increased economic opportunities is a tenet of much rural development policy.

The current policy environment, with increased efforts to improve public education, is evidence of the belief links exist between education and improved socioeconomic outcomes. For rural areas, this link is particularly important and can serve as a double-edged sword. A better educated workforce translates into increased possibilities for entrepreneurship; for those communities with plausible fiscal resources, natural economic amenities and infrastructure, better educated citizens may translate into businesses moving into the area. Conversely, rural areas must also contend with the possibility of its better educated citizens leaving small areas for opportunities in more urbanized areas that offer higher salaries and a greater variety of opportunities. As Cynthia Duncan (1999) points out in her seminal study of persistent poverty in the Delta and the Appalachia region about the role of education in improving socioeconomic outcomes through rural development:

> There is... one straightforward policy that would immediately help the poor in both rural and urban America: creating good public schools..... Education is always the first step for those who have moved from poverty and disadvantage in the lower class to stability and opportunity in the middle class..... It is hard to create jobs and new development, especially where workers lack skills and education (205-207).

In the rural development literature, impoverished communities are usually examined based on a common set of socioeconomic factors. Most studies that focus on southern communities like the Mississippi's Delta, though diverse in nature and areas of focus, consider county-level demographics related to employment and poverty, usually income, race, educational attainment and dependence on government payments. For example, Colclough (1988), Reif (1987), Tickameyer and Tickameyer (1988), Tickameyer and Bokemeier (1989) and Tomaskovic-Devey (1987) all pointed out the importance of income, race, and poverty level when examining rural communities. Tickameyer and Duncan (1990) reviewed research on rural poverty and socioeconomic characteristics. They point out the most recent literature focuses on these factors due to the origins of southern rural poverty – a "rigidly stratified political and economic system that perpetuated landlessness and dependency (71)." The studies important to understanding the socioeconomic factors associated with the education level from a rural development standpoint fall into this category.

More recent studies continue in the tradition of examining the demographics of impoverished rural communities. Typical to studies on the Mississippi Delta is the focus on the dimension of poverty that pervades both the economic development opportunities and the education system of the region. Mason (1992)'s work which examined the economic development of the Delta in the context of the poverty in the region is representative of research in this vein. He points out the nature of the poverty in the region is not unique to the Delta and is more inherent in ruralness. He contends the poverty there, as in places all over the globe, is related to the highly concentrated land ownership and large scale, highly, mechanized agricultural production (280). Aldrich and Kusmin (1997) conducted an in-depth study of 24 factors affecting rural community growth and ability to escape poverty. They focused on the county level, and used regression analysis to determine which factors of those most often cited in rural development research actually influenced the growth of rural communities. Of those socioeconomic factors the most germane to educational outcomes: education spending per pupil, amount of transfer payments to county residents, size of the minority population, and the percentage of adults who completed high school.

Allen-Smith et al (2000) conducted an in-depth study of three impoverished regions, including the Mississippi Delta, Appalachia, and the Black Belt. They focused on the chronic poverty in each region, economic characteristics of each region and evaluated the policy environment in each region. Typical of the economic development research, they cited incidents of female headed households, unemployment rates, high school completion rates and proximity to high poverty counties as factors keeping the region poor. Most recently, Barkley, Henry and Li (2005) explored the education-economic link in rural areas. They focused on the southern region of the US and focused on the relationship between additional years of schools and economic growth at the county level. Using per capita income, unemployment rates and county growth rate, they found evidence to support the wisdom behind policies meant to strengthen educational opportunities, especially at the college level, as a means of developing rural areas, even though returns to education were greater for urban areas than for rural areas.

Specific characteristics of rural education systems, too, are common in economic development literature. These studies focus on the quality of schools and school characteristics measured by student achievement at the secondary level as student achievement scores or as high school graduation rates. The relationship between student outcomes and school characteristics is important because schools influence educational attainment, which is directly related to labor force attributes and economic activity such as productivity, job attainment, and the number of college educated individuals in an area (Gibbs, 2000; Krueger and Lindahl 2001; Hanushak, 2003). In an earlier study Jones, Thornell and Hamon (1992) explored districts in Mississippi's Delta region. They sought to explain differences in Delta student achievement scores as compared to other parts of the state. Using over 100 variables important to their investigation, they found district size as measured by student enrollment, instructional costs per student, and dependence on federal payments as major influences on student outcomes. Further, percentage of students eligible for free lunch, percentage of minority students, and high school graduation rates all played significant roles in the quality of schools in the region. This report is similar to Hailey's (1992) research on districts in the system. Studying student-teacher ratios, physical facilities, expenditures per pupil, educational requirements and educational attainment for students, he found Delta districts had lower enrollment, a higher percentage of students eligible for free lunches, lower local financial support, older teachers, lower numbers of students completing core courses, and school facilities in need of repair than their counterparts in the state. Though this study is education policy, rather than economic development it does set forth socioeconomic factors significant in capturing district performance in the region.

Broomhall and Johnson (1994) examined the link between economic resource inputs and educational achievement in Appalachia. They investigated the influence of several aspects of student achievement, including community and school characteristics on the acquisition of human capital and rural areas. They found the ability of local job opportunities, adult education levels, willingness to migrate to other areas in search of jobs and school funding exerted the most influence on student achievement in rural areas. Barkley, Henry and DiFurio (2004) in their investigation of school quality and labor force quality in South Carolina focused on school attributes based on economic resources: pupil-teacher ratios, teacher training, teacher salaries and instructional expenditures per student. Of these factors, the most important were related to school resources: teachers with advanced degrees and per pupil student spending.

Implications for Research

Mississippi is one of the poorest states in the union and has some of the lowest levels of positive student outcomes. The Delta region of the state is one of the poorest regions in the nation. It also reports some of the lowest levels of student outcomes in the nation, especially among its smaller schools. This trend is particularly disturbing as the scholarly literature indicates this trend should be moving in the opposite direction, or smaller schools should at least performing at median state levels. Since smaller schools purportedly overcome many of the negative effects of poverty on student achievement, the Delta's smaller schools should be reporting higher scores.

The existence of small schools and low levels of student outcomes prompts this research to question the current trends in education policy and economic development policy which suggest the use of smaller schools as a policy prescription to improve student outcomes in low-achieving impoverished schools. Why smaller schools in Mississippi, and especially in the state's Delta region, appear to perform poorly indicates a more comprehensive analysis of school size is needed. This analysis examines whether school size itself indeed does play a role in student outcomes. Further, given the economic and social opportunities which may accrue to certain areas by virtue of their socioeconomic histories and geographic location this study incorporates other socioeconomic factors the literature on student outcomes suggests are important to improving student outcomes, especially in the Delta region.

Why does school size seemingly play a different role among Mississippi's public high schools, and particularly in the Delta region? And, given the positive relationship of educational attainment and improved socioeconomic outcomes which factors related to socioeconomic characteristics are likely to influence student outcomes?

The research question is addressed by examining school size, school/district characteristics and development characteristics. To adequately address these questions, a series of more specific questions are posed:

1. Which student outcomes are affected by the size of Mississippi's public high schools? Is there a significant difference between the student outcomes of Delta high schools and schools in other parts of the state?

2. Which socioeconomic characteristics may also influence student outcomes among the state's public high school students?

3. Which student outcomes are affected by the size of Mississippi's districts? Is there a significant difference between the student outcomes of Delta districts and districts in other parts of the state?

4. Which socioeconomic characteristics unique may also influence student outcomes among the state's public high school students at the district level?

Based on the literature, as well as the educational and socioeconomic histories of Mississippi and its Delta region, several variables should be included in this analysis. Four categories of variables are included in this study:

1. Student outcomes: measured with test scores in math or reading and graduation rates.

2. High school characteristics: measured in terms of size (grade span), free lunch participation among students, and student-teacher ratios.

3. District characteristics: measured in terms of size (student enrollment), free lunch participation, per pupil expenditure, teacher quality, and student-teacher ratios.

4. Socioeconomic characteristics: measured based on demographics such as poverty rate, per capita income, and adult high school completion levels. Mississippi's socioeconomic history further suggests measures of race/ethnicity, public assistance payments/public welfare, farm subsidies

and female-headed households are additional important indicators of economic well being.

Given these measures, the following expected findings emerge:

1. Algebra, reading and high school graduation rates are not affected by size itself. There is a significant difference between student outcomes in the Delta and those in the other parts of the state.

2. Socioeconomic characteristics may also play a role in influencing student outcomes among the state's public high school students. These characteristics include free lunch eligibility, student-teacher ratio, county poverty rate, county per capita income, percentage of adults completing high school in a county, percentage of Blacks in the county's population, the amount of farm subsidies the county receives, the amount of public welfare the county receives, the percentage of female-headed households in the county.

3. Algebra, reading and high school graduation rates are not affected by district size itself. There is a significant difference between Delta districts and districts in other parts of the state.

4. Socioeconomic characteristics unique to Mississippi's economic and educational histories also play a role in influencing student outcomes among the state's public high school students at the district level. These characteristics include free lunch eligibility, student-teacher ratio, the percentage of teachers with advanced degrees in a district, per pupil expenditure at the local level, county poverty rate, county per capita income, percentage of adults completing high school in a county, percentage of Blacks in the county's population, the amount of farm subsidies the county receives, the amount of public welfare the county receives, the percentage of female-headed households in the county.

CHAPTER FIVE
METHODS AND PROCEDURES

The previous work on school size and student outcomes as conducted in the Matthew Project suggests an empirical framework for the analysis of high schools and districts in the Mississippi Delta. Following the tradition of the original Friedkin and Necochea (1988) study, the Matthew Project performed a series of studies in which linear equations relate the size of schools, the size of districts, poverty expressed as average socioeconomic (SES) status of those same schools and districts, and the interaction of size and SES in order to predict the aggregate school performance (as expressed by student achievement scores) of schools and districts. The equations focused on school performance and district performance, not individual student performance, and the equations all took this general form:

B_1 Size + B_2 SES + B_3 (size*SES) = student achievement score

Separate regressions were conducted at the school level and the district level. Overall, this model has proved statistically significant and effective at capturing the effects of school size and other factors associated with student achievement. However, the majority of school size studies did not take into account other socioeconomic factors that may work alongside school size, other than socioeconomic status defined as income poverty.

While those studies form a strong basis for understanding school size they do not give a complete picture of how school size may function when an array of socioeconomic characteristics are included in the analysis. This study incorporates variables associated with Mississippi's public high schools and selected socioeconomic indicators. It examines school size alongside other possible influences on student outcomes unique to the development of the state's socioeconomic and public education environments that may have indirectly influenced student outcomes in Mississippi and its Delta region.

This study uses linear regression, Poission regression and Negative Binomial regression for both high school level and district level models because the dependent variables in this study exhibited overdispersion at lower level scores and graduation rates. To capture possible differences between the Delta and the rest of the state, a categorical variable is incorporated to indicate whether a high school or a district is located in the Delta region: 1 if in the Delta, 0 if not in the Delta. This procedure allows comparison of high schools within the region to schools in other parts of the state. (Doing so controls for factors associated with funding, district structure, county classifications, high school configurations, and other factors that may influence student performance outside the socioeconomic characteristics in Mississippi).

A series of analyses are conducted using Stata 9.0 software and GeoDa spatial analysis software. In order to investigate the hypothesized relationships among school size and the other variables discussed in the extant literature, statistical measures are considered statistically significant at the .05 significance level, meaning the independent variables specified in this model successfully demonstrate the hypothesized outcomes 95 percent of the time in Mississippi Delta public high schools and districts.

Populations and Data

In the all the original Matthew Project studies, state-level data were used. This study focuses on high schools and districts within Mississippi, though the Delta region is given special attention. All public high schools in the state that participated in the state's standardized subject area testing are used, yielding a potential sample size of 242 high schools and of 151 districts. Of these high schools and districts, 54 high schools and 43 districts are located in the state's Delta region. Appendices III and IV present listings and selected characteristics of all high schools and school districts included in this study.

The Mississippi Delta region of the state of Mississippi may be defined in a number of ways: geographically, economically, culturally, socially, etc. However, this study uses a combination of geographical and socioeconomic definitions that allows a thorough and representative population of high schools and districts to be examined. Specifically, the Mississippi Delta region of Mississippi includes the core counties between the Mississippi River and the Yazoo River and surrounding counties that share similar cultural and economic characteristics. This region is often referred to as the Delta region. Since the state of Mississippi is the universe for analysis, and since all the high schools and districts in the state are included in the regression, the observed measurements directly and accurately characterize the prevailing relationships.

All data used in this analysis is secondary data and rely on the aggregation and reporting methods of state and federal agencies required by law. The data for this study are gathered from the school year 2003-2004, a year that meets two important criteria: (1) it falls within the current No Child left Behind Act educational environment and (2) it is the year for which complete data were available. For this year a complete data set for all high schools and districts, incomes, poverty levels and other socioeconomic characteristics in the Mississippi Delta is available. Since the data in this study are aggregated to the levels of school, district and county, no means to personally identify individual students or families exist as a threat in this analysis. Further, the data are published on websites for public research purposes and public information; all information reported in this analysis is reported at the population level. For these purposes obtaining informed consent was not required.

Student Outcomes: Achievement Test Score Passing Percentages and High School Graduation

This study examines two measures of student outcomes. These are student outcomes at the high school level and at the district level for Algebra I and Reading and Language Comprehension (ALGH and RLCH, ALGD and RLCD, respectively) and high school graduation rates at the high school level and district level (GRADH and GRADD, respectively).

Achievement Test Scores Passing Percentages

The student outcome variable is measured by the percentage of high school students that pass the Subject Area Testing Program (SATP). All percentages are reported for all high schools and all districts. Two areas of the SATP are important to this analysis: Algebra I and Reading and Language Comprehension (RLC). These two measures are important to socioeconomic outcomes as they are part of basic skills in the job market and measures of literacy of a region. RLC is of further significance as numerous studies conducted on Delta schools found reading scores to be the most predictive in student achievement. Data for these subject areas were obtained from the Mississippi Department of Education (MDE).

The MDE is responsible for overseeing, gathering, analyzing and reporting data on student achievement as part of its responsibility to fulfill requirements of Mississippi state law and federal requirements under No Child Left Behind (NCLB) legislation. The state carries out these duties under a framework that includes an accountability system for all state schools and districts. The framework reflects the accountability requirements outlined in the state legislation (Mississippi Code § 37-18-1 through § 37-18-7) as well as in the accountability provisions in the NCLB. NCLB requires each state to develop and implement a single statewide accountability system that is used to evaluate all schools and districts. Table 1 presents the performance standards and proficiency levels for Mississippi high school students.

The passing percentages give a better measure of the relationship school size and other socioeconomic characteristics may have with student outcomes. Further, since these minimal scores are needed on SATP subject areas in order for high school graduation, they are more closely related to socioeconomic outcomes than are test scores.

Table 1: Mississippi Performance Standards Proficiency Levels

Subject	**Label**	**Scale Score Values**
Algebra I	**Advanced**	**389 and Above**
	Proficient	**344-388**
	Basic	**313-343**
	Minimal	**312 and Below**
Biology I	Advanced	388 and Above
	Proficient	335-387
	Basic	311-334
	Minimal	310 and Below
English II	**Advanced**	**397 and Above**
	Proficient	**346-396**
	Basic	**312-345**
	Minimal	**311 and Below**
U.S. History from 1877	Advanced	397 and Above
	Proficient	347-396
	Basic	311-346
	Minimal	310 and Below

Source: the Mississippi Department of Education, Office of Student Assessment, 2005

High School Graduation Rates

The high school graduation rate variable is included in this study as well. Because high school completion is an important part of socioeconomic well-being, graduation rates at the high school and district level are used in this study. The graduation rates reported by the state of Mississippi in fulfillment of No Child Left Behind (NCLB) requirements are used. The state calculates its graduation rates based on an adjusted 9th grade formula. The graduation rate is calculated by dividing the number of graduates for school year by the number of ninth grade students four years earlier. The adjusted ninth grade enrollment reflects the number of new students entering the district, the number moving out, and the number failing over the four year period. It gives a more accurate estimation of graduation rates at both the high school and the district level.

High School Demographics, District Demographics, and Socioeconomic Well-Being

This study specifies several measures to capture the effects of high school demographics, district demographics, and socioeconomic characteristics the scholarly literature and the history of the Delta suggest are relevant to influencing student outcomes. A number of measures are used to assess how high school size and district size function and to capture possible differences between the Delta region its non-Delta counterparts in the state.

High School Level Variables

High School Size (HSZE). The measure of school size in this study is the average number of pupils per grade level in a high school. This variable is calculated by dividing the number of enrolled students by the number of grades in a particular school. Data for high schools were obtained from the MDE, where demographic information for schools is listed. The most recent literature loosely suggests a metric for school size (Lee, 1997; Klonsky, 2006). Small schools are usually considered to have 250-300 students; medium schools enroll 600-900 students, and larger schools have populations above 900 students. However, the size of schools often reflects concentrations of population settlements. Given the socioeconomically influenced settlement patterns in Mississippi, especially in the Delta region, school size will be scaled based on the distribution of high school sizes unique to the state and to the Delta region.

Free Lunch Eligibility (LUNCH). This variable captures the socioeconomic status of children in public high schools in the Delta region, based on income. Data for this variable were obtained from the National Center on Education Statistics Core of Common Data for the 2003-2004 school year. It measures the number of high school students eligible for free and reduced lunches, which captures the level of income poverty in high schools. Indirectly this variable captures the number of families living in poverty in a county (the students qualify for free lunches) and the number of families right above the poverty threshold (the students qualify for reduced price lunches). Higher numbers of students eligible for free and reduced lunches are associated with lower student outcomes (Howley, 1996; Duncan, 1999; Howley and Howley, 2004).

Student-Teacher Ratio (STR). Student-Teacher Ratio captures the number of students per full-time equivalent (FTE) teacher. Generally, smaller numbers of students per teacher improve student outcomes, as more of the teacher as a resource is available per student (Potts, 2006). Data for this variable were obtained from the National Center for Education Statistics Core of Common Data for the 2003-2004 school year.

District Level Variables

District Size (DSZE). The measure of district size in this study is the total number of students enrolled in a particular district during the 2003/2004 school year. To control for the possible effects of students moving or being eligible to attend school in more than one district, data from the Small Area Income and Poverty Estimates (SAIPE) division of the Census Bureau were used. SAIPE has a classification for children in a district known as relevant students. Each child is considered relevant to only one district. If a district provides all K-12 grades throughout its jurisdiction, all children within the territory are relevant to that district. If an elementary and secondary district occupy the same territory, the child is relevant to the district that provides the grade for that child's age. The literature does not provide guidance on metrics for categorizing district size. However, as with school size, the size of districts often reflects concentrations of population settlements.

Free Lunch Eligibility (LUNCH). This variable captures the socioeconomic status of children in districts in the Delta region. As with high school models, this variable directly measures the level of income poverty in school districts. It also captures the number of families living below the poverty threshold (students eligible for free lunches) and those living just above the poverty threshold (students eligible for reduced lunches) (Howley, 1996). Data for this variable were obtained from the Mississippi Department of Education for the 2003-2004 school year.

Percentage of Teachers with Advanced Degrees (TEDU). A major challenge facing rural schools is the ability to attract and maintain teachers with the education level and expertise to deliver needed subjects to students. The percentage of teachers with advanced degrees is often used as one proxy for teacher quality. In this study, the percentage of teachers with advanced degrees is a proxy for the qualifications of teachers at the district level. It indirectly captures the ability of districts to attract qualified teachers, as well as the level teacher training in Mississippi's high schools and districts. The data for this variable were obtained from the Mississippi Department of Education for the 2003-2004 school year.

Per Pupil Expenditure (PUPIL). Per pupil expenditures by state and local sources captures the resources local jurisdictions invest in schools. Historically, schools have depended on locally raised revenues from property taxes. However, reliance on local property taxes potentially creates inequality in per pupil spending among districts, as female-headed families and minorities generally own less wealth and have lower per capita and family incomes than their counterparts. Populous states with substantial minority concentrations show the greatest differences in per pupil expenditure between school districts. In all states, low-spending districts tend to have high concentrations of poor people, particularly poor people of color (Taylor and Piche 1991). The pattern of spending disparity parallels educational experience and school outcomes. In Mississippi, minority children, on average, achieve lower scores on standardized tests and drop out of school at higher rates. Lower per pupil expenditures generally have a positive relationship with student outcomes – as expenditures decrease so, too, do student outcomes. In this study, data were obtained from the Mississippi Department of Education for the 2003-2004 school year.

Student Teacher Ratio (STR). Student-Teacher Ratio captures the number of students per full-time equivalent (FTE) teacher at the district level. Smaller student-teacher ratios are associated with higher levels of student outcomes (Potts, 2006). Districts with low student-teacher ratios generally perform better than their counterparts, as students benefit from a smaller numbers of students vying for the teacher as a resource. Data for this variable were obtained from the National Center for Education Statistics Core of Common Data for the 2003-2004 school year.

Socioeconomic Well-Being Characteristics

Previous studies have based concepts of socioeconomic status on race, income or geographic location only, without respect to other socioeconomic influences that may shape skill requirements, county incomes, and the allocation of school and district resources, thus influencing educational attainment across geographic areas. The measures of socioeconomic well-being in this study seek to capture those economic and social opportunities that accrue to a place due to its location in the Delta and its socioeconomic development history. In this study several variables are used to measure socioeconomic well-being:

County Poverty Rate (POV). Poverty is a defining feature in the Delta region, but it is even more pronounced in the region's rural areas. The measure of poverty in the U.S. is income-based, and those below the federal threshold are considered to have lower levels of socioeconomic well-being than those who live above the threshold. In Mississippi, poverty is nearly 3 times as high for those in rural areas than for their counterparts in urban areas, excluding the central cities. Understanding poverty is particularly important for Mississippi, a state over 60 percent rural and with large concentrations of individuals and families living below the poverty threshold since at least 1960 (USDA, 1999). In this study, county poverty rates from the 2003 Small Area Income and Poverty Estimates (SAIPE) dataset were used.

Per Capita Income (NCOM). Per capita income is included to capture the average amount of income the working population of a county earns. This variable is important because it adds another dimension to capturing socioeconomic well-being in the region. Many poor residents are dependent upon social programs, and those who do not work do not pay into the tax base used to support those programs. Including a measure of per capita income gives a better idea of the tax base for local governments and thus the funding base available to high schools and districts. In this study, county level per capita income datasets were obtained from the 2000 U.S. Census.

Adult High School Completion (AHC). Nearly all research on rural communities and development cite the percentage of adults in a county who have completed high school as a necessary component in rural development. The percentage of adults with high school diplomas not only serves as an indicator the existing levels of education in a community, but is also a predictor of income and poverty in a community (Goetz and Rupasingha, 2005). To capture adult education in Mississippi's counties, percentages of adult high school completion collected and reported in the 2000 Census education survey is used.

Black Population Percentage (BLK). Mississippi Delta's region and its rural areas are overwhelmingly populated by blacks. Blacks in these areas are more likely to experience poverty, suffer from low education levels, lack transportation and live in female-headed families with no husband present (ERS, 2005)[2]. These differences

---

[2] The Economic Research Service classifies all rural counties in the US based on region and on characteristics specific to the poverty and ruralness of the counties. There are five classifications of counties: black high poverty, Hispanic high poverty, Native American high poverty, Southern Highlands high poverty, and other high poverty counties. Mississippi's counties are located in the Black High Poverty category of counties. These counties lie in the old plantation belt of the southern coastal plain, especially from southern North Carolina through Louisiana. Thirty-nine percent of Blacks in these counties had poverty-level income, a proportion well above that of Blacks in nonmetro counties without high poverty (28 percent) or in metro areas (24 percent). Among conditions associated with poverty, nonmetro counties with high Black poverty stand out most prominently in the fact that a third of all poor children under age 18 were in female-headed households with no husband present. This proportion is much higher than that found in other types of high-poverty areas, and is double that in nonmetro counties without high poverty. This trend is even more pronounced when Mississippi's Delta region is examined.

may be caused by discrimination in employment and wages, and by concentrations of Blacks in areas unable to attract high-wage employers (the Delta region). Therefore, the Black variable indirectly captures several forces that may influence overall levels of socioeconomic well-being: poverty, income, educational levels, location, and market discrimination. To capture the effects of these aspects of socioeconomic status in Mississippi, the percentage of a county's population that is composed of Blacks was used in this study. Data collected and reported in the 2000 Census were used for this variable.

Farm Subsidies (FARM). Aside from being heavily dependent upon manufacturing activities, the Delta is also heavily dependent upon agriculture and agricultural subsidies for economic activity. This dependence is part of the socioeconomic history of the region, and it also captures socioeconomic well-being in terms of available employment opportunities and the quality of the workforce. In Mississippi's Delta region, most large-scale farming is for cotton and soybean crops. This variable captures federal government payments made to farm operators under several federal government farm subsidy programs during a given calendar year. These payments include deficiency payments under price support programs for specific commodities, disaster payments, conservation payments, and direct payments to farmers under federal appropriations legislation. FARM measures in dollars estimates that are current dollars (not adjusted for inflation). It captures county-level participation in federal subsidy programs. A 2003 dataset from the Bureau of Economic Analysis (BEA) was used to capture the effects of farm subsidies in this study.

Temporary Assistance to Needy Families/Public Welfare (TANF). In the Delta, dependence upon public welfare cash payments has been associated poor student achievement and low educational attainment. These trends are based on the region's socioeconomic history, which includes heavy participation in federal farm subsidy and income maintenance programs. This variable captures participation in direct payment federal antipoverty programs. It is measured in dollar estimates that are current dollars (not adjusted for inflation). In this study, a 2003 dataset from the Bureau of Economic Analysis is used to capture the effects of dependence on public welfare payments.

Female-Headed Households (FEM). One aspect of ruralness and poverty in Mississippi's Delta region is a high incidence of female-headed households. Impoverished rural households are more likely to be headed by single females. Such differences, like the Black variable, may be caused by discrimination in employment and wages and concentrations of female-headed households in areas unable to attract high wage employers – regions like the Delta. Further, women in Mississippi are more likely to hold low-wage manufacturing jobs or low-wage service jobs (ERS, 2006). Data for this variable were measured at the county level. The U.S. Census Bureau's City and County Data Books for 2000 are used in this study. Table 2 summarizes all the variables used in this study:

Table 2: Variables Used in This Study

Variable Type	Variable Category	Level of Analysis	Variable Name	Data Source
Dependent	Student Outcomes	High School	Algebra I (ALGH)	MDE (2003-2004)
			Reading and Language Comprehension (RLCH)	MDE (2003-2004)
			Graduation Rate (GRADH)	MDE (2003-2004)
		District	Algebra I (ALGD)	MDE (2003-2004)
			Reading and Language Comprehension (RLCD)	MDE (2003-2004)
			Graduation Rate (GRADD)	MDE (2003-2004)
Independent	High School Characteristics	High School	High School Size in students (HSZE)	MDE (2003-2004)
			Total Percentage of Students Receiving Free and Reduced Lunches (LUNCH)	National Center of Education Core of common Data (2003-2004)
			Student Teacher Ratio (STR)	National Center of Education Core of common Data (2003-2004)
	District Characteristics	District	District Size in students (DSZE)	SAIPE (2003)
			Total Percentage of Students Receiving Free and Reduced Lunches (LUNCH)	MDE (2003-2004)
			Total Percentage of Teachers with Advanced Degrees (TEDU)	MDE (2003-2004)
			Student Teacher Ratio (STR)	National Center of Education Core of common Data (2003-2004)
			Local Per Pupil Expenditure (PUPIL)	MDE (2003-2004)

Table 2 (continued): Variables Used in This Study

Variable Type	Variable Category	Level of Analysis	Variable Name	Data Source
	Socioeconomic Characteristics	High School and District	County Poverty Rate (POV)	SAIPE (2003)
			County Per Capita Income (NCOM)	U.S. Census (2000)
			Percentage of Adults with High School Diplomas (AHC)	Education Survey, U.S. Census (2000)
			Percentage of Blacks in County Population (BLK)	U.S. Census (2000)
			Amount of Farm Subsidies Received by County during 2003 year (FARM)	BEA (2003)
			Amount of Temporary Assistance to Needy Families Received by County during 2003 year (TANF)	BEA (2003)
			Percentage of Female-Headed Households in County (FEM)	City and County Data Book, U.S. Census (2000)

Models and Analyses

Given the socioeconomic and educational histories of Mississippi as well as the nature and concentration of poverty in the Delta region the possibility of non normal distribution among variables needed to be examined. The presence of such distributions greatly informs the usefulness of employing regression analysis to explore school size, district size and student outcomes in the state. Appendix VII contains the distributions for the dependent variables for high school and district models: Algebra I percentage passed, Reading and Language Comprehension (RLC) percentage passed, and graduation rates. Given the slightly skewed distributions of the dependent variables, three types of regression analyses will be used: OLS, Poisson, and Negative Binomial.

Limitations

This study has limitations based on the analyses used in previous studies. One limitation of this study is the possible violation of the assumption that all observances of school test scores are independent of one another. This may potentially be related to spatial autocorrelation at the county level. The state of Mississippi has several pockets of chronically poor counties that are geographically concentrated, especially in the Delta region. These counties may be interdependent because the data are affected by processes that connect different counties, or by poverty that extends over space to occupy clusters of counties rather than specific counties or by policy outcomes in contiguous counties. The movement of goods, services, people or information over these spaces means events or circumstances, such as local per pupil spending can affect conditions at other places if these places interact (Odland, 1988).

A second issue is that of multicollinearity. Multicollinearity is the undesirable situation when one independent variable is a linear function of other independent variables. Because many of the variables in the proposed model measure similar influences, the presence of multicollinearity makes it difficult to decide which predictors are related to student outcomes in Mississippi or in its Delta region (Ott and Longnecker, 2001). Further, multicollinearity makes interpreting regression results difficult.

To correct for spatial autocorrelation, a spatially lagged dependent variable is specified for this study. The variable is created using the county level spatial weights based on a rook analysis using GeoDa software. When counties are spatially autocorrelated, the student outcomes among counties may be not be independent occurrences. Rook analysis provides a contiguity matrix that indicates how many counties may cluster in space. By weighting the measures of student outcomes based on the number of contiguous counties, autocorrelation may be controlled. To correct for multicollinearity, Pearson's correlation will be used to test for relationships among independent variables. The use of the smallest number of variables possible will correct for multicollinearity through data reduction.

Delimitations

This study focuses on the state of Mississippi and its Delta region. While the geographic region of Mississippi Delta stretches far beyond the state of Mississippi, this study is bounded by the state of Mississippi's public education legislation, state socioeconomic history and unique regional culture. Though other regions of the Delta share a similar socioeconomic history, the results of this study are generalizable only to the Delta region in the state of Mississippi.

The study is limited to public high schools in the Delta region of the state of Mississippi. The relationship of region with school size at other levels of schooling such as the elementary and middle school levels is important. However, due to socioeconomic development implications in this study, the high school level takes on particular importance, as high schools play a special role in the development of rural communities and thus, in socioeconomic outcomes. Similarly, private schools are not included in this study. First, private schools in the Mississippi Delta are not racially or economically representative of the population of the region in the state of Mississippi. Most rural private school students in the region are attended by white students; while the majority of the Mississippi Delta's rural population is black. Second, students in private schools in the Mississippi Delta typically live in families with incomes higher than the county's median household incomes.

This study investigates high school size and district size alongside other variables associated with socioeconomics indicators in the state of Mississippi. Other attributes of high schools and districts such as the condition of school facilities and variety of courses offered are outside the scope of this project. Similarly, other aspects of student achievement such as psychological effects of poverty, student attitudes, and testing biases are not included in this study.

CHAPTER SIX
RESULTS AND DISCUSSION

Size and Mississippi

Though high schools and districts are somewhat smaller than those examined in previous studies, school size and district size in Mississippi and its Delta region generally supports the negative relationships between student outcomes and school/district size identified in the majority of school size studies. Tables 3 and 3.1 present the descriptive characteristics of all variables used at the high school level and at the district level.

Data from Mississippi also supports the U-shaped curves purported in the Fox (1981) study for all dependent variables. Figures 1- 3 and Figures 4-6 present scatterplots of student outcomes by high school and district size, respectively. As the scatterplots indicate, u-shaped curves may be fitted through the data for RLC, Algebra, and Graduation Rates. Regressions that included size and size-square estimates were conducted. Though size and size-square were not significant, the overall models were. For Mississippi data, all size coefficients were negative and all size-squared coefficients were positive, and this indicated student outcomes decreased as size increased to a point, and then began to increase as size increased. The Stata output for all models is provided in Appendix VIII.

Figure 1: Reading and Language Comprehension Scatterplot (High School Level)

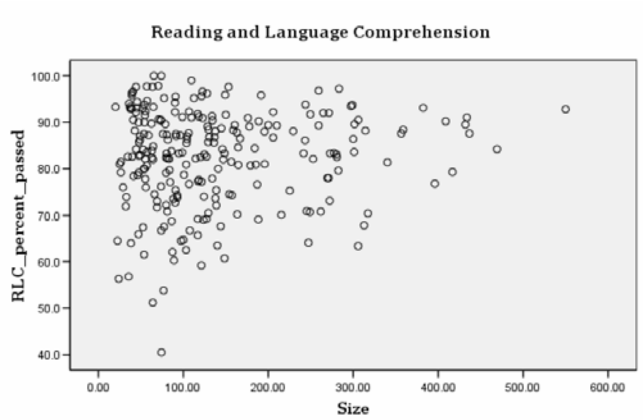


Figure 2: Algebra Scatterplot (High School Level)

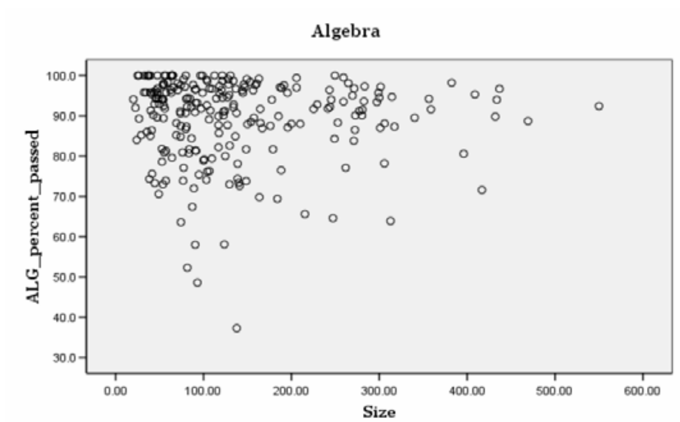


Figure 3: Graduation Rate Scatterplot (High School Level)

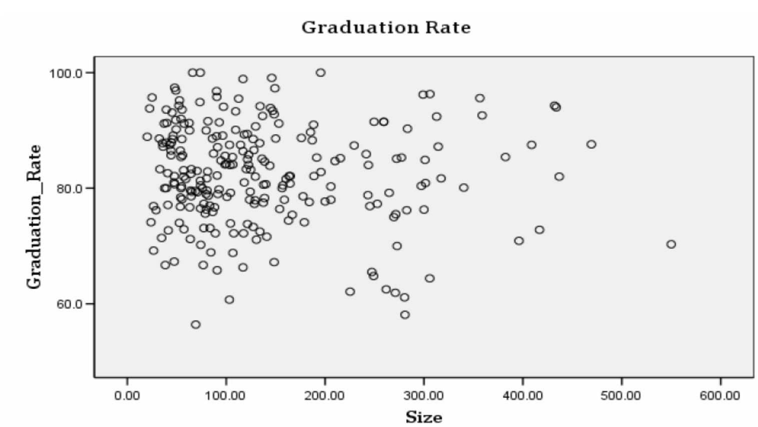


Figure 4: Reading and Language Comprehension Scatterplot (District Level)

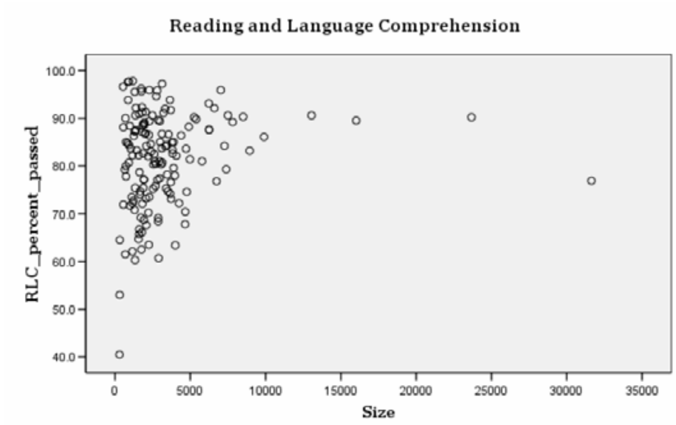


Figure 5: Algebra Scatterplot (District Level)

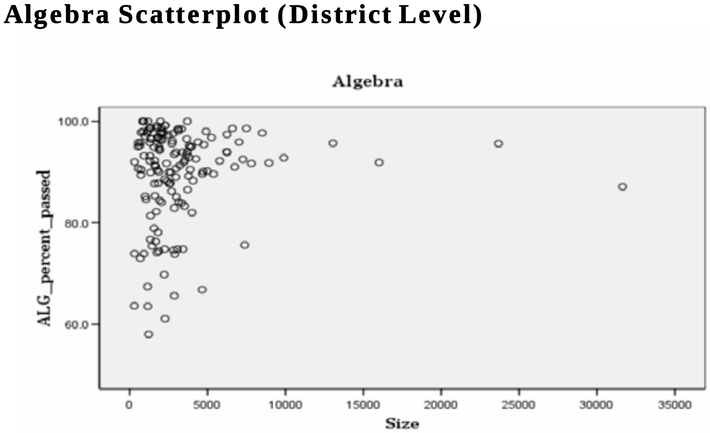
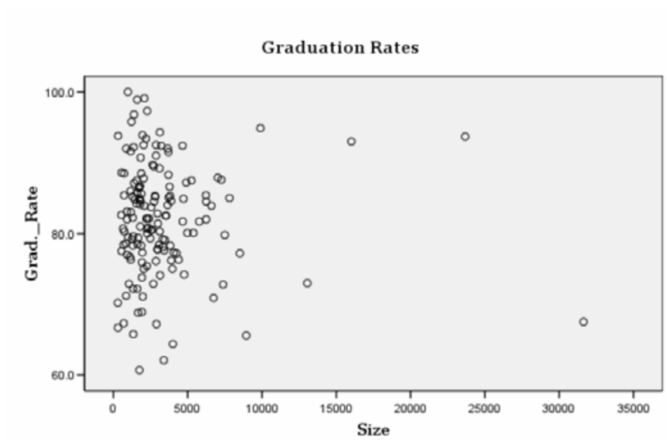


Figure 6: Graduation Rates Scatterplot (District Level)



Size Models

A Pearson's correlation analysis indicated the county poverty rate, the percentage of Blacks in the county population, and the percentage of female-headed households in the county were linearly associated. They were all measures for poverty. The county poverty rate and the percentage of female-headed households in the county were dropped from analysis where appropriate because the percentage of Blacks in the county population was a better predictor of all three student outcomes. These relationships were present for both high school and district level models.

Spatially weighted dependent variables (w*y) were included as independent variables to test for and control for spatial autocorrelation. In all three regression analyses and for all three dependent variables, spatial autocorrelation was present. This was true for both high school and district level models.

The Negative Binomial regression results are the focus, as these models controlled for many of the possible issues associated with skewed dependent variables and possible overdispersion of the dependent variables, which may make the estimators of OLS and Poisson regressions unreliable. Appendix VII contains histograms of all dependent variables for both high school and district levels.

High School Level Models

Of the three dependent variables used in this analysis, the Reading and Language Comprehension (RLC) scores provided the strongest results. RLC measures are particularly important as literacy skills serve as the basis for critical thinking and understanding quantitative information. Further, because reading proficiency increases with parental educational attainment, and because literacy serves as a major indicator of workforce quality in development, it has direct implications for socioeconomic well-being (Steeds and Serageldin, 1997). The results for all regression analyses of RLC are presented in Table 4.

Though size was not significant in any of the regression models, the results appear to support the negative relationship between size and student outcomes purported in previous studies. Location in the Delta region had a negative relationship with reading scores, though the association was not significant. Further, the spatially weighted variable included in all regression analyses was significant and positively related to all student outcomes at both levels. This variable captures clustering among areas based on similar test scores.

The socioeconomic outcomes most statistically powerful in influencing reading scores are the percentage of blacks in the county population and local per pupil spending, both of which were significant across all regression analyses. Both of these variables allude to the socioeconomic history of the state in terms of the availability and willingness of districts to fund schools as well as the concentration of adults with lower educational attainment.

Local per pupil spending, which was measured at the district level, had a negative relationship with reading scores, and this was unexpected. Given the tendency of lower spending districts to have higher rates of concentrated poverty, a positive relationship was expected. However, upon closer examination, the negative relationship has more to do with other factors, rather than the amount of expenditures. First, the sources of spending, rather than overall pupil spending itself may have some effect in the negative relationship. Local per pupil spending is the amount of dollars local governments spend per student. It does not capture the amount of monies from state or federal sources invested in expenditures on students. Districts in Mississippi receive the majority of their revenues from the state, followed by local sources, and the least amount from federal sources (Superintendents Report Card, 2005). The second factor to consider is how revenues are allocated among different populations of students. Districts with higher numbers of impoverished students may spend more on providing services to students, especially if the district performed poorly based on NCLB standards. In such cases, additional monies would have been spent to provide supplemental services or transportation to students seeking to change schools. This would have meant higher levels of spending but lower levels of student outcomes. Districts with high numbers of special needs students are also more costly to educate. Like impoverished students, these students are more likely to reside in districts with higher incidences of poverty. During the 2003-2004 school year most local district spending was focused on instructional expenditures ($2.3 billion). Of that figure, the bulk of spending included $420 million on special programs, such as special education and after school programs for Title I students (Superintendents Report Card, 2005).

To a lesser extent the percentage of students receiving free and reduced lunches (significant at the .10 level), which is a measure of school poverty, appears to negatively influence reading scores. This variable, too, suggests having high rates of poverty present among students may play a role in influencing reading scores. For example, impoverished students are more likely to come from families with lower levels of parental education and lower incomes, both factors important to student achievement in reading. The general relationships between the socioeconomic indicators held across regression analyses, so there were no differences among Negative Binomial (NB), OLS or Poisson results.

Algebra I NB analyses, presented in Table 5, suggest the percentage of students who receive free and reduced lunches and the percentage of Blacks in the county population are the most statistically important socioeconomic factors influencing high school Algebra I scores. Both of these variables capture poverty among Mississippi households and the nature of poverty in the state. As with RLC, Algebra scores had a negative, but insignificant relationship with size, and location in the Delta region was not significant. The same relationships held across OLS and Poisson analyses.

Table 6 contains the regression results for high school graduation rates. As with RLC and Algebra I, school size had a negative but insignificant relationship with graduation rates. Location in the Delta region and local per pupil spending, too, had negative but insignificant associations with graduation rates.

Most influential, however, are the socioeconomic factors in terms of the dollar amount of farm subsidies received by the county, the dollar amount of TANF payments received by the county and the percentage of students who receive free and reduced lunches. Farm subsidies have a positive association with graduation rates, as increased farm subsidy dollars appear to increase graduation rates. This is likely due to the types of jobs available on mechanized farms, which require literate workers with at least high school educational attainment. In Mississippi, these large-scale mechanized farms receive subsidies in the form of income support and in payments directly to farm operators and landlords, which allow the farms to operate and provide a limited number of jobs (Census of Agriculture, 2002).

Table 3: High School Level Model Descriptive Characteristics

	Minimum	Maximum	Mean	Std. Deviation
AHC	53.70	83.00	70.12	7.44
ALGH	37.30	100.00	89.35	10.34
BLK	0.03	0.87	0.37	0.19
FARM	71.00	51729.00	6411.80	11764.57
GRADH	56.40	100.00	82.40	8.75
PUPIL	4305.00	9192.00	5714.24	695.18
RLCH	40.50	100.00	82.47	10.42
HSZE	20.15	550.00	137.37	99.31
STR	8.70	25.30	15.49	2.57
TANF	222.00	10587.00	1966.41	2442.30
TEDU	15.10	66.70	36.49	8.07
LUNCH	87.00	1298.00	377.88	190.90
W_Alg	6.22	47.25	19.82	6.85
W_Grad	9.60	38.15	18.26	6.12
W_RLC	8.10	43.25	18.35	6.59

Table 3.1: District Level Model Descriptive Characteristics

	Minimum	Maximum	Mean	Std. Deviation
AHC	53.70	83.00	69.23	7.30
ALGD	58.00	100.00	89.75	9.31
BLK	3.11	86.69	39.27	19.80
FAMR	71.00	51729.00	7911.45	13499.67
GRADD	60.70	100.00	82.02	7.88
LUNCH	19.29	95.67	63.55	19.91
PUPIL	4305.00	9192.00	5816.44	749.42
RLCD	40.50	97.80	81.44	10.07
DSZE	297.00	31640.00	3260.46	3687.87
STR	10.65	18.69	14.56	1.51
TANF	222.00	10587.00	1851.17	2114.64
TEDU	15.10	66.70	36.28	8.54
W_Alg	9.63	47.95	20.22	7.09
W_Grad	9.60	38.15	18.44	6.25
W_RLC	8.10	43.25	18.38	6.68

Table 4: Reading and Language Comprehension (RLC) [3]
Regression Results for High School Models

Independent Variables	Model 1: Neg. Bin.	Model 2: OLS	Model 3: Poisson
w_rlc	0.0059379	0.5079851	0.0059379
	5.07* **	5.68* **	5.07* **
Teacher Education	0.0002495	0.0176620	0.0002495
	0.25	0.24	0.25
Pupil Spending	-0.0000375	-0.0029387	-0.0000375
	-3.17* **	-3.44* **	-3.17* **
Delta	-0.0065967	-0.1685139	-0.0065967
	-0.25	-0.09	-0.25
Size	-0.0000920	-0.0072597	0.0000920
	-0.81	-0.86	-0.81
Student-Teacher Ratio	0.0029737	0.2613412	-0.0029737
	0.85	1.00	0.85
Lunch	-0.0000816	-0.0067537	-0.0000816
	-1.68**	-1.87**	-1.68**
Adult High School	0.0023433	0.1905990	0.0029433
	1.48	1.60	1.48
Blacks	-0.1697449	-14.0343900	-0.1697449
	-2.63* **	-2.93* **	-2.63* **
Farm Subsidies	-0.000000469	-0.0000401	-0.000000469
	-0.46	-0.54	-0.46
TANF	0.00000162	0.0001386	0.0000016
	0.34	0.39	0.34
Constant	4.403	80.628	4.403
	28.50* **	7.07* **	28.50* **
R-Square (Pseudo)	0.0642	0.4041	0.0695
Number of Observations	241	241	241

[3] * significant at .05 level
** significant at .10 level

Further, farms are guaranteed subsidies for certain crops, or the subsidies are spurred by price crashes or disasters — no matter the wealth of the farm owners. Nearly 1 in 3 farms in Mississippi receives these subsidy payments, and large farms receive payments to produce primarily rice and cotton (Census of Agriculture, 2002).

TANF has a negative relationship with high school graduation. This relationship is a measure of income poverty in the state, which indicates students from families with lower incomes are not as likely to graduate high school as those students from families with higher incomes. This may also be due to TANF policy itself; by requiring participants to seek job training (such as Job Corps) or attain GEDs. This means participants do not necessarily graduate from a public high school that reports its graduation rates to the state.

The percentage of students receiving free and reduced lunches had a negative relationship with graduation rates. In this case, this measures household poverty, which supports findings in the literature of impoverished students being less likely than their counterparts to complete high school. These findings, when taken as a whole, suggest graduation rates are more influenced by income, which is greatly influenced by the types of jobs available in the local workforce, not necessarily school resources. The results were consistent across all the regression analyses, including OLS and Poisson.

District Level Models

The district level models produced similar results to the high school models, with a few important differences in socioeconomic factors. Table 7 presents district level findings for RLC. Per pupil spending and the percentage of studenst receiving free and reduced lunches exerted the strongest influences on reading scores.

Unexpectedly, location in the Delta was not significant in influencing reading scores. Local per pupil spending had the same association as with the high school models. This may be due to how local dollars are spent, the populations being served and the effects of other sources of funding not captured by the local per pupil spending variable.

The percentage of students receiving free and reduced lunches, which measures district poverty, exerts a negative influence student reading scores. This supports the findings of poverty's negative effects on student outcomes as well as the findings at the high school level. These results were consistent across both OLS and Poisson regressions.

Table 8 contains the results for Algebra I at the district level. Like RLC district poverty as the percentage of students receiving free and reduced lunches negatively affects high school Algebra scores. Student-teacher ratios influence student outcomes as well. The negative relationship means as student-teacher ratios decrease, math scores increase. This finding supports the findings in the literature on the allocation of teachers as resources and student math achievement. Like RLC, a negative relationship exists between local per pupil spending and the percentage of students who pass Algebra I. As with previous models, this suggests the how funding is spent, sources of spending, and the prevalence of certain student populations, not necessarily that the amount of funding impacts student outcomes. These findings were consistent across both OLS and Poisson regression models.

Table 5: Algebra I Regression Results for High School Models[4]

Independent Variables	Model 1: Neg. Bin.	Model 2:OLS	Model 3: Poisson
w_alg	0.0051961	0.4757450	0.0051972
	4.91* **	5.19* **	4.89* **
Teacher Education	0.0007094	0.0647873	0.0007094
	0.74	0.79	0.74
Pupil Spending	-0.0000115	-0.0001011	-0.0000115
	-1.02	-1.09	-1.03
Delta	0.0198905	1.8897300	0.0198961
	0.80	0.89	0.79
Size	-0.00000995	-0.0086157	-0.0000994
	-0.89	-0.93	-0.91
Student-Teacher Ratio	-0.0002242	-0.0212129	-0.0002248
	-0.07	-0.07	-0.07
Lunch	-0.0000911	-0.0078865	-0.0000911
	-1.95 **	-2.01* **	-1.94**
Adult High School	-0.0007504	-0.0722362	-0.0007504
	-0.49	-0.56	-0.49
Blacks	-0.1636624	-14.8281100	-0.1636685
	-2.69* **	-2.85* **	-2.66* **
Farm Subsidies	-0.000001590	-0.0001398	-0.000001590
	-1.64	-1.72**	-1.63
TANF	0.00000583	0.0005294	0.00000583
	1.26	1.38	1.27
Constant	4.586	97.776	4.586
	30.87* **	7.86* **	31.07* **
R-Square (Pseudo)	0.0416	0.2814	0.0440
Number of Observations	241	241	241

[4] * significant at .05 level
** significant at .10 level

Table 6: Graduation Rates Regression Results for High School Models[5]

Independent Variables	Model 1: Neg. Bin.	Model 2: OLS	Model 3: Poisson
w_grad	0.0042968	0.3576388	0.0042968
	3.45* **	4.04* **	3.45* **
Teacher Education	0.0005865	0.0483791	0.0005865
	0.59	0.69	0.59
Pupil Spending	-0.00000966	-0.0007857	-0.00000966
	-0.84	-0.98	-0.84
Delta	-0.0321350	-2.5178560	-0.0321350
	-1.23	-1.38	-1.23
Size	-0.000000737	-0.0007172	-0.00000737
	-0.06	-.0.09	-0.06
Student-Teacher Ratio	0.0038140	0.3192336	0.0038140
	1.09	1.30	1.09
Lunch	-0.0001232	-0.0100012	-0.0001232
	-2.52* **	-2.94* **	-2.52* **
Adult High School	0.0014282	0.1123456	0.0014282
	0.90	1.00	0.90
Blacks	-0.0038485	-0.6179921	-0.0038485
	-0.06	-0.14	-0.06
Farm Subsidies	0.000002000	0.0001596	0.000002000
	1.97* **	2.24* **	1.97* **
TANF	-0.00001470	-0.0011264	-0.0000147
	-3.03* **	-3.39* **	-3.03* **
Constant	4.279	71.647	4.279
	28.16* **	6.73* **	28.16* **
R-Square (Pseudo)	0.0333	0.2552	0.0333
Number of Observations	241	241	241

[5] * significant at .05 level
** significant at .10 level

Table 7: Reading and Language Comprehension (RLC) Regression Results for District Models[6]

Independent Variables	Model 1: Neg. Bin.	Model 2: OLS	Model 3: Poisson
w_rlc	0.0044795	0.3775503	0.0044795
	3.07* **	3.83* **	3.07* **
Teacher Education	-0.0001949	-0.0217271	-0.0001949
	-0.16	-0.27	-0.16
Pupil Spending	-0.0000558	-0.0040840	-0.0000558
	-3.27* **	-3.85* **	-3.27* **
Delta	0.0102878	0.8903465	0.0102878
	0.32	0.42	0.32
Size	-0.0000016	-0.0001188	-0.0000016
	-0.52	-.58	-0.52
Student-Teacher Ratio	-0.0144262	-1.0232010	-0.0144262
	-1.70 **	-1.86**	-1.70 **
Lunch	-0.0025147	-0.2091514	-0.0025147
	-3.29* **	-4.12* **	-3.29* **
Adult High School	0.0023933	0.1854842	0.0023933
	1.17	1.37	1.17
Blacks	-0.0007111	-0.0527131	-0.0007111
	-0.76	-0.84	-0.76
Farm Subsidies	-0.000000133	-0.0000076	-0.000000133
	-0.11	-0.26	-0.11
TANF	-0.00000118	-0.0001172	-0.00000118
	-0.17	0.794	-0.17
Constant	4.883	116.8804	4.883
	20.89* **	7.70* **	20.89* **
R-Square (Pseudo)	0.0810	0.5082	0.0842
Number of Observations	151	151	151

[6] * significant at .05 level
** significant at .10 level

Table 8: Algebra I Regression Results for District Models[7]

Independent Variables	Model 1: Neg. Bin.	Model 2: OLS	Model 3: Poisson
w_alg	0.0035800	0.3294810	0.0035800
	2.77* **	3.48* **	2.77* **
Teacher Education	0.0002879	0.0264299	0.0002879
	0.25	0.31	0.25
Pupil Spending	-0.0000256	-0.0021509	-0.0000256
	-1.62	-1.95**	-1.62
Delta	0.0394042	3.5384650	0.0394042
	1.29	1.60	1.29
Size	-0.00000183	-0.0001602	-0.00000183
	-0.62	-0.75	-0.62
Student-Teacher Ratio	-0.0139304	-1.1773700	-0.0139304
	-1.74 **	-2.06* **	-1.74 **
Lunch	-0.0018063	-0.1621929	-0.0018063
	-2.47* **	-3.07* **	-2.47* **
Adult High School	0.0000047	0.0049827	0.0000047
	0.00	-0.04	0.00
Blacks	-0.0009487	-0.0845326	-0.0009487
	-1.06	-1.30	-1.06
Farm Subsidies	-0.000001690	-0.0001477	-0.000001690
	-1.44	-1.77**	-1.44
TANF	0.00000609	0.0005381	0.00000609
	0.94	1.15	0.94
Constant	4.913	125.449	4.913
	22.30* **	7.94* **	22.30* **
R-Square (Pseudo)	0.0495	0.3775	.0495
Number of Observations	151	151	151

[7] * significant at .05 level
** significant at .10 level

Table 9 presents the findings for high school graduation rates at the district level. The most powerful factors in influencing graduation rates at the district level were the percentage of students receiving free and reduced lunches; the percentage of the county's population that is Black; the amount of farm subsidy dollars received by counties; and the dollar amount of TANF payments received by counties.

The percentage of students receiving free and reduced lunches is a measure of household poverty. Its negative relationship – as percentages of impoverished students increase graduation rates decrease – supports findings throughout the literature on the decreased likelihood of students from impoverished families to graduate high school.

Related to poverty is the percentage of county population that is Black. Unexpectedly, the percentage of Blacks is positively associated with high school graduation rates. The percentage of the county's population that is Black captures different dimensions of poverty, such as the likelihood of having lower incomes, living below the poverty threshold, and coming from female-headed households. However because other measures of poverty, including the percentages of students receiving free and reduced lunches and the amount of payments from TANF, were negatively and significantly associated with high school graduation rates, this true effect of this measure may be masked by these other measures.

Significant to high school graduation rates were the socioeconomic characteristics of the amount of farm subsidies received by the county and the amount of TANF received by the county. The positive relationship between farm subsidies and high school graduation suggests the availability of employment, at least in agriculture-related fields requires a literate and educated supply of labor. Because mechanized, large-scale farms in Mississippi are the mostly likely to receive subsidies, these farms are also more likely to be able to afford to employ workers. TANF's negative relationship suggests public welfare payments either decrease the incentive to complete high school, or (more likely) increase participation in programs with alternative means of securing education or job opportunities. These results were consistent across both OLS and Poisson regression models.

Summary of Findings

The findings at both the high school and district levels suggest important implications for socioeconomic well-being in the state of Mississippi. It is useful to summarize overall findings in the context of the previously mentioned expected findings:

1. Algebra, reading and high school graduation rates at the high school level are not affected by high school size itself. Also, there is no significant difference between student outcomes in the Delta and those in the other parts of the state.

2. Socioeconomic characteristics also play a role in influencing student outcomes among the state's public high school students. These characteristics consistently include free lunch eligibility, percentage of Blacks in the county's population, and to a lesser extent the amount of farm subsidies the county receives and the amount of public welfare the county receives.

3. Algebra, reading and high school graduation rates at the district level are not affected by district size itself. Also, there is no significant difference between Delta districts and districts in other parts of the state.

4. Socioeconomic characteristics also play a role in influencing student outcomes among the state's public high school students at the district level. These characteristics include free lunch eligibility, student-teacher ratio, per pupil expenditure at the local level, the amount of farm subsidies the county receives, the amount of public welfare the county receives, and to a lesser extent the percentage of Blacks in the county's population.

Table 9: Graduation Rates Regression Results for District Models[8]

Independent Variables	Model 1: Neg. Bin.	Model 2: OLS	Model 3: Poisson
w_grad	0.0035734	0.2924043	0.0035734
	2.35* **	0.003* **	2.35* **
Teacher Education	0.0004572	0.0363767	0.0004572
	0.37	0.634	0.37
Pupil Spending	0.00000841	0.0006821	0.00000841
	0.52	0.497	0.52
Delta	-0.0426781	-3.5048110	-0.0426781
	-1.31	0.084**	-1.31
Size	-0.0000013	-0.0000917	-0.0000013
	-0.40	0.635	-0.40
Student-Teacher Ratio	-0.0016229	-0.1350513	-0.0016229
	-0.19	0.794	-0.19
Lunch	-0.0031238	-0.2531517	-0.0031238
	-4.06* **	0.000* **	-4.06* **
Adult High School	-0.0012715	-0.1018685	-0.0012715
	-0.62	0.423	-0.62
Blacks	0.0016106	0.1300061	0.0016106
	1.74**	0.026* **	1.74**
Farm Subsidies	0.000002070	0.0001689	0.000002070
	1.67**	0.030* **	1.67**
TANF	-0.00001340	-0.0010668	-0.00001340
	-1.94**	0.013**	-1.94**
Constant	4.545706	93.274	4.545706
	19.79* **	0.000* **	19.79* **
R-Square (Pseudo)	0.0316	0.2927	0.0316
Number of Observations	151	151	151

[8] * significant at .05 level
** significant at .10 level

Discussion

The high school level models suggest two important factors play an essential role in all three student outcomes at the high school level: the percentage of Blacks in a county's population and the percentage of students receiving free and reduced lunches. These variables are measures of poverty and they present different dimensions of social dynamics related to socioeconomic status: race and participation in federal programs. In terms of well-being, these findings suggest at least one major component for improving socioeconomic outcomes should be based on addressing the high levels of poverty in the state. Such policies may focus on addressing racial inequalities, and evaluating the effectiveness of federally-based programs intended to address poverty.

Especially effective economic policy programs may focus on the effects of historical racial inequalities such as increased efforts in pipeline programs that seek to increase the number of minorities, economically disadvantaged individuals, and females who graduate high school and seek post secondary training, such as Job Corps. These programs usually seek to affect the ability of these groups to participate in the job market or attain postsecondary education. One model that works with high schools is South Carolina's Emerging Scholars program (Clemson University Office of Access and Equity, 2006). This program focuses on increasing the basic skills that increase the chances of student successfully completing high school and matriculating at the post secondary education level: reading and mathematics. The program targets students from the poorest region of the state – the Low Country region. The majority of students in the program are minority females from the poorest areas in the Low Country. Participation the program potentially contributes to the number of students who complete high school and attend college, thereby reducing future levels of poverty in the state and increasing socioeconomic well-being.

Even if the state increases its number of high school graduates, there is still the issue of more educated individuals leaving in search of job opportunities in other areas. This is especially true for impoverished rural areas like the Delta. Another set of policies that may improve socioeconomic outcomes involves creating employment opportunities such as web-based microbusinesses, and related to microbusiness, entrepreneurship education. These home or community-based businesses initiatives focus on developing the small business skills of adults who wish to develop special products and sell them on-line. Entrepreneurship education focuses on teaching business skills as part of secondary education curricula, which may not only improve education outcomes, but sets the stage for the development of small businesses in the state for the future. This may be particularly important as findings at both the high school level and the district level suggest the available employment opportunities in traditional farming require a literate and educated workforce. Because the availability of these jobs is limited due to the highly mechanized nature of agriculture in the state, those educated individuals may be able to remain in the area and experience gainful employment through small businesses or internet-based entrepreneurship.

Lastly is the issue of participation in federal poverty programs. In the Delta region especially, participation in farm subsidy programs and income-based programs is higher than in other regions of the state. Strong, statistically significant links were found between student outcomes and participation in farm subsidy or TANF programs in the models at both levels. Participation in free and reduced lunch programs, too, was influential in every model. Because participation in the lunch program is heavily based on income (among other factors), this variable is indicative of opportunities for socioeconomic improvement to focus on income-based poverty among families with school-age children and the working poor. Two prominent policies being debated at the federal level include the living wage program and tax credits, both of which seek to improve the spending power of families with children and of the working poor.

The appearance of the lunch variable in the size analyses underscores the challenges of severe and chronic poverty that plague Mississippi and its Delta region. The state addresses this issue primarily through its TANF program, which from a socioeconomic standpoint, should be implemented with more partnerships among local businesses, community colleges and local communities. Beginning in 1993, Mississippi enacted a series of programs that changed its AFDC and JOBS state implementation plan under the auspices of a waiver plan, titled "A New Direction Demonstration Program." This new program was implemented in six pilot counties. It set strict work requirements for participants and imposed strict sanctions, which included the total loss of benefits for non-compliance with state requirements. The program created a "one-stop shop" of integrated welfare and job placement services, which further emphasized the state's preference for immediate job searches and placements for welfare recipients.

With the advent of TANF in 1997, the state relaxed its strict penalties in compliance with the new legislation and terminated its waiver plan. Those participants who adhere to TANF regulations receive full benefits for a maximum of 60 months. Those who violate the plan or attempt to defraud the state are sanctioned through temporary or permanent loss of benefits, reduced benefits, denial to services such as job training, or legal sanctions.

The state does not track its participants once they leave welfare roles, which may shift former welfare recipients to the ranks of the unemployed or out of the public system altogether. A more effective program might include a more concerted effort to tie in anti-poverty to socioeconomic outcomes and state support for pipeline programs that link welfare participation to specific programs at local community colleges (such as entrepreneurship training), apprenticeships with local businesses, or participation in microbusinesses, or entrepreneurship programs.

The district level models were similar to high school level models, especially with respect to poverty. Also important as suggested by analyses at the district level were variables indirectly related to the nature of allocating resources in terms of farm subsidies and TANF, and directly at the district level, student-teacher ratios. Farm subsidies and TANF relate indirectly to the issue of literacy. Many programs aimed at increasing levels of entrepreneurship, increasing basic skills among children and adults, and decreasing poverty are made more effective by a literate population. Further securing jobs in the mechanized farm industry and successfully leaving welfare roles are increased by improving literacy. However, literacy is an issue that must be addressed before students reach high school. The Mississippi Education Reform Act of 1982 addressed public education, with particular focus as the kindergarten level. Andrew Mullins, development specialist at the University of Mississippi and former chief-of-staff of Mississippi Governor William Winter who was responsible for the Act recognizes the importance of addressing literacy well before the high school experience. He recommends efforts start at the pre-school level and increase as students reach elementary, on to junior high school and finally high school. He points out, “ All levels of public education are important, and whatever can work – be it school size or whatever policy – must include buy in by both the governor and the state legislature, and unfortunately many of our state legislators have not bought in to the importance of access to public education (Mullins, 2005)." According to Mullins, the issue of race discrimination continues to inform legislative support for many would-be activities with the potential to improve socioeconomic outcomes.

Student-teacher ratios directly capture how resources are allocated among schools at the district level. In nearly every model, student-teacher ratios exerted influence on student outcomes. In order to obtain the small student-teacher ratios to improve student outcomes, Mississippi must not only attract and retain teachers, but must find ways to pay for additional teachers in schools. Rural areas generally have a harder time attracting teachers, but for impoverished areas, this task proves particularly challenging. This challenge means both short-term and long-term policies are needed to improve how resources are divided among students. Short-term, smaller student-teacher ratios may be achieved among elementary and middle-school students, who generally experience smaller class sizes than their high school counterparts. This focus ensures the fundamentals of education and basic skills are potentially improved before students reach the high school level. Long-term approaches mean deliberate efforts by the state policymakers to provide incentives to attract teachers to the state: loan repayment for teachers working in chronically poor areas; pipeline programs to identify, recruit, and maintain potential in-state students who have a desire or ability to teach; higher teacher salaries; and other amenities such as reduced price housing and special benefits for teachers.

Lastly, are the implications for the spatially weighted variable. As previously mentioned, the variable captured the clustering of areas similar in socioeconomic factors and educational policies. This suggests pilot programs may be an effective means for implementing policies throughout the state as similar schools, districts, counties, etc. would have similar results. The significance of the spatial variable further suggests the state would greatly benefit through improved socioeconomic outcomes through collaborative efforts among clusters of counties. This “new regionalism” means local governments or communities work together to address economic development goals, usually through voluntary agreements and associations (Downs, 1994). Regions with limited resources or limited economic development opportunities that take part in such collaborative efforts tend to have increased levels of homeownership, increased local investments in communities, and increased incomes from the availability of more employment opportunities (Park and Feiock, 2005). For Mississippi, a state with low income levels and limited employment opportunities for many individuals such collaborations have the potential to greatly improve socioeconomic outcomes.

CHAPTER SEVEN
CONCLUSION

The relationship between educational attainment and socioeconomic well-being has critical implications for rural communities that must function in the current fast-paced economic environment. Historically, development and education policies designed to aid rural communities have focused on manipulating organizational size. Specifically, these policies prescribe the consolidation of rural high schools in order to experience cost savings from larger size and in order to reduce inefficiencies caused by small, under-resourced schools that serve the numerous small rural communities.

Numerous studies on rural communities cite the relationship between improved development opportunities, a well-educated workforce and high levels of entrepreneurship in those communities that have high schools. Rural communities without high schools, on the other hand, tend to experience population loss and poverty. High school size, it appears, is a critical component of policy for rural community survival; and larger high schools, early research suggested, were the most beneficial for continued survival.

Recently, however, research from a variety of fields has challenged the wisdom of these past studies, asserting for impoverished rural areas, smaller high school size is more effective in creating a well-educated population and thus improving socioeconomic outcomes. Generally, these findings held true across a number of states with varied types of development activities, rural characteristics, poverty levels, and district configurations.

However, data from Mississippi indicated there may be a different trend, especially in the state's Delta region. Schools across a range of sizes, including those smaller than general ideas of "small" high schools, showed low levels of student achievement. Those schools with the lowest student performance were located disproportionately in Mississippi's Delta, the state's poorest region.

This research asked why does school size seemingly play a different role among Mississippi's public high schools, and particularly in the Delta region? Given the relationship between education and socioeconomic well-being, can socioeconomic factors provide insight into this apparent trend? Which socioeconomic characteristics are likely to influence student outcomes? The case of Mississippi and its Delta region allowed analyses that added an additional element not previously included in studies on high school size and student outcomes– school size investigated from a socioeconomic well-being perspective that went beyond measures of income poverty.

The bodies of research relevant to understanding the behavior of high school size in Mississippi and its Delta region include district size and student outcomes; school size and student outcomes; and other socioeconomic factors which may work with school size to influence student outcomes. This research is extensive and offers mixed findings when considering school size in general. Because little is actually understood about how place interacts with school size to affect student outcomes, this body of work is pertinent to understanding the dynamics influencing student achievement in the impoverished Delta region. This literature serves as the foundation for the incorporation of factors that may coexist with the purported effects of school size on student outcomes. Because rural schools and rural communities may have unique socioeconomic characteristics, these factors must be taken into account when attempting to understand how school size influences student outcomes in these areas.

For both district size and school size, scholarly findings indicate a negative relationship exists between school size or district size and the outcomes of students in impoverished schools. Though the scholarly work on rural schools does not examine school size and socioeconomic well-being outside of income-based measures, the work on this relationship between school size and student achievement indicates the negative relationship holds across an array of different state-level policy environments.

The data for this study was secondary data provided by the Mississippi Department of Education for the 2003/2004 school year. The data include N=242 high schools and N=151 districts. To examine school size and district size, county-level characteristics associated with the socioeconomic history, high schools, and districts in the Delta region were incorporated into regression models. The high schools in this study covered all 82 counties in the state, including the Yazoo portion of the Mississippi Delta.

This research is grounded in the most recent body of work that focuses on how school size interacts with factors such as district characteristics and place to influence student outcomes. In addition to the expansion of notions of socioeconomic well-being, this study departed from previous analyses in two major ways. First, this research explored school size with a series of regression analyses: OLS, Poisson, and Negative Binomial. Second, this study measured student outcomes as both graduation rates and in the passing percentages of achievement scores of students in the state’s public high schools.

This study found several important socioeconomic characteristics in terms of improving reading scores, Algebra scores and high school graduation rates. These were almost all exclusively related to the poverty in the state, the surrounding job opportunities available to successful students or the allocation of resources at the district level. Unlike previous studies smaller schools tended to be only weakly associated with influencing student outcomes. Though the negative relationship purported in the literature does exist for Mississippi's high schools and school districts, that they were insignificant does not support the great attention given to school size or district size itself in overcoming the effects of poverty on student outcomes. Further, there were no statistically significant differences between the Delta region and other parts of the state. Both of these findings suggest policies should focus on poverty, rather than institutional size as a means of improving socioeconomic well-being.

The socioeconomic characteristics unique to Mississippi's economic and education histories that play the biggest role in student outcomes at the high school level were consistent in every model at the high school level. The percentage of students in high schools that receive free and reduced lunches and the percentage of Blacks in the county population are particularly powerful in influencing performance in Algebra I, reading and language comprehension and high school graduation rates. This finding supports studies conducted in both the school size and rural development research that tout the severe, chronic poverty throughout the state's Delta region as a complex force that educators and economic developers alike must contend with in nearly every policy for the state aimed at improving socioeconomic outcomes.

Local per pupil spending was another important district level characteristic in affecting student outcomes. This study was conducted using only expenditures from local governments. However, the unexpected findings with the variable indicate much may be learned from future studies that explore the effects of all sources of per pupil expenditures, including state and federal sources. Additional research also is needed to add to our understanding of how per pupil expenditures influence student outcomes at both the high school and district levels.

The dollar amount of farm subsidies received by counties was also prominent in this study. Future studies that explore the effects of farm subsidies on student outcomes by type, crop, livestock, amount and location would benefit policy dialogues on student outcomes and socioeconomic well-being. Further, the possibility of variable endogeneity – problems with detecting whether the independent variable explains the dependent variable or vice versa – suggests future studies might include a lagged explanatory variable which may aid in better understanding how this variable affects student outcomes.

Future studies might explore other levels of public schools in the state such as the elementary and junior high school levels. The student-teacher ratio variable, particularly at the district level, which captured how teachers as an economic resource are allocated among students, alludes to possible influences of earlier educational experiences and their strengths in shaping high school student outcomes.

Imminent studies might also use student-level data to explore student outcomes in terms of socioeconomic well-being. The vast majority of school size studies use data aggregated to the school or district level, most due to issues with privacy and Institutional Review Board standards. However, a closer matching of individual student outcomes to communities and neighborhood would provide a more exact picture of how size and socioeconomic factors affect student outcomes. Similar is the issue of using county level data. While spatial autocorrelation was tested for in this study, it is useful to more closely match the socioeconomic characteristics at the community level instead of the county level to explore whether the student outcomes are affected in a similar manner.

This study focused on the high school level. Future studies might also move beyond the secondary education level and focus on postsecondary outcomes, particularly at the community college level, which has important implications for socioeconomic well-being for rural communities. However, increased levels of high school graduates and improved test scores potentially translate into higher numbers of individuals seeking postsecondary education. Higher numbers of college graduates are associated with improved socioeconomic well-being such as higher levels of entrepreneurship, higher incomes, and lower rates of poverty (ERS, 2005; Barkley, Henry and Li, 2005).

Future studies may also investigate the case Mississippi using more spatially lagged variables which account for geographic, policy-based or socioeconomic clustering in county-level or district-level variables or slightly less traditional methods such as non-parametric analyses or mixed model analysis.

This study focused on socioeconomic factors based on rural development. However, other socioeconomic factors exist which were not directly examined by this study such as the exact types of economic activity available in communities, and distance from urban center or economic markets which may exert influences on student outcomes. Future studies might examine different and more diverse sets of socioeconomic factors and their role in influencing student outcomes.

The Delta region has a particularly dramatic history in terms of its workforce. It appears some of those same race-based practices are currently in place in terms of public school and district resource allocation. While location in the Delta itself was not statistically significant in this study, the demographics of individuals and families that populate the Delta were – particularly the percentage of the county population that is black. Future studies might explore the political environment in which public schools and socioeconomic factors have had to flourish in the state, using different sets of measures and perhaps exploring changes over different periods of time.

The current economic environment is one where the keys to job creation and higher standards of living are innovative ideas and technology embedded in services and manufactured products. It is an economy where risk, uncertainty, and constant change are the rule, rather than the exception. It is characterized by rapid growth and innovation -- where information and services are as important as tangible goods.

Firms looking to survive in this ever-changing fast-paced environment are organizing their work around organizational speed, flexibility and innovation. No longer is competition limited to a few large national economies. Competition is global, and comparative advantages in industry, workforce and information technologies are changing throughout the nation and throughout the world (New Economy Index, 2006).

This constant change in available economic opportunities and the fast-paced nature of today's economic environment highlight the need for more effective development policies in rural states like Mississippi and in impoverished regions like the Delta region. For the Delta especially, negative effects from diminished educational attainment, such as lowered income and increased poverty are powerful.

The Delta is characterized by the availability of a low-wage, low-skill labor force. This trademark has deeply imprinted the educational quality and thus the socioeconomic well-being of the area.

An increasing number of firms site a local pool of highly skilled and educated labor force as high on their lists of factors affecting the decision to locate or to expand in an area (Teixeira and McGranahan, 1998). This requirement directly contradicts the development environment of many communities in Mississippi. Rural areas are less likely to invest in local education systems, and Mississippi does not appear to be an exception to this trend. This reluctance reinforces low education levels. Low education levels among county residents make it more difficult to persuade companies to invest in workforce development. For those companies that do invest in such programs, returns on human capital investments in rural areas are lower due to the limited job availability for educated workers. Faced with few prospects for jobs that use their talents, these individuals eventually end up migrating to metropolitan areas with better employment opportunities (Green, 20o3).

Lower high school graduation rates are likely to serve as a barrier to full participation in the current economic environment, as it inhibits the quality of the workforce and may decrease the potential number of individuals seeking post secondary education opportunities. Across the South, educational attainment is inhibited by what firms in the region require, and firms requiring a large pool of college-experienced workers are hesitant to enter or expand in a region where such workers are inaccessible (Gibbs, 2000).

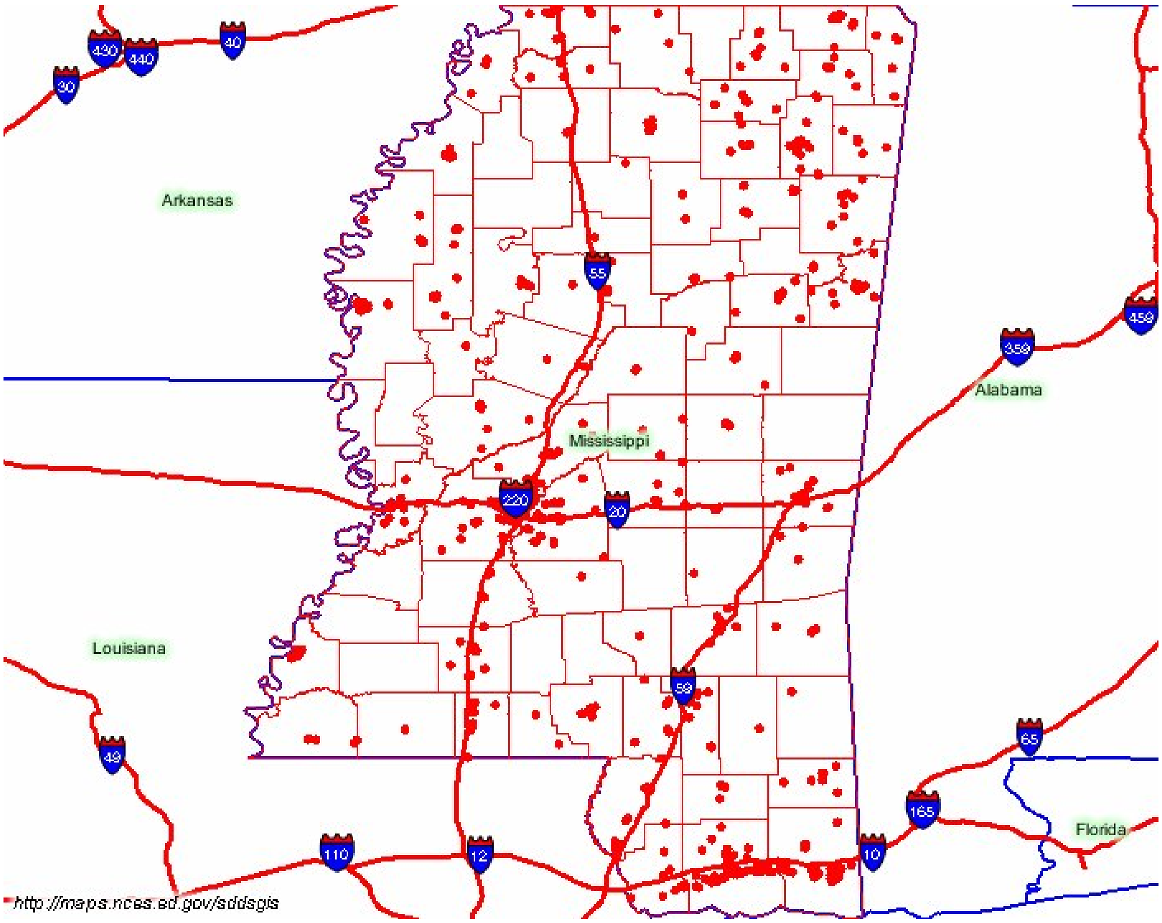
The seemingly disheartening trends do not have to translate into doom for the state, however. Local public schools can be improved with increased collaboration among communities and increased investments local governments and policymakers. When local schools do improve, development efforts are more effective and socioeconomic outcomes are improved. Improved local schools further translate into improved socioeconomic outcomes in that they "signal prospective employers that the local labor force has good basic academic/analytical skills and will be more adaptive to new technology (Barkley and Henry, 2001)." An adequately educated labor force reduces the unit labor costs to prospective employers -- it saves them money and makes their companies run more efficiently. Thus, investments in public education at all levels, including the local level examined in this study, do provide socioeconomic pay-offs to the southern region, *when incorporated into economic development efforts.*

Mississippi is a largely rural state, and its Delta region is almost exclusively rural. Rural development policy has been described as "unfocused, outdated and ineffective." Even in the current economic environment, rural policy focuses heavily on assemblage manufacturing to increase employment opportunities. Because of this focus, current development policies are not conducive to improving socioeconomic well-being in many rural areas. Without intending it, the United States is headed to a rural America of the rich and the poor – of resorts and pockets of persistent poverty (Stauber, 2002). Unfortunately, the state is still focusing its efforts into attracting such firms at a time when a more effective policy might focus on increasing entrepreneurship at the community level.

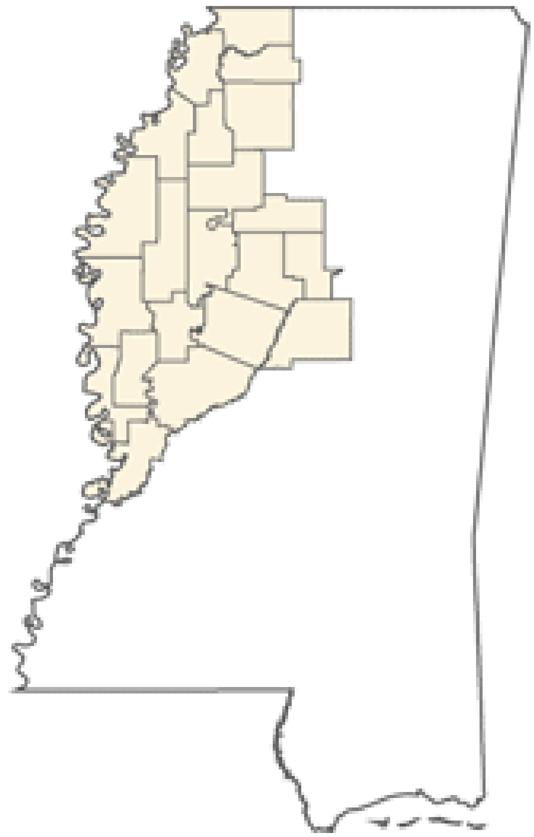
Understanding the poverty and educational situation in Mississippi, and particularly its Delta region is a complex, politically charged and resource-heavy investment the state will eventually have to make in order to turn around its public education system and continue to improve itself socioeconomically. The way firms do business, the way the world approaches trade, and the way national resources are used has changed drastically in the last 20 or 30 years. Mississippi, then, must be willing to make drastic changes in the way it approaches and education systems in order to fully participate.

APPENDICES

Appendix I
Map of Mississippi's Public High Schools



Appendix II
Delta Region Counties



1. Desoto
2. Tunica
3. Coahoma
4. Bolivar
5. Washington
6. Sharkey
7. Warren
8. Issaquena*
9. Yazoo
10. Holmes
11. Humphreys
12. LeFlore
13. Tallahatchie
14. Quitman
15. Panola
16. Tate
17. Yalobusha**
18. Grenada**
19. Carroll
20. Montgomery**
21. Sunflower
22. Claiborne**
23. Attala

* While this is a Delta core county, its schools and district have been consolidated with Sharkey county. Thus its county level information is not included in this analysis.

** Peripheral county that shares Delta region history.

Appendix III
Selected Socioeconomic Characteristics of High Schools by Region (Delta and Non-Delta)

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
ETHEL ATTENDANCE CENTER	ATTALA CO SCHOOL DIST	ATTALA	Delta	81	89.6	65.9	47.17	20
MCADAMS ATTENDANCE CENTER	ATTALA CO SCHOOL DIST	ATTALA	Delta	89.1	94.4	78.6	46.33	20
RAY BROOKS SCHOOL	BENOIT SCHOOL DISTRICT	BOLIVAR	Delta	93.8	92	64.5	22.50	27.3
J Z GEORGE HIGH SCHOOL	CARROLL COUNTY SCHOOL DIST	CARROLL	Delta	76.7	97.7	73.5	88.17	16.1
PORT GIBSON HIGH SCHOOL	CLAIBORNE CO SCHOOL DIST	CLAIBORNE	Delta	85.8	90.1	90.9	122.75	25.5
CLARKSDALE HIGH SCHOOL	CLARKSDALE MUNICIPAL SCHOOL DIST	COAHOMA	Delta	88.3	97.1	76.6	187.00	28.3
CLEVELAND HIGH SCHOOL	CLEVELAND SCHOOL DIST	BOLIVAR	Delta	94.2	92.8	90.4	134.25	27.3
EAST SIDE HIGH SCHOOL	CLEVELAND SCHOOL DIST	BOLIVAR	Delta	89.4	100	59.2	121.25	27.3
COAHOMA AGRICULTURAL HIGH SCHOOL	COAHOMA CO AHS	COAHOMA	Delta	70.2	63.6	40.5	74.25	28.3
COAHOMA COUNTY HIGH SCHOOL	COAHOMA COUNTY SCHOOL DISTRICT	COAHOMA	Delta	75.9	84.4	68.7	86.25	28.3
COFFEEVILLE HIGH SCHOOL	COFFEEVILLE SCHOOL DIST	YALOBUSHA	Delta	67.3	95.8	90	47.40	19
DESOTO CENTRAL HIGH SCHOOL	DESOTO CO SCHOOL DIST	DESOTO	Delta	91.5	99.5	96.8	259.25	8.6
HERNANDO HIGH SCHOOL	DESOTO CO SCHOOL DIST	DESOTO	Delta	91.5	93.5	89.3	259.25	8.6
HORN LAKE HIGH	DESOTO CO SCHOOL DIST	DESOTO	Delta	92.6	91.6	88.4	358.75	8.6
OLIVE BRANCH HIGH SCHOOL	DESOTO CO SCHOOL DIST	DESOTO	Delta	94	94	91	433.75	8.6
SOUTHAVEN HIGH SCHOOL	DESOTO CO SCHOOL DIST	DESOTO	Delta	95.6	94.2	87.6	356.50	8.6
DREW HIGH SCHOOL	DREW SCHOOL DIST	SUNFLOWER	Delta	78.4	73	61.5	53.80	30.3
DURANT HIGH SCHOOL	DURANT PUBLIC SCHOOL DIST	HOLMES	Delta	80.7	95.2	79.2	47.67	32.2
RIDGELAND HIGH SCHOOL	MADISON CO SCHOOL DIST	MADISON	Non-Delta	100	95.7	88	195.50	13.2
VELMA JACKSON HIGH SCHOOL	MADISON CO SCHOOL DIST	MADISON	Non-Delta	94.1	91.8	64.5	97.25	13.2

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
CHARLESTON HIGH SCHOOL	EAST TALLAHATCHIE CONSOL SCH DIST	TALLAHATCHIE	Delta	68.8	76.3	76.7	106.75	25.6
GREENVILLE WESTON HIGH SCHOOL	GREENVILLE PUBLIC SCHOOLS	WASHINGTON	Delta	72.8	71.6	79.3	416.75	28.4
GREENWOOD HIGH SCHOOL	GREENWOOD PUBLIC SCHOOL DISTRICT	LEFLORE	Delta	77.6	69.4	84.4	184.00	29.4
GRENADA HIGH	GRENADA SCHOOL DIST	GRENADA	Delta	84.9	87	83.6	301.00	18.5
SIMMONS HIGH SCHOOL	HOLLANDALE SCHOOL DIST	WASHINGTON	Delta	79.5	85.2	71.7	69.00	28.4
J J MC CLAIN HIGH SCHOOL	HOLMES CO SCHOOL DIST	HOLMES	Delta	83.3	96.4	82.5	120.29	32.2
WILLIAMS SULLIVAN HIGH SCHOOL	HOLMES CO SCHOOL DIST	HOLMES	Delta	87.9	73.3	84.2	44.46	32.2
S V MARSHALL HIGH SCHOOL	HOLMES CO SCHOOL DIST	HOLMES	Delta	77.3	99.1	95.2	77.38	32.2
HUMPHREYS COUNTY HIGH SCHOOL	HUMPHREYS CO SCHOOL DIST	HUMPHREYS	Delta	73.8	94.5	77.2	121.50	30.2
GENTRY HIGH SCHOOL	INDIANOLA SCHOOL DIST	SUNFLOWER	Delta	85.2	65.6	70.1	215.33	30.3
KOSCIUSKO SENIOR HIGH SCHOOL	KOSCIUSKO SCHOOL DISTRICT	ATTALA	Delta	99.1	97.8	84.2	146.00	20
AMANDA ELZY HIGH SCHOOL	LEFLORE CO SCHOOL DIST	LEFLORE	Delta	85.4	89.1	87.7	106.33	29.4
LEFLORE COUNTY HIGH SCHOOL	LEFLORE CO SCHOOL DIST	LEFLORE	Delta	77	80.7	82.1	83.33	29.4
LELAND HIGH SCHOOL	LELAND SCHOOL DIST	WASHINGTON	Delta	83	98.1	97.8	70.50	28.4
MONTGOMERY COUNTY HIGH SCHOOL	MONTGOMERY CO SCHOOL DIST	MONTGOMERY	Delta	88.6	95.8	71.9	32.25	20.8
JOHN F KENNEDY MEMORIAL HI SCHOOL	MOUND BAYOU PUBLIC SCHOOL	BOLIVAR	Delta	85.4	89.4	80	54.33	27.3
BROAD STREET HIGH SCHOOL	NORTH BOLIVAR SCHOOL DISTRICT	BOLIVAR	Delta	83.1	73.9	80.7	57.00	27.3
EDINBURG ATTENDANCE CENTER	LEAKE CO SCHOOL DIST	LEAKE	Non-Delta	93.6	85	95.8	39.38	19.9
PROVINE HIGH SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	62.5	77.1	70.8	261.75	20.5

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
NORTH PANOLA HIGH SCHOOL	NORTH PANOLA SCHOOLS	PANOLA	Delta	60.7	74.1	62.5	103.25	20.9
M. S. PALMER HIGH SCHOOL	QUITMAN CO SCHOOL DIST	QUITMAN	Delta	72.2	91.3	66.7	107.60	27.3
SENATOBIA JR SR HIGH SCHOOL	SENATOBIA MUNICIPAL SCHOOL DIST	TATE	Delta	86.6	99.1	96.2	128.00	15
SHAW HIGH SCHOOL	SHAW SCHOOL DISTRICT	BOLIVAR	Delta	88.5	97.8	77.8	55.20	27.3
SOUTH DELTA HIGH SCHOOL	SOUTH DELTA SCHOOL DISTRICT	SHARKEY	Delta	72.2	72	60.3	89.00	29.4
SOUTH PANOLA HIGH SCHOOL	SOUTH PANOLA SCHOOL DISTRICT	PANOLA	Delta	81.7	87.3	70.4	317.25	20.9
RULEVILLE CENTRAL HIGH SCHOOL	SUNFLOWER CO SCHOOL DIST	SUNFLOWE R	Delta	68.9	94.3	77.1	84.50	30.3
COLDWATER HIGH SCHOOL	TATE CO SCHOOL DIST	TATE	Delta	73.1	77.1	67.5	77.33	15
INDEPENDEN CE HIGH SCHOOL	TATE CO SCHOOL DIST	TATE	Delta	78	58.1	69	123.67	15
ROSA FORT HIGH SCHOOL	TUNICA COUNTY SCHOOL DISTRICT	TUNICA	Delta	80.7	73.4	63.5	140.00	22.4
VICKSBURG HIGH SCHOOL	VICKSBURG WARREN SCHOOL DIST	WARREN	Delta	61.1	90.1	83.1	280.25	17.6
WARREN CENTRAL HIGH SCHOOL	VICKSBURG WARREN SCHOOL DIST	WARREN	Delta	70	90.1	83.3	272.75	17.6
WATER VALLEY HIGH SCHOOL	WATER VALLEY SCHOOL DISTRICT	YALOBUSH A	Delta	82.2	93.2	95.5	90.83	19
WEST BOLIVAR DIST HIGH SCHOOL	WEST BOLIVAR SCHOOL DIST	BOLIVAR	Delta	91.6	52.3	82.2	81.50	27.3
WEST TALLAHATCH IE HIGH SCHOOL	WEST TALLAHATC HIE SCHOOL DISTRICT	TALLAHAT CHIE	Delta	86	67.4	62.1	87.17	25.6
O'BANNON HIGH SCHOOL	WESTERN LINE SCHOOL DISTRICT	WASHINGT ON	Delta	76.5	87.5	66.7	74.00	28.4
RIVERSIDE HIGH SCHOOL	WESTERN LINE SCHOOL DISTRICT	WASHINGT ON	Delta	73.1	81.7	79.7	83.67	28.4

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
WINONA SECONDARY SCHOOL	ABERDEEN SCHOOL DIST	MONROE	Non-Delta	79.4	91.2	74	124.25	16.3
BIGGERSVILLE HIGH SCHOOL	ALCORN SCHOOL DIST	ALCORN	Non-Delta	87.9	100	92.9	39.33	16.2
ALCORN CENTRAL HIGH SCHOOL	ALCORN SCHOOL DIST	ALCORN	Non-Delta	83.2	80	83.1	124.75	16.2
KOSSUTH HIGH SCHOOL	ALCORN SCHOOL DIST	ALCORN	Non-Delta	90.1	79.4	91	109.50	16.2
AMITE COUNTY HIGH SCHOOL	AMITE CO SCHOOL DIST	AMITE	Non-Delta	84.8	75.4	83.3	94.75	18.5
AMORY HIGH SCHOOL	AMORY SCHOOL DIST	MONROE	Non-Delta	90.7	82.6	88.4	129.75	16.3
BALDWYN HIGH SCHOOL	BALDWYN SCHOOL DISTRICT	PRENTISS	Non-Delta	100	97.1	74.5	66.00	15.2
BAY HIGH SCHOOL	BAY ST LOUIS WAVELAND SCHOOL DIST	HANCOCK	Non-Delta	75.4	86.9	86.5	166.75	15.7
ASHLAND MIDDLE/HIGH SCHOOL	BENTON CO SCHOOL DIST	BENTON	Non-Delta	76.7	95.7	82.4	63.14	20
HICKORY FLAT ATTENDANCE CENTER	BENTON CO SCHOOL DIST	BENTON	Non-Delta	80	95.8	96.3	39.38	20
BILOXI HIGH SCHOOL	BILOXI PUBLIC SCHOOL DIST	HARRISON	Non-Delta	85.4	98.2	93.1	382.33	16.5
BOONEVILLE HIGH SCHOOL	BOONEVILLE SCHOOL DIST	PRENTISS	Non-Delta	96.8	96.5	92.2	90.25	15.2
BROOKHAVEN HIGH SCHOOL	BROOKHAVEN SCHOOL DIST	LINCOLN	Non-Delta	82.8	87.1	81	195.75	17.7
CALHOUN CITY HIGH SCHOOL	CALHOUN CO SCHOOL DIST	CALHOUN	Non-Delta	74	81.8	67.4	52.57	16.9
BRUCE HIGH SCHOOL	CALHOUN CO SCHOOL DIST	CALHOUN	Non-Delta	90	90.7	82.4	79.67	16.9
VARDAMAN HIGH SCHOOL	CALHOUN CO SCHOOL DIST	CALHOUN	Non-Delta	86.5	92.9	92.1	44.17	16.9
CANTON PUBLIC HIGH SCHOOL	CANTON PUBLIC SCHOOL DIST	MADISON	Non-Delta	62.1	91.7	75.3	225.25	13.2
HOULKA ATTENDANCE CENTER	CHICKASAW CO SCHOOL DIST	CHICKASAW	Non-Delta	82.6	95.4	96.6	40.77	17.6

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
ACKERMAN HIGH	COLUMBUS MUNICIPAL SCHOOL DIST	LOWNDES	Non-Delta	80.1	89.5	81.4	340.25	19.2
CRYSTAL SPRINGS HIGH SCHOOL	COPIAH CO SCHOOL DIST	COPIAH	Non-Delta	80.6	37.3	73.6	137.75	21.2
WESSON ATTENDANCE CENTER	COPIAH CO SCHOOL DIST	COPIAH	Non-Delta	75.6	97.2	89.6	78.77	21.2
CORINTH HIGH SCHOOL	CORINTH SCHOOL DIST	ALCORN	Non-Delta	81	95.5	91.2	118.25	16.2
COLLINS HIGH SCHOOL	COVINGTON CO SCHOOLS	COVINGTON	Non-Delta	82	73	70.5	129.50	19.3
MOUNT OLIVE ATTENDANCE CENTER	COVINGTON CO SCHOOLS	COVINGTON	Non-Delta	66.7	74.3	64	38.38	19.3
SEMINARY ATTENDANCE CENTER	COVINGTON CO SCHOOLS	COVINGTON	Non-Delta	88.6	92.2	83.8	86.00	19.3
HEIDELBERG HIGH SCHOOL	EAST JASPER CONSOLIDATED SCH DIST	JASPER	Non-Delta	95.8	58	72.7	90.50	20.8
ENTERPRISE HIGH SCHOOL	ENTERPRISE SCHOOL DIST	CLARKE	Non-Delta	92	98	93.8	54.25	18.9
FOREST HIGH SCHOOL	FOREST MUNICIPAL SCHOOL DIST	SCOTT	Non-Delta	78.5	79.2	78.7	100.75	16
FORREST COUNTY AGRICULTURAL HI SCH	FORREST COUNTY AG HIGH SCHOOL	FORREST	Non-Delta	77.50	90.70	88.10	137.50	20.4
NORTH FORREST HIGH SCHOOL	FORREST COUNTY SCHOOL DISTRICT	FORREST	Non-Delta	79.3	96.4	90.6	70.83	20.4
FRANKLIN HIGH SCHOOL	FRANKLIN CO SCHOOL DIST	FRANKLIN	Non-Delta	87.50	94.30	82.20	114.50	19.5
GEORGE COUNTY HIGH SCHOOL	GEORGE CO SCHOOL DIST	GEORGE	Non-Delta	77.3	88.3	82.1	252.75	16.1
GREENE COUNTY HIGH SCHOOL	GREENE COUNTY SCHOOL DISTRICT	GREENE	Non-Delta	77.3	97.8	89.1	128.50	19.8
GULFPORT HIGH SCHOOL	GULFPORT SCHOOL DIST	HARRISON	Non-Delta	82	96.7	87.6	436.75	16.5
HANCOCK HIGH SCHOOL	HANCOCK CO SCHOOL DIST	HANCOCK	Non-Delta	76.3	94.5	86.4	300.00	15.7
DIBERVILLE SENIOR HIGH SCH	HARRISON CO SCHOOL DIST	HARRISON	Non-Delta	78.8	96.4	86.1	243.25	16.5

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
HARRISON CENTRAL HIGH SCHOOL	HINDS CO AHS	HINDS	Non-Delta	66.7	73.9	53.8	76.75	20.5
RAYMOND HIGH SCHOOL	HINDS CO SCHOOL DIST	HINDS	Non-Delta	72.2	85.7	77.3	117.50	20.5
TERRY HIGH SCHOOL	HINDS CO SCHOOL DIST	HINDS	Non-Delta	85.9	91.8	83.3	241.50	20.5
HOLLY SPRINGS HIGH SCHOOL	HOLLY SPRINGS SCHOOL DIST	MARSHALL	Non-Delta	84.6	78.1	72.1	138.83	19.1
HOUSTON HIGH SCHOOL	HOUSTON SCHOOL DIST	CHICKASA W	Non-Delta	71.1	100	86.8	130.50	17.6
ITAWAMBA AGRICULTUR AL HIGH SCHOOL	ITAWAMB A CO SCHOOL DIST	ITAWAMB A	Non-Delta	80	96.3	81.5	156.50	13.7
MANTACHIE ATTENDANCE CENTER	ITAWAMB A CO SCHOOL DIST	ITAWAMB A	Non-Delta	78.7	94.4	86.2	81.77	13.7
TREMONT ATTENDANCE CENTER	ITAWAMB A CO SCHOOL DIST	ITAWAMB A	Non-Delta	69.2	89.3	81.5	26.54	13.7
ST MARTIN HIGH SCHOOL	JACKSON CO SCHOOL DIST	JACKSON	Non-Delta	75.5	96.8	92	271.40	15
EAST CENTRAL HIGH SCHOOL	JACKSON CO SCHOOL DIST	JACKSON	Non-Delta	82.1	96.9	90.2	188.75	15
VANCLEAVE HIGH SCHOOL	JACKSON CO SCHOOL DIST	JACKSON	Non-Delta	74.4	99.2	87.8	163.00	15
BAILEY MAGNET SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	71.6	72.6	80	141.00	20.5
CALLAWAY HIGH SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	76.9	94	70.9	245.25	20.5
FOREST HILL HIGH SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	61.9	83.8	78	271.00	20.5
HILL HIGH SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	58.1	91.5	82.5	280.75	20.5
LANIER HIGH SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	65.5	64.6	64.1	247.25	20.5
MURRAH HIGH SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	80.4	93.4	93.5	297.25	20.5

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
WINGFIELD HIGH SCHOOL	JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	64.8	84.3	70.7	249.00	20.5
JEFFERSON CO HIGH	JEFFERSON CO SCHOOL DIST	JEFFERSON	Non-Delta	98.9	87.7	65.7	117.00	27.9
PRENTISS SENIOR HIGH SCHOOL	JEFFERSON DAVIS CO SCHOOL DIST	JEFFERSON DAVIS	Non-Delta	91.4	48.6	73.8	93.00	22.9
WEST JONES HIGH SCHOOL	JONES CO SCHOOL DIST	JONES	Non-Delta	87.4	92.8	88.1	229.33	18.7
KEMPER COUNTY HIGH SCHOOL	KEMPER CO SCHOOL DIST	KEMPER	Non-Delta	65.8	81.4	75.4	90.83	19.9
LAFAYETTE HIGH SCHOOL	LAFAYETTE CO SCHOOL DIST	LAFAYETTE	Non-Delta	93.4	97.1	82	147.00	15.8
SUMRALL MIDDLE & HIGH SCHOOL	LAMAR COUNTY SCHOOL DISTRICT	LAMAR	Non-Delta	85.6	95.7	91.1	98.86	13.9
OAK GROVE HIGH SCHOOL	LAMAR COUNTY SCHOOL DISTRICT	LAMAR	Non-Delta	90.3	97.3	97.2	283.25	13.9
PURVIS HIGH SCHOOL	LAMAR COUNTY SCHOOL DISTRICT	LAMAR	Non-Delta	84	91	96.6	122.50	13.9
WEST LAUDERDALE ATTENDANCE CENTER	LAUDERDALE CO SCHOOL DIST	LAUDERDALE	Non-Delta	91.2	98.4	97.6	153.25	18.8
NORTHEAST LAUDERDALE HIGH SCHOOL	LAUDERDALE CO SCHOOL DIST	LAUDERDALE	Non-Delta	78	97.6	88.3	158.75	18.8
SOUTHEAST ATTENDANCE CENTER	LAUDERDALE CO SCHOOL DIST	LAUDERDALE	Non-Delta	84.1	100	83.5	98.75	18.8
CLARKDALE ATTENDANCE CENTER	LAUDERDALE CO SCHOOL DIST	LAUDERDALE	Non-Delta	80.5	97.6	100	74.08	18.8
LAUREL HIGH SCHOOL	LAUREL SCHOOL DISTRICT	JONES	Non-Delta	74.1	81.7	80.7	179.00	18.7
LAWRENCE COUNTY HIGH SCHOOL	LAWRENCE CO SCHOOL DIST	LAWRENCE	Non-Delta	82.1	88.2	80.8	164.75	17.5
SOUTH LEAKE HIGH SCHOOL	LEAKE CO SCHOOL DIST	LEAKE	Non-Delta	76.8	94.1	80	53.50	19.9
CARTHAGE HIGH SCHOOL	LEAKE CO SCHOOL DIST	LEAKE	Non-Delta	73.9	76.2	87	104.25	19.9

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
THOMASTOWN ATTENDANCE CENTER	LEAKE CO SCHOOL DIST	LEAKE	Non-Delta	76.2	85.2	76	29.00	19.9
MOOREVILLE HIGH SCHOOL	LEE COUNTY SCHOOL DISTRICT	LEE	Non-Delta	89.1	100	87.2	96.43	14.1
SHANNON HIGH SCHOOL	LEE COUNTY SCHOOL DISTRICT	LEE	Non-Delta	85.1	84.9	85.6	136.14	14.1
SALTILLO HIGH SCHOOL	LEE COUNTY SCHOOL DISTRICT	LEE	Non-Delta	81.6	98	89.4	160.50	14.1
BOGUE CHITTO SCHOOL	LINCOLN CO SCHOOL DIST	LINCOLN	Non-Delta	87.5	90.2	88.2	42.92	17.7
ENTERPRISE SCHOOL	LINCOLN CO SCHOOL DIST	LINCOLN	Non-Delta	93.6	100	92.3	55.31	17.7
LOYD STAR SCHOOL	LINCOLN CO SCHOOL DIST	LINCOLN	Non-Delta	94.9	91.1	90.5	73.38	17.7
WEST LINCOLN SCHOOL	LINCOLN CO SCHOOL DIST	LINCOLN	Non-Delta	91.8	94.3	87	48.92	17.7
LONG BEACH SENIOR HIGH SCHOOL	LONG BEACH SCHOOL DIST	HARRISON	Non-Delta	79.2	98.1	92	264.75	16.5
LOUISVILLE HIGH SCHOOL	LOUISVILLE MUNICIPAL SCHOOL DIST	WINSTON	Non-Delta	76.4	88.5	74.5	154.00	20
NANIH WAIYA ATTENDANCE CENTER	LOUISVILLE MUNICIPAL SCHOOL DIST	WINSTON	Non-Delta	91.2	100	93.3	37.23	20
NOXAPATER ATTENDANCE CENTER	LOUISVILLE MUNICIPAL SCHOOL DIST	WINSTON	Non-Delta	83.3	100	73.9	32.92	20
CALEDONIA HIGH SCHOOL	LOWNDES CO SCHOOL DIST	LOWNDES	Non-Delta	66.3	89.9	91.8	117.00	19.2
NEW HOPE HIGH SCHOOL	LOWNDES CO SCHOOL DIST	LOWNDES	Non-Delta	84.7	88	89.3	210.00	19.2
WEST LOWNDES HIGH SCHOOL	LOWNDES CO SCHOOL DIST	LOWNDES	Non-Delta	96.9	70.6	86.2	49.00	19.2
LUMBERTON HIGH SCHOOL	LUMBERTON PUBLIC SCHOOL DISTRICT	LAMAR	Non-Delta	82	100	97.7	57.00	13.9
MADISON CENTRAL HIGH SCHOOL	MADISON CO SCHOOL DIST	MADISON	Non-Delta	94.3	89.8	89.5	432.00	13.2

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
EAST MARION HIGH SCHOOL	MARION CO SCHOOL DIST	MARION	Non-Delta	81.3	84.8	76.2	73.75	21.7
WEST MARION HIGH SCHOOL	MARION CO SCHOOL DIST	MARION	Non-Delta	79.8	93.2	74.3	92.75	21.7
POTTS CAMP ATTENDANCE CENTER	MARSHALL CO SCHOOL DIST	MARSHALL	Non-Delta	81.6	98.3	87.2	59.11	19.1
BYHALIA HIGH SCHOOL	MARSHALL CO SCHOOL DIST	MARSHALL	Non-Delta	77.9	95.2	85.7	129.25	19.1
H W BYERS ATTENDANCE CENTER	MARSHALL CO SCHOOL DIST	MARSHALL	Non-Delta	79.6	79.6	51.2	64.08	19.1
MCCOMB HIGH SCHOOL	MCCOMB SCHOOL DISTRICT	PIKE	Non-Delta	91	76.5	69.1	188.25	22.8
MERIDIAN HIGH SCHOOL	MERIDIAN PUBLIC SCHOOL DIST	LAUDERDALE	Non-Delta	70.9	80.6	76.8	396.00	18.8
HAMILTON HIGH SCHOOL	MONROE CO SCHOOL DIST	MONROE	Non-Delta	78.1	80.9	82.1	55.31	16.3
HATLEY HIGH SCHOOL	MONROE CO SCHOOL DIST	MONROE	Non-Delta	79	86.7	79.1	79.69	16.3
SMITHVILLE HIGH SCHOOL	MONROE CO SCHOOL DIST	MONROE	Non-Delta	86.5	97.6	87.5	53.69	16.3
MOSS POINT HIGH SCHOOL	MOSS POINT SEPARATE SCHOOL DIST	JACKSON	Non-Delta	64.4	78.2	63.4	305.75	15
NATCHEZ HIGH SCHOOL	NATCHEZ-ADAMS SCHOOL DIST	ADAMS	Non-Delta	92.4	63.9	67.8	312.75	22.3
NESHOBA CENTRAL HIGH SCHOOL	NESHOBA COUNTY SCHOOL DISTRICT	NESHOBA	Non-Delta	77.7	88	89.4	200.00	18.6
NETTLETON HIGH SCHOOL	NETTLETON SCHOOL DIST	LEE	Non-Delta	87.1	96.6	87.5	91.25	14.1
NEW ALBANY HIGH SCHOOL	NEW ALBANY PUBLIC SCHOOLS	UNION	Non-Delta	92.5	96.7	86.8	136.75	12.8
NEWTON COUNTY HIGH SCHOOL	NEWTON COUNTY SCHOOL DISTRICT	NEWTON	Non-Delta	85	98.7	95.6	121.43	16.9

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
WALNUT ATTENDANCE CENTER	NORTH TIPPAH SCHOOL DIST	TIPPAH	Non-Delta	87.2	100	94	36.08	15.7
NOXUBEE COUNTY HIGH SCHOOL	NOXUBEE COUNTY SCHOOL DISTRICT	NOXUBEE	Non-Delta	82.1	69.8	70.2	163.50	26.8
OCEAN SPRINGS HIGH SCHOOL	OCEAN SPRINGS SCHOOL DIST	JACKSON	Non-Delta	87.5	95.3	90.2	408.75	15
OKOLONA HIGH SCHOOL	OKOLONA SEPARATE SCHOOL DIST	CHICKASAW	Non-Delta	71.2	100	97.6	63.67	17.6
EAST OKTIBBEHA COUNTY HIGH SCHOOL	OKTIBBEHA COUNTY SCHOOL DISTRICT	OKTIBBEHA	Non-Delta	77.1	86.4	90.5	41.00	21.4
WEST OKTIBBEHA COUNTY HIGH SCHOOL	OKTIBBEHA COUNTY SCHOOL DISTRICT	OKTIBBEHA	Non-Delta	76.9	100	79.2	26.50	21.4
OXFORD HIGH SCHOOL	OXFORD SCHOOL DISTRICT	LAFAYETTE	Non-Delta	80.3	97	86.7	205.75	15.8
GAUTIER HIGH SCHOOL	PASCAGOULA SCHOOL DIST	JACKSON	Non-Delta	78	99.4	92.2	205.75	15
PASCAGOULA HIGH SCHOOL	PASCAGOULA SCHOOL DIST	JACKSON	Non-Delta	80.9	97.2	89.6	301.50	15
PASS CHRISTIAN HIGH SCHOOL	PASS CHRISTIAN PUBLIC SCHOOL DIST	HARRISON	Non-Delta	93.9	95.7	88.7	144.75	16.5
PEARL HIGH SCHOOL	PEARL PUBLIC SCHOOL DIST	RANKIN	Non-Delta	84	92.2	93.8	243.75	10.4
PEARL RIVER CENTRAL HIGH SCHOOL	PEARL RIVER CO SCHOOL DIST	PEARL RIVER	Non-Delta	85.3	97.6	95.8	191.50	18.1
PERRY CENTRAL HIGH SCHOOL	PERRY CO SCHOOL DIST	PERRY	Non-Delta	79.6	87.3	87.3	80.50	18.3
PETAL HIGH	PETAL SCHOOL DIST	FORREST	Non-Delta	91.5	100	91.7	249.50	20.4
PHILADELPHIA HIGH SCHOOL	PHILADELPHIA PUBLIC SCHOOL DIST	NESHOBA	Non-Delta	76.3	100	72.2	79.75	18.6
PICAYUNE MEMORIAL HIGH SCHOOL	PICAYUNE SCHOOL DIST	PEARL RIVER	Non-Delta	85.3	91.2	83.4	277.25	18.1
PONTOTOC HIGH SCHOOL	PONTOTOC CITY SCHOOLS	PONTOTOC	Non-Delta	97.3	99.1	95.9	149.25	13.2
NORTH PONTOTOC HIGH SCHOOL	PONTOTOC CO SCHOOL DIST	PONTOTOC	Non-Delta	95.5	100	95.2	112.50	13.2
FALKNER HIGH SCHOOL	NORTH TIPPAH SCHOOL DIST	TIPPAH	Non-Delta	97.4	96.8	85.7	47.83	15.7

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
SOUTH PONTOTOC HIGH SCHOOL	PONTOTOC CO SCHOOL DIST	PONTOTOC	Non-Delta	93.3	96.7	99	109.50	13.2
POPLARVILLE JR SR HIGH SCHOOL	POPLARVILLE SEPARATE SCHOOL DIST	PEARL RIVER	Non-Delta	87.8	98.7	91.3	133.75	18.1
NEW SITE HIGH SCHOOL	PRENTISS CO SCHOOL DIST	PRENTISS	Non-Delta	83.3	100	93.3	64.75	15.2
JUMPERTOWN HIGH SCHOOL	PRENTISS CO SCHOOL DIST	PRENTISS	Non-Delta	95.7	100	81	25.00	15.2
THRASHER HIGH SCHOOL	PRENTISS CO SCHOOL DIST	PRENTISS	Non-Delta	71.4	95.8	82.6	34.69	15.2
WHEELER HIGH SCHOOL	PRENTISS CO SCHOOL DIST	PRENTISS	Non-Delta	80	100	92.9	37.62	15.2
QUITMAN HIGH SCHOOL	QUITMAN SCHOOL DIST	CLARKE	Non-Delta	80.8	91.7	84.6	164.50	18.9
MCLAURIN ATTENDANCE CENTER	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	89	90.9	94.2	90.17	10.4
PELAHATCHIE ATTENDANCE CENTER	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	85.7	91.8	76	55.83	10.4
PISGAH HIGH SCHOOL	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	85.7	95.7	97.6	44.17	10.4
BRANDON HIGH SCHOOL	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	96.2	95.7	93.7	299.00	10.4
FLORENCE HIGH SCHOOL	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	92.8	81.7	83.3	148.50	10.4
NORTHWEST RANKIN HIGH SCHOOL	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	96.3	88.1	90.5	306.00	10.4
RICHLAND HIGH SCHOOL	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	79	81.3	87	91.50	10.4
PUCKETT ATTENDANCE CENTER	RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	95.2	78.6	84.1	52.69	10.4
RICHTON HIGH SCHOOL	RICHTON SCHOOL DIST	PERRY	Non-Delta	80.3	92.5	91.5	54.83	18.3
MORTON HIGH SCHOOL	SCOTT CO SCHOOL DIST	SCOTT	Non-Delta	84	92.6	85.5	103.75	16
LAKE ATTENDANCE CENTER	SCOTT CO SCHOOL DIST	SCOTT	Non-Delta	91.3	91.3	82.6	39.85	16
SCOTT CENTRAL ATTENDANCE CENTER	SCOTT CO SCHOOL DIST	SCOTT	Non-Delta	80	80.9	87.5	76.00	16

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
SEBASTOPOL ATTENDANCE CENTER	SCOTT CO SCHOOL DIST	SCOTT	Non-Delta	82.1	100	82.8	47.54	16
MAGEE HIGH SCHOOL	SIMPSON CO SCHOOL DIST	SIMPSON	Non-Delta	73.3	94.6	69.2	127.25	19.7
MENDENHALL HIGH SCHOOL	SIMPSON CO SCHOOL DIST	SIMPSON	Non-Delta	80.5	89.5	74.3	157.25	19.7
RALEIGH HIGH SCHOOL	SMITH CO SCHOOL DIST	SMITH	Non-Delta	87.5	99	80.9	103.33	16.4
MIZE ATTENDANCE CENTER	SMITH CO SCHOOL DIST	SMITH	Non-Delta	91.3	96.4	89.7	62.46	16.4
TAYLORSVILLE HIGH SCHOOL	SMITH CO SCHOOL DIST	SMITH	Non-Delta	90	100	83.9	62.86	16.4
SOUTH PIKE SENIOR HIGH SCHOOL	SOUTH PIKE SCHOOL DIST	PIKE	Non-Delta	83.9	96.3	67.6	144.00	22.8
RIPLEY HIGH SCHOOL	SOUTH TIPPAH SCHOOL DIST	TIPPAH	Non-Delta	89.3	97.4	77.6	118.25	15.7
BLUE MOUNTAIN HIGH SCHOOL	SOUTH TIPPAH SCHOOL DIST	TIPPAH	Non-Delta	88.9	94.1	93.3	20.15	15.7
PINE GROVE HIGH SCHOOL	SOUTH TIPPAH SCHOOL DIST	TIPPAH	Non-Delta	90.2	92.9	82.9	49.38	15.7
STARKVILLE HIGH SCHOOL	STARKVILLE SCHOOL DISTRICT	OKTIBBEHA	Non-Delta	76.2	93.6	79.6	282.50	21.4
STONE HIGH SCHOOL	STONE CO SCHOOL DIST	STONE	Non-Delta	89.7	89.9	80.9	185.25	17.3
TISHOMINGO COUNTY HIGH SCHOOL	TISHOMINGO CO SP MUN SCH DIST	TISHOMINGO	Non-Delta	88.6	87.9	91.6	150.00	13.9
BELMONT SCHOOL	TISHOMINGO CO SP MUN SCH DIST	TISHOMINGO	Non-Delta	100	90.6	90.4	73.69	13.9
TUPELO HIGH SCHOOL	TUPELO PUBLIC SCHOOL DIST	LEE	Non-Delta	87.6	88.7	84.2	469.25	14.1
EAST UNION ATTENDANCE CENTER	UNION CO SCHOOL DIST	UNION	Non-Delta	79.4	100	100	65.31	12.8
INGOMAR ATTENDANCE CENTER	UNION CO SCHOOL DIST	UNION	Non-Delta	93.1	96.3	93.1	45.31	12.8
MYRTLE ATTENDANCE CENTER	UNION CO SCHOOL DIST	UNION	Non-Delta	80	94	90	54.31	12.8
WEST UNION ATTENDANCE CENTER	UNION CO SCHOOL DIST	UNION	Non-Delta	88.5	94.3	94.4	45.69	12.8

High School	School District	County Name	Region	GradH	ALG	RLC	HSZE	Pov Rate
UNION HIGH SCHOOL	UNION PUBLIC SCHOOL DIST	NEWTON	Non-Delta	78.6	100	84.8	64.54	16.9
TYLERTOWN HIGH SCHOOL	WALTHALL CO SCHOOL DIST	WALTHALL	Non-Delta	72.5	92.1	77.9	134.00	22.3
DEXTER HIGH SCHOOL	WALTHALL CO SCHOOL DIST	WALTHALL	Non-Delta	74.1	84	56.3	23.92	22.3
SALEM HIGH SCHOOL	WALTHALL CO SCHOOL DIST	WALTHALL	Non-Delta	72.7	75.6	78.4	41.38	22.3
WAYNE COUNTY HIGH SCHOOL	WAYNE CO SCHOOL DIST	WAYNE	Non-Delta	75	95	78	269.50	20.6
EAST WEBSTER HIGH SCHOOL	WEBSTER CO SCHOOL DIST	WEBSTER	Non-Delta	91.2	95.8	94.6	57.33	18.4
EUPORA HIGH SCHOOL	WEBSTER CO SCHOOL DIST	WEBSTER	Non-Delta	81.7	94.2	83.3	80.33	18.4
BAY SPRINGS HIGH SCHOOL	WEST JASPER CONSOLIDATED SCHOOLS	JASPER	Non-Delta	82.5	100	82	64.25	20.8
STRINGER ATTENDANCE CENTER	WEST JASPER CONSOLIDATED SCHOOLS	JASPER	Non-Delta	94.3	94.1	93	52.15	20.8
WEST POINT HIGH SCHOOL	WEST POINT SCHOOL DIST	CLAY	Non-Delta	85.1	86.5	73.1	272.25	20.6
WILKINSON COUNTY HIGH	WILKINSON CO SCHOOL DIST	WILKINSON	Non-Delta	84.2	78.9	64.7	100.00	27.9

Appendix IV
Selected Socioeconomic Characteristics of Districts by Region (Delta and Non-Delta)

District Name	County Name	Region	GradD	ALG	RLC	Size	Poverty Rate
ATTALA CO SCHOOL DIST	ATTALA	Delta	85.20	92.2	70.8	1300	20
BENOIT SCHOOL DISTRICT	BOLIVAR	Delta	93.80	92	64.5	315	27.3
CARROLL COUNTY SCHOOL DIST	CARROLL	Delta	76.70	97.7	73.5	1109	16.1
CLAIBORNE CO SCHOOL DIST	CLAIBORNE	Delta	85.80	92.3	90.9	1600	25.5
CLARKSDALE MUNICIPAL SCHOOL DIST	COAHOMA	Delta	88.30	94	76.6	3703	28.3
CLEVELAND SCHOOL DIST	BOLIVAR	Delta	92.00	96.5	74.2	3666	27.3
COAHOMA CO AHS	COAHOMA	Delta	70.20	63.6	40.5	297	28.3
COAHOMA COUNTY SCHOOL DISTRICT	COAHOMA	Delta	75.90	84.4	68.7	1923	28.3
COFFEEVILLE SCHOOL DIST	YALOBUSHA	Delta	67.30	95.8	90	695	19
DESOTO CO SCHOOL DIST	DE SOTO	Delta	93.70	95.6	90.2	23672	8.6
DREW SCHOOL DIST	SUNFLOWER	Delta	78.40	73	61.5	678	30.3
DURANT PUBLIC SCHOOL DIST	HOLMES	Delta	80.70	95.2	79.2	646	32.2
EAST TALLAHATCHIE CONSOL SCH DIST	TALLAHATCHIE	Delta	68.80	76.3	74.7	1664	25.6
GREENVILLE PUBLIC SCHOOLS	WASHINGTON	Delta	72.80	75.6	79.3	7383	28.4
GREENWOOD PUBLIC SCHOOL DISTRICT	LEFLORE	Delta	77.60	74.8	84.4	3422	29.4
GRENADA SCHOOL DIST	GRENADA	Delta	84.90	90.1	83.6	4715	18.5
HOLLANDALE SCHOOL DIST	WASHINGTON	Delta	79.50	85.2	71.7	995	28.4
HOLMES CO SCHOOL DIST	HOLMES	Delta	82.50	92.4	86.6	3557	32.2
HUMPHREYS CO SCHOOL DIST	HUMPHREYS	Delta	73.80	94.5	77.2	1918	30.2
INDIANOLA SCHOOL DIST	SUNFLOWER	Delta	85.20	74.6	77.1	2815	30.3
KOSCIUSKO SCHOOL DISTRICT	ATTALA	Delta	99.10	97.8	84.2	2085	20
LEFLORE CO SCHOOL DIST	LEFLORE	Delta	81.40	85.1	85	2996	29.4
LELAND SCHOOL DIST	WASHINGTON	Delta	83.00	98.1	97.8	1182	28.4
MONTGOMERY CO SCHOOL DIST	MONTGOMERY	Delta	88.60	95.8	71.9	549	20.8
MOUND BAYOU PUBLIC SCHOOL	BOLIVAR	Delta	85.40	89.4	80	719	27.3
NORTH BOLIVAR SCHOOL DISTRICT	BOLIVAR	Delta	83.10	73.9	80.7	917	27.3
NORTH PANOLA SCHOOLS	PANOLA	Delta	60.70	74.1	62.5	1751	20.9
QUITMAN CO SCHOOL DIST	QUITMAN	Delta	72.20	91.3	66.7	1604	27.3
SENATOBIA MUNICIPAL SCHOOL DIST	TATE	Delta	86.60	99.1	96.2	1738	15
SHAW SCHOOL DISTRICT	BOLIVAR	Delta	88.50	97.8	77.8	728	27.3
SOUTH DELTA SCHOOL DISTRICT	SHARKEY	Delta	72.20	76.7	60.3	1329	29.4

District Name	County Name	Region	GradD	ALG	RLC	Size	Poverty Rate
SOUTH PANOLA SCHOOL DISTRICT	PANOLA	Delta	81.70	89.6	70.4	4665	20.9
SUNFLOWER CO SCHOOL DIST	SUNFLOWER	Delta	68.90	94.3	77.1	1915	30.3
TATE CO SCHOOL DIST	TATE	Delta	76.10	65.6	68.4	2863	15
TUNICA COUNTY SCHOOL DISTRICT	TUNICA	Delta	80.70	74.8	63.5	2243	22.4
VICKSBURG WARREN SCHOOL DIST	WARREN	Delta	65.60	91.8	83.2	8940	17.6
WATER VALLEY SCHOOL DISTRICT	YALOBUSHA	Delta	82.20	93.2	95.5	1308	19
WEST BOLIVAR SCHOOL DIST	BOLIVAR	Delta	91.60	63.5	82.2	1159	27.3
WEST TALLAHATCHIE SCHOOL DISTRICT	TALLAHATCHIE	Delta	86.00	67.4	62.1	1152	25.6
WESTERN LINE SCHOOL DISTRICT	WASHINGTON	Delta	75.00	84	73.2	2050	28.4
WINONA SEPARATE SCHOOL DIST	MONTGOMERY	Delta	79.20	98.6	86.3	1244	20.8
YAZOO CITY MUNICIPAL SCHOOL DIST	YAZOO	Delta	67.20	73.8	60.7	2893	27
YAZOO CO SCHOOL DIST	YAZOO	Delta	78.30	74.4	75.4	1873	27
ABERDEEN SCHOOL DIST	MONROE	Non-Delta	79.40	91.2	74	1667	16.3
ALCORN SCHOOL DIST	ALCORN	Non-Delta	86.60	89.2	84.9	3779	16.2
AMITE CO SCHOOL DIST	AMITE	Non-Delta	84.80	75.4	83.3	1436	18.5
AMORY SCHOOL DIST	MONROE	Non-Delta	90.70	87.8	88.4	1832	16.3
BALDWYN SCHOOL DISTRICT	PRENTISS	Non-Delta	100.00	97.1	88.4	975	15.2
BAY ST LOUIS WAVELAND SCHOOL DIST	HANCOCK	Non-Delta	75.40	88.6	86.5	2253	15.7
BENTON CO SCHOOL DIST	BENTON	Non-Delta	78.30	95.8	87.2	1309	20
BILOXI PUBLIC SCHOOL DIST	HARRISON	Non-Delta	85.40	94	93.1	6228	16.5
BOONEVILLE SCHOOL DIST	PRENTISS	Non-Delta	96.80	96.5	92.2	1382	15.2
BROOKHAVEN SCHOOL DIST	LINCOLN	Non-Delta	82.80	89	81	2967	17.7
CALHOUN CO SCHOOL DIST	CALHOUN	Non-Delta	83.70	87.7	80.3	2546	16.9
CANTON PUBLIC SCHOOL DIST	MADISON	Non-Delta	62.10	93.9	75.3	3393	13.2
CHICKASAW CO SCHOOL DIST	CHICKASAW	Non-Delta	82.60	95	96.6	530	17.6
CHOCTAW CO SCHOOL DIST	CHOCTAW	Non-Delta	84.70	90.4	66.1	1787	21.7
CLINTON PUBLIC SCHOOL DIST	HINDS	Non-Delta	87.20	98.00	88.20	4899	20.5
COLUMBIA SCHOOL DISTRICT	MARION	Non-Delta	88.50	90	82.6	1873	21.7
COLUMBUS MUNICIPAL SCHOOL DIST	LOWNDES	Non-Delta	80.10	90.2	81.4	4975	19.2
COPIAH CO SCHOOL DIST	COPIAH	Non-Delta	78.40	74.8	80.3	3069	21.2
CORINTH SCHOOL DIST	ALCORN	Non-Delta	81.00	96.6	91.2	1808	16.2

District Name	County Name	Region	GradD	ALG	RLC	Size	Poverty Rate
ENTERPRISE SCHOOL DIST	CLARKE	Non-Delta	92.00	98	93.8	869	18.9
FOREST MUNICIPAL SCHOOL DIST	SCOTT	Non-Delta	78.50	85.3	78.7	1623	16
FORREST COUNTY AG HIGH SCHOOL	FORREST	Non-Delta	77.50	90.7	88.1	550	20.4
FORREST COUNTY SCHOOL DISTRICT	FORREST	Non-Delta	79.30	97.3	90.6	2482	20.4
FRANKLIN CO SCHOOL DIST	FRANKLIN	Non-Delta	87.50	94.9	82.2	1568	19.5
GEORGE CO SCHOOL DIST	GEORGE	Non-Delta	77.30	88.3	82.1	4066	16.1
GREENE COUNTY SCHOOL DISTRICT	GREENE	Non-Delta	77.30	97.8	89.1	1949	19.8
GULFPORT SCHOOL DIST	HARRISON	Non-Delta	82.00	97.4	87.6	6243	16.5
HANCOCK CO SCHOOL DIST	HANCOCK	Non-Delta	76.30	95.9	86.4	4391	15.7
HARRISON CO SCHOOL DIST	HARRISON	Non-Delta	73.00	95.7	90.6	13049	16.5
HATTIESBURG PUBLIC SCHOOL DIST	FORREST	Non-Delta	74.20	95.4	74.6	4761	20.4
HAZLEHURST CITY SCHOOL DISTRICT	COPIAH	Non-Delta	86.40	82.2	69.2	1712	21.2
HINDS CO AHS	HINDS	Non-Delta	66.70	73.9	53	307	20.5
HINDS CO SCHOOL DIST	HINDS	Non-Delta	81.70	92.20	81.00	5776	20.5
HOLLY SPRINGS SCHOOL DIST	MARSHALL	Non-Delta	84.60	78.1	72.1	1816	19.1
HOUSTON SCHOOL DIST	CHICKASAW	Non-Delta	71.10	100	86.8	1974	17.6
ITAWAMBA CO SCHOOL DIST	ITAWAMBA	Non-Delta	78.30	95.2	82.6	3823	13.7
JACKSON CO SCHOOL DIST	JACKSON	Non-Delta	77.20	97.7	90.3	8509	15
JACKSON PUBLIC SCHOOL DIST	HINDS	Non-Delta	67.50	87.1	76.9	31640	20.5
JEFFERSON CO SCHOOL DIST	JEFFERSON	Non-Delta	98.90	87.7	65.7	1593	27.9
JEFFERSON DAVIS CO SCHOOL DIST	JEFFERSON DAVIS	Non-Delta	80.00	61.1	73.5	2273	22.9
LONG BEACH SCHOOL DIST	HARRISON	Non-Delta	79.20	98.5	92	3323	16.5
LOUISVILLE MUNICIPAL SCHOOL DIST	WINSTON	Non-Delta	77.80	93.9	77.4	2965	20
LOWNDES CO SCHOOL DIST	LOWNDES	Non-Delta	80.10	89.6	89.8	5383	19.2
LUMBERTON PUBLIC SCHOOL DISTRICT	LAMAR	Non-Delta	82.00	100	97.7	916	13.9
MADISON CO SCHOOL DIST	MADISON	Non-Delta	94.90	92.8	86.1	9891	13.2
MARION CO SCHOOL DIST	MARION	Non-Delta	80.50	90	75.2	2523	21.7
MARSHALL CO SCHOOL DIST	MARSHALL	Non-Delta	79.10	91.9	78.2	3463	19.1
MCCOMB SCHOOL DISTRICT	PIKE	Non-Delta	91.00	82.9	69.1	2869	22.8
MERIDIAN PUBLIC SCHOOL DIST	LAUDERDALE	Non-Delta	70.90	91	76.8	6742	18.8
MONROE CO SCHOOL DIST	MONROE	Non-Delta	80.50	87.8	82.5	2602	16.3
MOSS POINT SEPARATE SCHOOL DIST	JACKSON	Non-Delta	64.40	82	63.4	4003	15

District Name	County_name	Region	Grad. Rate	ALG percent passed	RLC percent passed	Size	Poverty Rate
JONES CO SCHOOL DIST	JONES	Non-Delta	85.00	91.7	89.2	7811	18.7
KEMPER CO SCHOOL DIST	KEMPER	Non-Delta	65.80	81.4	75.4	1338	19.9
LAFAYETTE CO SCHOOL DIST	LAFAYETTE	Non-Delta	93.40	97.7	82	2193	15.8
LAMAR COUNTY SCHOOL DISTRICT	LAMAR	Non-Delta	87.90	95.9	95.9	7021	13.9
LAUDERDALE CO SCHOOL DIST	LAUDERDALE	Non-Delta	83.90	98.6	92.1	6595	18.8
LAUREL SCHOOL DISTRICT	JONES	Non-Delta	74.10	84.1	80.7	3137	18.7
LAWRENCE CO SCHOOL DIST	LAWRENCE	Non-Delta	82.10	88.2	83	2400	17.5
LEAKE CO SCHOOL DIST	LEAKE	Non-Delta	78.10	83.9	84.1	3345	19.9
LEE COUNTY SCHOOL DISTRICT	LEE	Non-Delta	84.50	93.9	87.6	6245	14.1
LINCOLN CO SCHOOL DIST	LINCOLN	Non-Delta	92.50	93.5	89.6	2867	17.7
NATCHEZ-ADAMS SCHOOL DIST	ADAMS	Non-Delta	92.40	66.8	67.8	4653	22.3
NESHOBA COUNTY SCHOOL DISTRICT	NESHOBA	Non-Delta	77.70	90.7	89.4	2975	18.6
NETTLETON SCHOOL DIST	LEE	Non-Delta	87.10	96.6	87.5	1392	14.1
NEW ALBANY PUBLIC SCHOOLS	UNION	Non-Delta	92.50	97.6	86.8	2034	12.8
NEWTON COUNTY SCHOOL DISTRICT	NEWTON	Non-Delta	85.00	98.7	95.6	1749	16.9
NEWTON MUNICIPAL SCHOOL DISTRICT	NEWTON	Non-Delta	72.90	84.6	83.6	1047	16.9
NORTH PIKE SCHOOL DIST	PIKE	Non-Delta	84.10	96.8	92.3	1788	22.8
NORTH TIPPAH SCHOOL DIST	TIPPAH	Non-Delta	92.20	98.7	90.6	1357	15.7
NOXUBEE COUNTY SCHOOL DISTRICT	NOXUBEE	Non-Delta	82.10	69.8	70.2	2220	26.8
OCEAN SPRINGS SCHOOL DIST	JACKSON	Non-Delta	87.50	96.8	90.2	5252	15
OKOLONA SEPARATE SCHOOL DIST	CHICKASAW	Non-Delta	71.20	100	97.6	852	17.6
OKTIBBEHA COUNTY SCHOOL DISTRICT	OKTIBBEHA	Non-Delta	77.00	93.2	84.4	922	21.4
OXFORD SCHOOL DISTRICT	LAFAYETTE	Non-Delta	80.30	98.1	86.7	3118	15.8
PASCAGOULA SCHOOL DIST	JACKSON	Non-Delta	79.80	98.6	90.6	7496	15
PASS CHRISTIAN PUBLIC SCHOOL DIST	HARRISON	Non-Delta	93.90	96.4	88.7	1954	16.5
PEARL PUBLIC SCHOOL DIST	RANKIN	Non-Delta	84.00	93.4	93.8	3647	10.4
PEARL RIVER CO SCHOOL DIST	PEARL RIVER	Non-Delta	85.30	97.6	95.8	2793	18.1
PERRY CO SCHOOL DIST	PERRY	Non-Delta	79.60	89.9	87.3	1333	18.3
PETAL SCHOOL DIST	FORREST	Non-Delta	91.50	100	91.7	3701	20.4

District Name	County Name	Region	GradD	ALG	RLC	Size	Poverty Rate
PHILADELPHIA PUBLIC SCHOOL DIST	NESHOBA	Non-Delta	76.30	100	72.2	1166	18.6
PICAYUNE SCHOOL DIST	PEARL RIVER	Non-Delta	85.30	92.9	83.4	3814	18.1
PONTOTOC CITY SCHOOLS	PONTOTOC	Non-Delta	97.30	99.2	95.9	2275	13.2
PONTOTOC CO SCHOOL DIST	PONTOTOC	Non-Delta	94.30	98.5	97.2	3125	13.2
POPLARVILLE SEPARATE SCHOOL DIST	PEARL RIVER	Non-Delta	87.80	98.7	91.3	2039	18.1
PRENTISS CO SCHOOL DIST	PRENTISS	Non-Delta	82.10	99.2	89.4	2279	15.2
QUITMAN SCHOOL DIST	CLARKE	Non-Delta	80.80	91.7	84.6	2368	18.9
RANKIN CO SCHOOL DIST	RANKIN	Non-Delta	93.00	91.9	89.5	16014	10.4
RICHTON SCHOOL DIST	PERRY	Non-Delta	80.30	90.5	85	733	18.3
SCOTT CO SCHOOL DIST	SCOTT	Non-Delta	84.60	90.5	85	3883	16
SIMPSON CO SCHOOL DIST	SIMPSON	Non-Delta	77.20	92.6	72.2	4249	19.7
SMITH CO SCHOOL DIST	SMITH	Non-Delta	89.20	98.5	83.7	3103	16.4
SOUTH PIKE SCHOOL DIST	PIKE	Non-Delta	83.90	96.3	67.6	2081	22.8
SOUTH TIPPAH SCHOOL DIST	TIPPAH	Non-Delta	89.50	95.6	80.4	2709	15.7
STARKVILLE SCHOOL DISTRICT	OKTIBBEHA	Non-Delta	76.20	94.9	79.6	3886	21.4
STONE CO SCHOOL DIST	STONE	Non-Delta	89.70	89.9	80.9	2638	17.3
TISHOMINGO CO SP MUN SCH DIST	TISHOMINGO	Non-Delta	92.40	91.3	91.1	3219	13.9
TUPELO PUBLIC SCHOOL DIST	LEE	Non-Delta	87.60	92.5	84.2	7264	14.1
UNION CO SCHOOL DIST	UNION	Non-Delta	84.50	96.1	94.6	2738	12.8
UNION PUBLIC SCHOOL DIST	NEWTON	Non-Delta	78.60	100	84.8	839	16.9
WALTHALL CO SCHOOL DIST	WALTHALL	Non-Delta	72.90	86.2	75.8	2685	22.3
WAYNE CO SCHOOL DIST	WAYNE	Non-Delta	75.00	95	78	3969	20.6
WEBSTER CO SCHOOL DIST	WEBSTER	Non-Delta	85.60	94.9	88.8	1880	18.4
WEST JASPER CONSOLIDATED SCHOOLS	JASPER	Non-Delta	86.70	96.8	87.1	1793	20.8
WEST POINT SCHOOL DIST	CLAY	Non-Delta	85.10	86.5	73.1	3715	20.6
WILKINSON CO SCHOOL DIST	WILKINSON	Non-Delta	84.20	78.9	64.7	1563	27.9

Appendix V
Correlations (High School Models)

		GR	AL	RL	TE	PU	Del	SZ	ST	Ad	Blk	FS	TF	LN
GRA	P	1	.198	.328	-.04	-.10	-.09	-.07	.021	.027	-.28	-.05	-.30	-.30
	Sig.	.	.00	.00	.542	.116	.185	.28	.743	.677	.000	.401	.000	.000
ALG	P		1	.531	.060	-.06	-.19	-.01	-.01	.166	-.39	-.24	-.14	-.27
	Sig.		.	.00	.350	.300	.003	.796	.865	.010	.000	.000	.025	.000
RLC	P		.531	1	.053	-.21	-.25	.08	.118	.296	-.48	-.29	-.15	-.27
	Sig.		.00	.	.415	.001	.000	.194	.067	.000	.000	.000	.015	.000
TED	P	-.04	.06	.053	1	.161	-.28	.284	.069	.346	-.06	-.22	.238	.125
	Sig.	.542	.350	.415	.	.012	.000	.00	.284	.000	.298	.000	.000	.053
PUP.	P	-.10	-.07	-.24	.161	1	-.01	.061	-.32	.184	.049	.054	.173	-.04
	Sig.	.116	.30	.001	.012	.	.863	.346	.00	.004	.452	.402	.007	.535
Delt	P	-.08	-.19	-.25	-.28	-.01	1	-.00	.00	-.33	.502	.699	.120	.103
	Sig.	.185	.00	.00	.000	.863	.	.981	.994	.000	.000	.000	.063	.110
HSZ	P	-.07	-.01	.08	.284	.061	-.00	1	.468	.513	-.08	-.09	.327	.398
	Sig.	.280	.796	.194	.000	.346	.981	.	.00	.000	.197	.144	.000	.000
STR	P	.021	-.01	.118	.069	-.32	.000	.468	1	.090	-.017	-.116	.089	.321
	Sig.	.743	.865	.067	.284	.000	.994	.00	.	.163	.796	.071	.168	.000

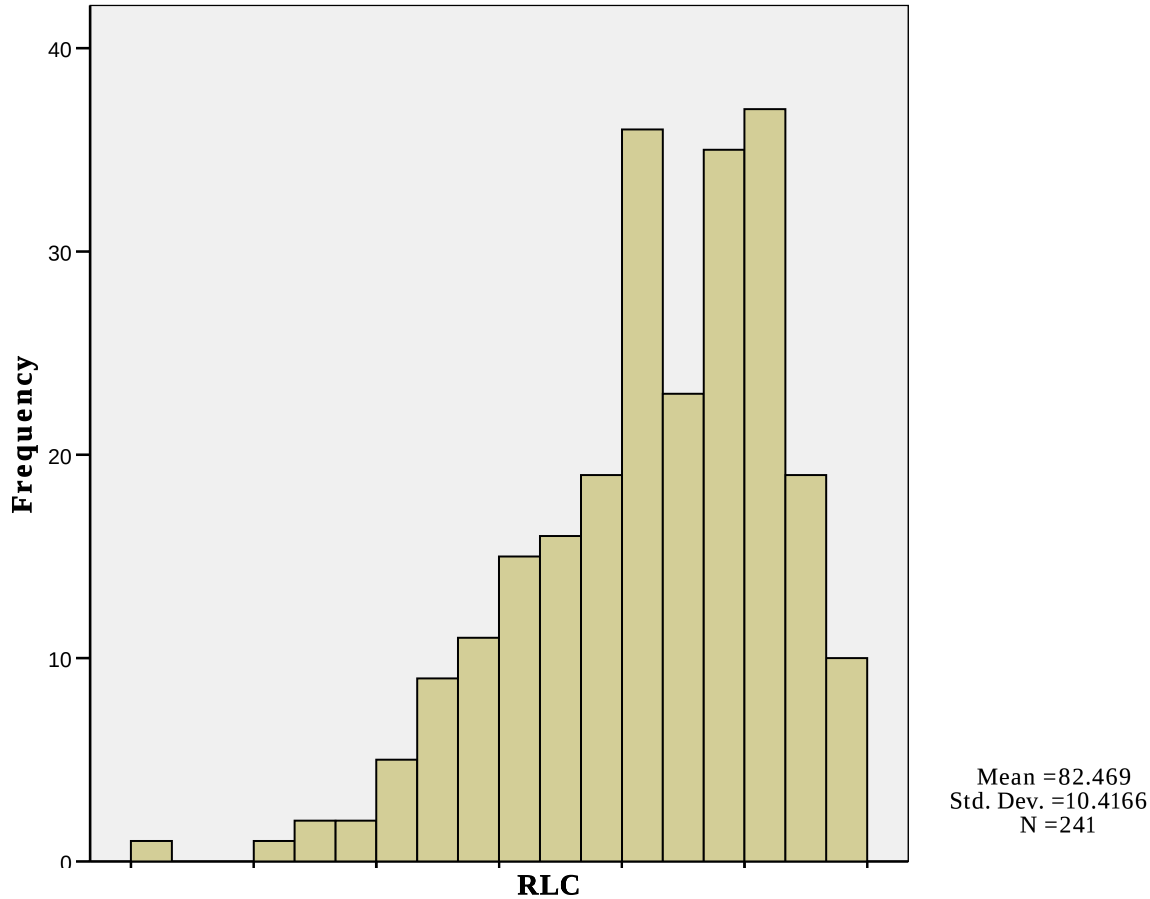
		GR	AL	RL	TE	PU	D	Siz	ST	AH	Blk	FS	TF	LN
Adult HS	P	.03	.166	.30	.35	.18	-.3	.51	.09	1	-.392	-.339	.338	-.094
	Sig.	.67	.01	.00	.0	.00	.0	.00	.16	.	.000	.000	.00	.147
Blacks	P	-.3	-.4	-.5	-.1	.05	.5	-.1	-.01	-.39	1	.576	.471	.363
	Sig.	.00	.00	.00	.29	.45	.0	.19	.79	.00	.	.000	.00	.000
Farm Subs	P	-.1	-.24	-.29	-.2	.05	.6	-.1	-.1	-.33	.576	1	.335	.100
	Sig.	.40	.00	.00	.0	.40	.0	.14	.07	.00	.000	.	.00	.121
TANF	P	-.2	-.14	-.15	.23	.173	.1	.32	.08	.33	.471	.335	1	.234
	Sig.	.00	.02	.01	.0	.00	.0	.00	.16	.00	.000	.000	.	.000
LUN	P	-.2	-.28	-.27	.12	-.0	.1	.39	.32	-.1	.363	.100	.234	1
	Sig.	.00	.00		.05	.53	.1	.00	.00	.147	.000	.121	.00	.

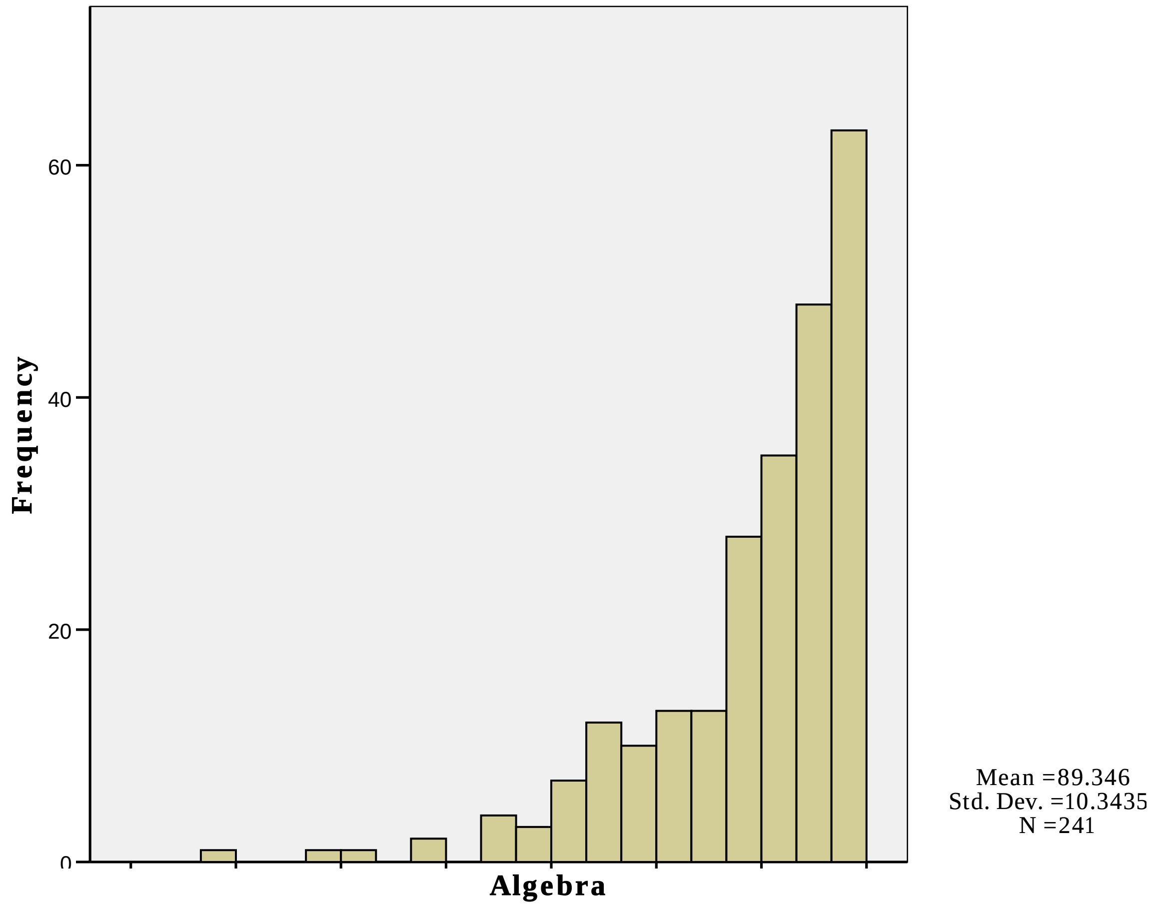
Appendix VI
Correlations (District models)

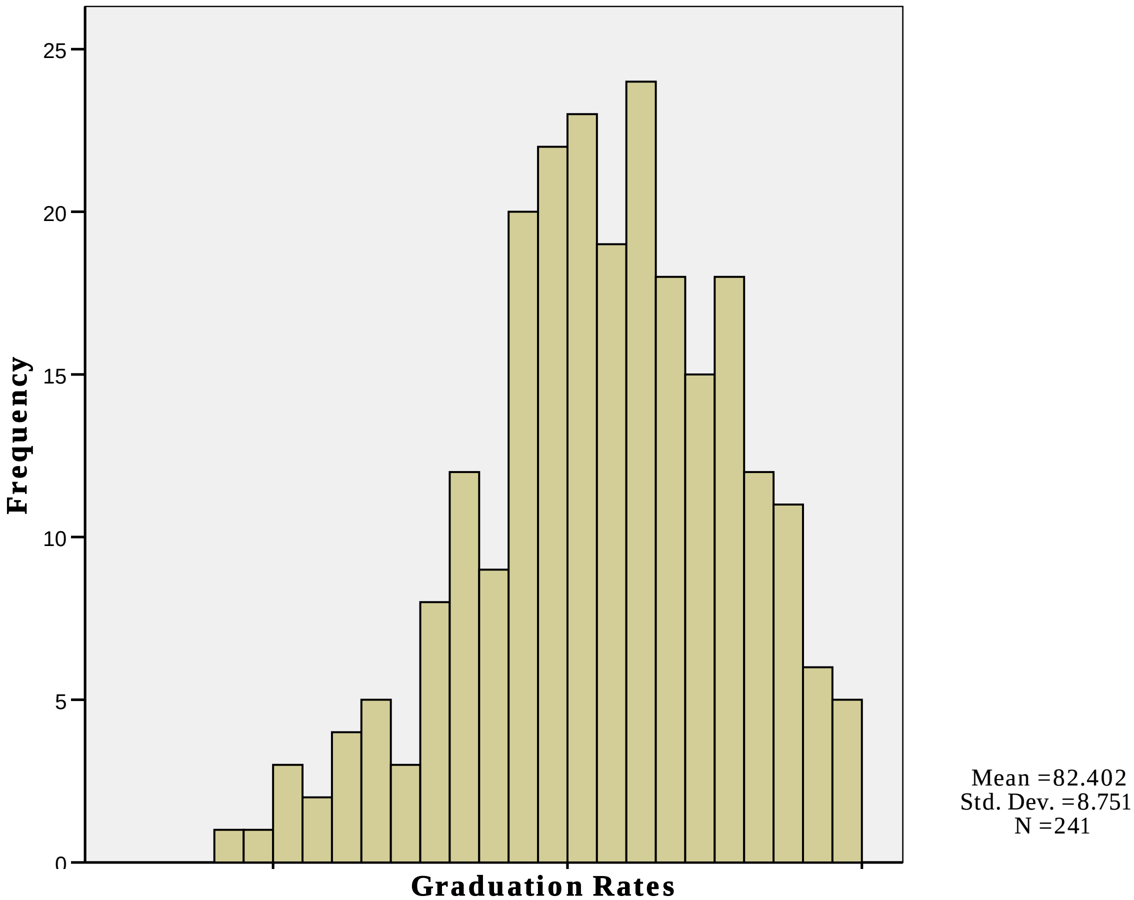
		AL	RL	GD	AS	Blac k	Frm	Dt	SZ	ST	Lun	Te d	Pu	Tn.
AL	P	1	.63	.20	.311	-.481	-.330	-.27	.09	.00	-.517	.16	-.1	-.09
	Sig.	.	.00	2	.00	.000	.000	.00	.26	.94	.000	.05	.28	.233
RL	P	.63	1	.317	.36	-.544	-.328	-.33	.14	.12	-.613	.131	-.26	-.142
	Sig.	.00	.	.00	.00	.000	.000	.00	.08	.131	.000	.10	.00	.081
Gr	P	.20	.317	1	.03	-.192	-.064	-.15	-.0	.03	-.356	.09	-.0	-.170
	Sig.	.01	.00	.	.76	.018	.437	.07	.64	.68	.000	.25	.6	.036
Asl	P	.311	.36	.03	1	-.501	-.394	-.45	.44	.02	-.516	.39	.211	.258
	Sig.	.00	.00	.76	.	.000	.000	.00	.00	.81	.000	.00	.01	.001
Blk	P	-.5	-.54	-.19	-.50	1	.616	.59	-.14	.01	.728	-.13	.01	.404
	Sig.	.00	.00	.01 8	.00	.	.000	.00	.07 7	.92 3	.000	.09	.90	.000
Frs	P	-.33	-.33	-.1	-.4	.616	1	.72	-.14	-.1	.506	-.31	.02	.432
	Sig.	.00	.00	.43	.00	.000	.	.00	.09	.28	.000	.00	.74	.000
Del	P	-.28	-.33	-.15	-.45	.599	.725	1	-.11	.01	.469	-.31	-.01	.197
	Sig.	.00	.00	.06	.00	.000	.000	.	.20	.92	.000	.00	.92	.015

		AL	RL	GD	AS	Blac k	Frm	Dt	SZ	ST	Ln	TE	Pu	Tn.
Size	P	.09	.14	-.0	.44	-.144	-.140	-.10	1	.36	-.3	.19	-.1	.31
	Sig.	.26	.08	.64	.00	.077	.086	.20	.	.00	.00	.01	.35	.00
STR	P	.00	.12	.03	.02	.008	-.089	.00	.36	1	-.24	.05	-.6	.06
	Sig.	.94	.131	.68	.80	.923	.280	.92	.00	.	.00	.54	.00	.42
Lunch	P	-.52	-.61	-.36	-.52	.728	.506	.46	-.3	-.24	1	-.2	.15	.12
	Sig.	.00	.00	.00	.00	.000	.000	.00	.00	.00	.	.00	.06	.13
Teach EDU	P	.16	.131	.09	.38	-.138	-.309	-.3	.19	.05	-.28	1	.11	.12
	Sig.	.04	.10	.25	.00	.092	.000	.00	.01	.54	.00	.	.17	.114
PUPIL	P	-.1	-.25	-.0	.211	.010	.027	-.0	-.07	-.58	.155	.11	1	.12
	Sig.	.28	.00	.66	.00	.898	.740	.92	.35	.00	.05	.17	.	.12
TANF	P	-.10	-.14	-.17	.25	.404	.432	.197	.31	.07	.12	.13	.12	1
	Sig.	.23	.08	.04	.00	.000	.000	.01	.00	.42	.13	.11	.12	.

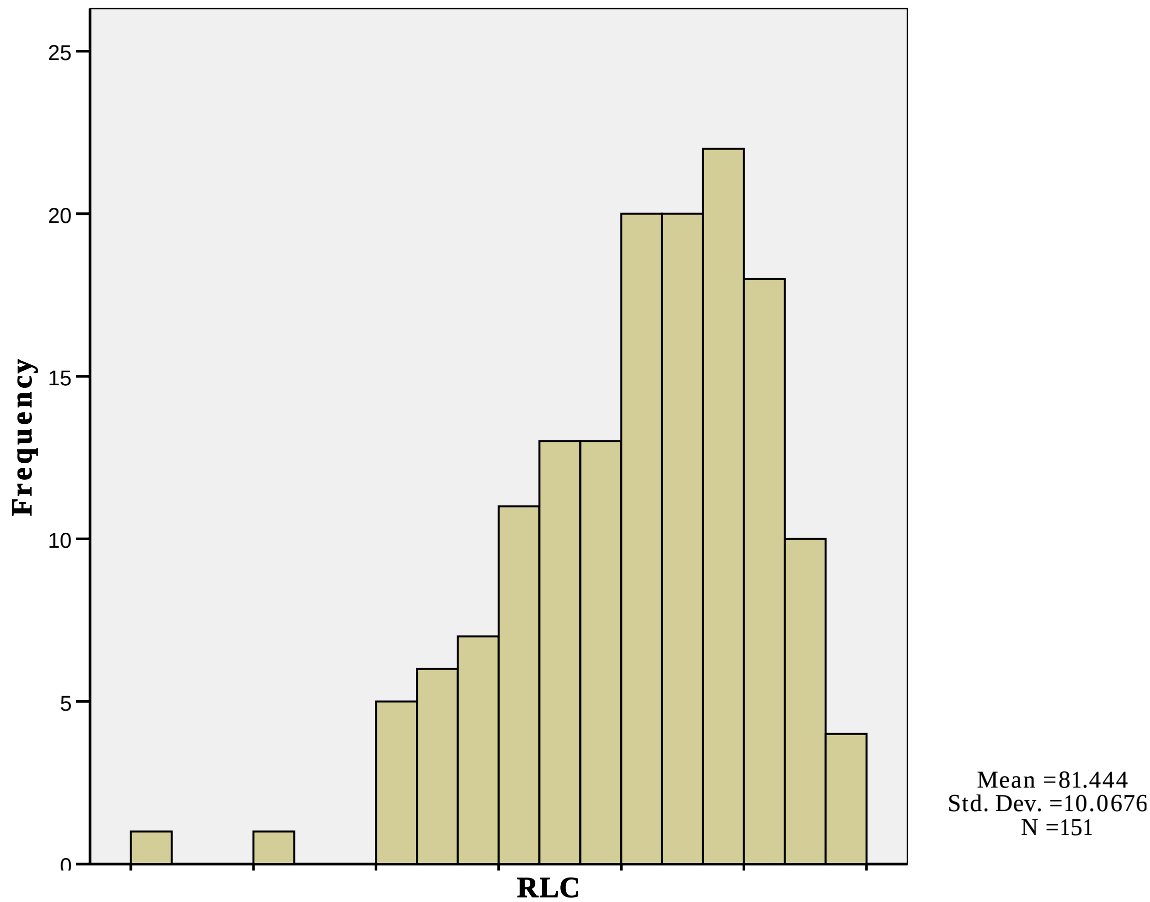
Appendix VII
Distributions of Dependent Variables High School Level Models

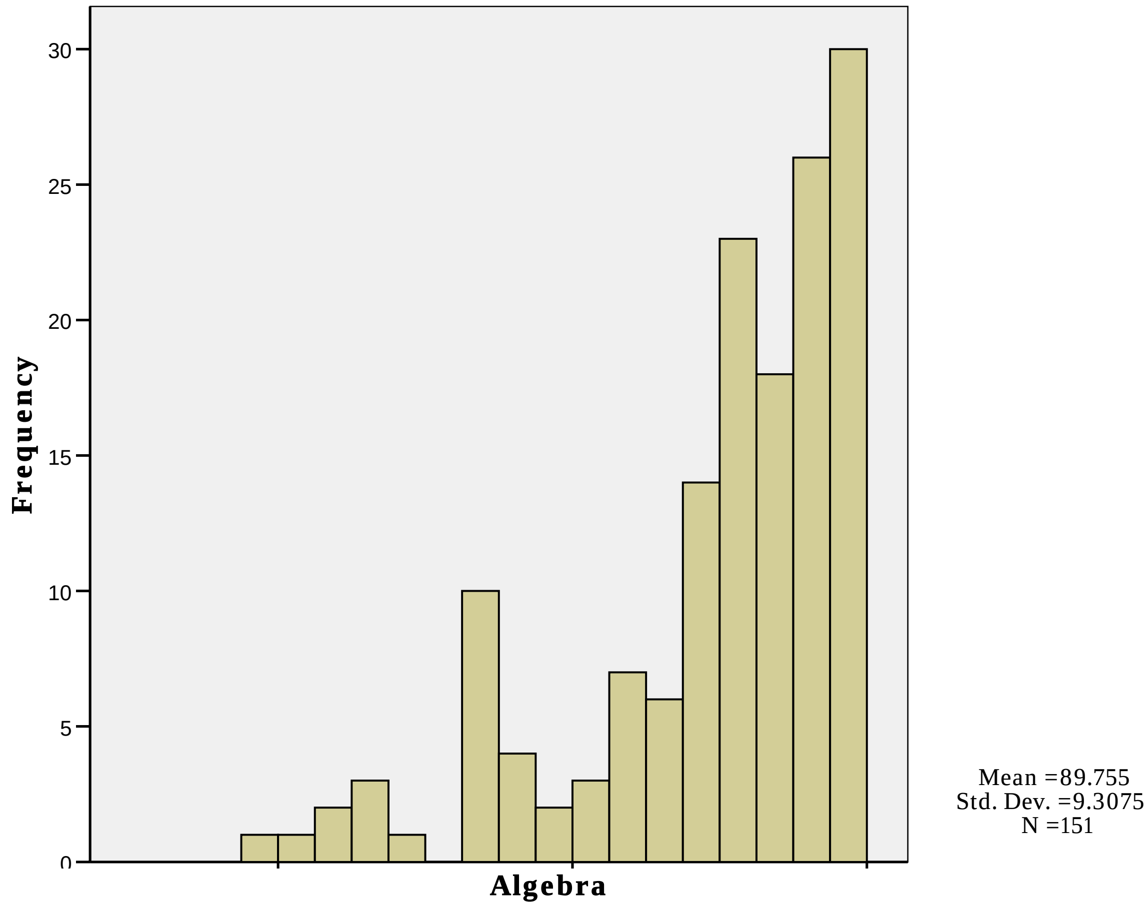


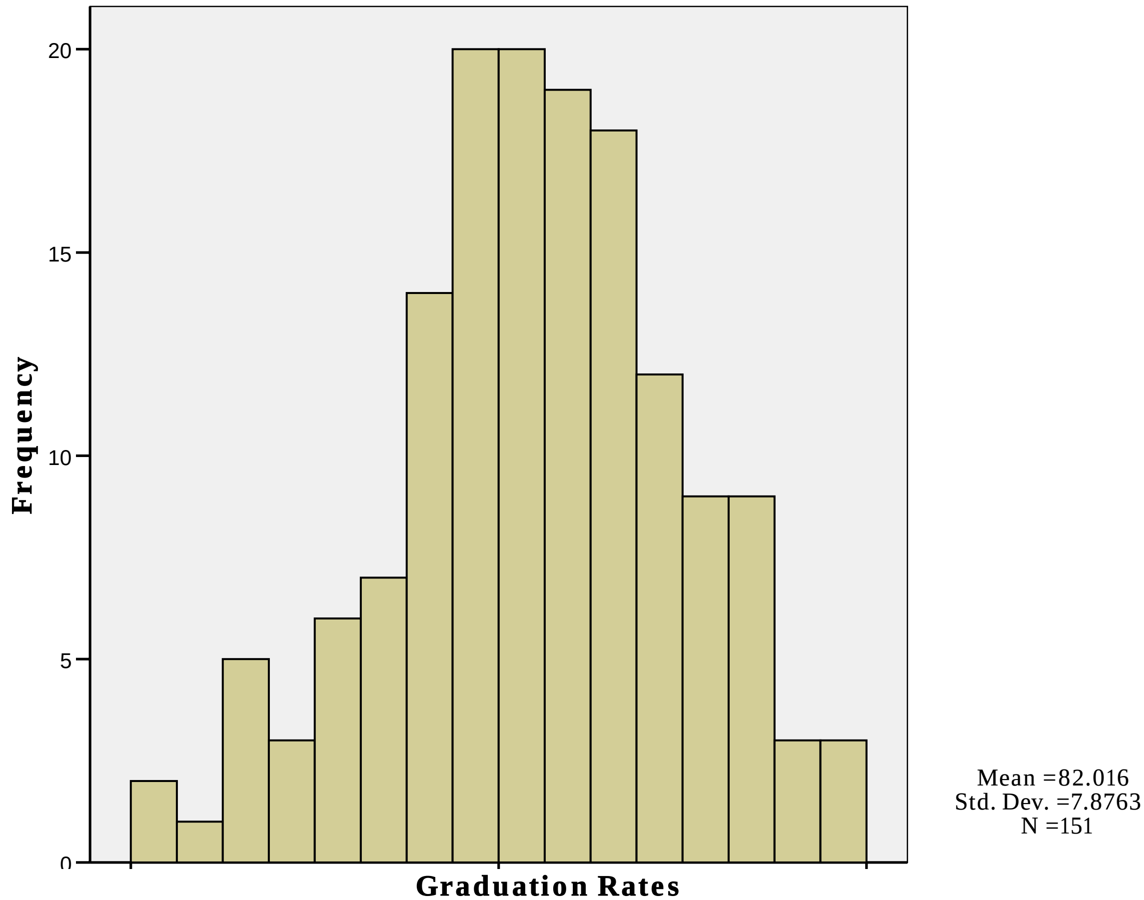

60
40
20
0
Frequency
Algebra
Mean =89.346
Std. Dev. =10.3435
N =241


25
20
15
10
5
0
Frequency
Graduation Rates
Mean =82.402
Std. Dev. =8.751
N =241

District Level Models




Frequency
0
5
10
15
20
25
30
Algebra
Mean =89.755
Std. Dev. =9.3075
N =151


20
15
10
5
0
Frequency
Graduation Rates
Mean =82.016
Std. Dev. =7.8763
N =151

Appendix VIII
Regression (U-Shaped Curves) High School and District Models

Ordinary Least Squares (OLS) regression

		Number of obs =	151
		F(11, 139) =	6.17
		Prob > F =	0.0000
Total (centered) SS =	12994.55377	Centered R2 =	0.3280
Total (uncentered) SS =	1229443.62	Uncentered R2 =	0.9929
Residual SS =	8732.744432	Root MSE =	7.6

ALG_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Delta	-2.995252	2.198946	-1.36	0.173	-7.305106	1.314602
Size	-.000657	.0005117	-1.28	0.199	-.00166	.0003459
STR	-.9243266	.5737827	-1.61	0.107	-2.04892	.2002668
TeachEDU	.0530457	.0843541	0.63	0.529	-.1122853	.2183767
Pupil_Spend	-.0019814	.0011018	-1.80	0.072	-.004141	.0001781
Adult_HS	.0687784	.1447333	0.48	0.635	-.2148936	.3524504
Blacks	-12.20267	6.386385	-1.91	0.056	-24.71975	.3144172
Farm_Subs	-.0000959	.000083	-1.16	0.248	-.0002585	.0000668
TANF	.0005066	.0004699	1.08	0.281	-.0004144	.0014277
Lunch	-.1698439	.0536155	-3.17	0.002	-.2749283	-.0647595
size2	1.83e-08	1.77e-08	1.04	0.300	-1.63e-08	5.30e-08
_cons	130.2976	16.64522	7.83	0.000	97.67353	162.9216

Ordinary Least Squares (OLS) regression

		Number of obs =	151
		F(11, 139) =	10.84
		Prob > F =	0.0000
Total (centered) SS =	15203.57272	Centered R2 =	0.4617
Total (uncentered) SS =	1016814.59	Uncentered R2 =	0.9920
Residual SS =	8184.471788	Root MSE =	7.4

RLC_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Delta	-.1856538	2.128798	-0.09	0.931	-4.358021	3.986713
Size	-.0006884	.0004954	-1.39	0.165	-.0016593	.0002826
STR	-.7671143	.5554787	-1.38	0.167	-1.855833	.321604
TeachEDU	.0037936	.0816632	0.05	0.963	-.1562632	.1638505
Pupil_Spend	-.0041524	.0010667	-3.89	0.000	-.006243	-.0020617
Adult_HS	.2864017	.1401162	2.04	0.041	.011779	.5610244
Blacks	-9.056283	6.182656	-1.46	0.143	-21.17407	3.061499
Farm_Subs	.0000567	.0000803	0.71	0.480	-.0001007	.0002141
TANF	-.0002045	.0004549	-0.45	0.653	-.0010961	.0006872
Lunch	-.2234878	.0519051	-4.31	0.000	-.3252199	-.1217556
size2	2.12e-08	1.71e-08	1.24	0.216	-1.24e-08	5.47e-08
_cons	116.5424	16.11423	7.23	0.000	84.95911	148.1257

Ordinary Least Squares (OLS) regression

Total (centered) SS = 9305.321854		Number of obs =	151
Total (uncentered) SS = 1025022.96		F(11, 139) =	4.25
Residual SS = 6964.126265		Prob > F =	0.0000
		Centered R2 =	0.2516
		Uncentered R2 =	0.9932
		Root MSE =	6.8

Grad__Rate	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Delta	4.509133	1.963688	2.30	0.022	.6603758	8.35789
Size	-.0005686	.000457	-1.24	0.213	-.0014643	.000327
STR	.1134893	.5123956	0.22	0.825	-.8907876	1.117766
TeachEDU	.0604347	.0753293	0.80	0.422	-.0872081	.2080775
Pupil_Spend	.0009465	.000984	0.96	0.336	-.000982	.0028751
Adult_HS	-.0390692	.1292487	-0.30	0.762	-.2923921	.2142537
Blacks	11.76601	5.703127	2.06	0.039	.5880846	22.94393
Farm_Subs	.000238	.0000741	3.21	0.001	.0000928	.0003832
TANF	-.0012259	.0004197	-2.92	0.003	-.0020484	-.0004034
Lunch	-.2675214	.0478793	-5.59	0.000	-.3613632	-.1736796
size2	1.81e-08	1.58e-08	1.14	0.253	-1.29e-08	4.90e-08
_cons	81.82082	14.86441	5.50	0.000	52.68712	110.9545

Poisson regression

Log likelihood = -891.95094	Number of obs =	241
	LR chi2(10) =	51.79
	Prob > chi2 =	0.0000
	Pseudo R2 =	0.0282

ALG_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
TeachEdu	.0008179	.0009728	0.84	0.400	-.0010888	.0027246
Pupil_Spend	-.000012	.0000112	-1.07	0.283	-.0000339	9.89e-06
Delta	-.0284747	.0248725	-1.14	0.252	-.0772239	.0202745
Size	-.0003737	.0002566	-1.46	0.145	-.0008766	.0001293
StudentTea~o	-.0002095	.0034019	-0.06	0.951	-.0068771	.0064581
Adult_HS	.0001975	.0015021	0.13	0.895	-.0027465	.0031416
Blacks	-.2639234	.0579179	-4.56	0.000	-.3774404	-.1504063
Farm_Subs	-1.03e-06	9.74e-07	-1.06	0.290	-2.94e-06	8.78e-07
TANF	5.98e-06	4.58e-06	1.31	0.191	-2.99e-06	.0000149
Size2	5.67e-07	5.37e-07	1.06	0.291	-4.85e-07	1.62e-06
_cons	4.696973	.1535748	30.58	0.000	4.395972	4.997975

Poisson regression

Number of obs	=	241
LR chi2(10)	=	98.10
Prob > chi2	=	0.0000
Pseudo R2	=	0.0535

Log likelihood = -868.53133

RLC_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
TeachEdu	.0003138	.0010185	0.31	0.758	-.0016824	.00231
Pupil_Spend	-.000041	.0000118	-3.46	0.001	-.0000642	-.0000178
Delta	-.0010432	.026014	-0.04	0.968	-.0520298	.0499433
Size	-.0003971	.0002654	-1.50	0.135	-.0009173	.000123
StudentTea~o	.0034144	.003541	0.96	0.335	-.0035259	.0103547
Adult_HS	.0035578	.0015591	2.28	0.022	.0005021	.0066135
Blacks	-.2756404	.0605331	-4.55	0.000	-.3942832	-.1569976
Farm_Subs	1.53e-07	1.02e-06	0.15	0.881	-1.86e-06	2.16e-06
TANF	1.60e-06	4.79e-06	0.33	0.738	-7.79e-06	.000011
Size2	6.75e-07	5.52e-07	1.22	0.221	-4.07e-07	1.76e-06
_cons	4.464864	.1610713	27.72	0.000	4.14917	4.780558

Poisson regression

Number of obs	=	241
LR chi2(10)	=	37.14
Prob > chi2	=	0.0001
Pseudo R2	=	0.0214

Log likelihood = -847.61329

Graduation~e	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
TeachEdu	.0005713	.001008	0.57	0.571	-.0014043	.0025469
Pupil_Spend	-9.15e-06	.0000115	-0.80	0.426	-.0000317	.0000134
Delta	.0268337	.0259809	1.03	0.302	-.024088	.0777555
Size	-.0002328	.0002678	-0.87	0.385	-.0007577	.0002921
StudentTea~o	.0038357	.0035276	1.09	0.277	-.0030782	.0107496
Adult_HS	.0027156	.0015626	1.74	0.082	-.0003472	.0057783
Blacks	-.0888152	.0600975	-1.48	0.139	-.2066042	.0289737
Farm_Subs	2.86e-06	9.98e-07	2.87	0.004	9.08e-07	4.82e-06
TANF	-.0000162	4.84e-06	-3.34	0.001	-.0000256	-6.67e-06
Size2	3.43e-07	5.62e-07	0.61	0.542	-7.60e-07	1.44e-06
_cons	4.21301	.1590709	26.49	0.000	3.901237	4.524783

Appendix IX
Regression Output High School and District Models

```
Negative binomial regression                      Number of obs   =        241
                                                  LR chi2(11)     =      57.75
                                                  Prob > chi2     =     0.0000
Log likelihood = -837.30603                       Pseudo R2       =     0.0333

------------------------------------------------------------------------------
graduation~e |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      w_grad |   .0042968   .0012457     3.45   0.001      .0018553    .0067382
    teachedu |   .0005865   .0009987     0.59   0.557     -.0013709    .0025439
 pupil_spend |  -9.66e-06   .0000115    -0.84   0.400     -.0000322    .0000128
       delta |   -.032135   .0261449    -1.23   0.219     -.0833781    .0191081
        size |  -7.37e-06   .0001139    -0.06   0.948     -.0002306    .0002159
studenttea~o |    .003814    .003503     1.09   0.276     -.0030518    .0106798
 total_lunch |  -.0001232   .0000489    -2.52   0.012     -.0002191   -.0000274
    adult_hs |   .0014282   .0015902     0.90   0.369     -.0016886     .004545
      blacks |  -.0038485   .0631624    -0.06   0.951     -.1276445    .1199475
   farm_subs |   2.00e-06   1.02e-06     1.97   0.049      7.66e-09    3.99e-06
        tanf |  -.0000147   4.86e-06    -3.03   0.002     -.0000243   -5.19e-06
       _cons |   4.278719   .1519304    28.16   0.000      3.980941    4.576497
-------------+----------------------------------------------------------------
    /lnalpha |  -20.50022          .                             .           .
-------------+----------------------------------------------------------------
       alpha |   1.25e-09          .                             .           .
------------------------------------------------------------------------------
Likelihood-ratio test of alpha=0:  chibar2(01) =     0.00 Prob>=chibar2 = 1.000
```

```
Negative binomial regression                      Number of obs   =        241
                                                  LR chi2(12)     =      57.85
                                                  Prob > chi2     =     0.0000
Log likelihood = -837.25887                       Pseudo R2       =     0.0334

------------------------------------------------------------------------------
graduation~e |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      w_grad |   .0042905   .0012459     3.44   0.001      .0018486    .0067324
    teachedu |   .0005887   .0009988     0.59   0.556     -.0013689    .0025463
 pupil_spend |  -9.07e-06   .0000116    -0.78   0.436     -.0000319    .0000137
       delta |  -.0416322   .0405068    -1.03   0.304     -.1210242    .0377597
        size |  -.0000177   .0001189    -0.15   0.881     -.0002507    .0002152
studenttea~o |   .0036396   .0035478     1.03   0.305     -.0033141    .0105932
 total_lunch |  -.0001234   .0000489    -2.52   0.012     -.0002192   -.0000275
    adult_hs |   .0013955   .0015936     0.88   0.381     -.0017279     .004519
      blacks |  -.0016351   .0635626    -0.03   0.979     -.1262154    .1229453
   farm_subs |   2.04e-06   1.02e-06     1.99   0.047      2.98e-08    4.04e-06
        tanf |  -.0000146   4.88e-06    -2.99   0.003     -.0000242   -5.02e-06
  size_delta |   .0000581    .000189     0.31   0.759     -.0003123    .0004285
       _cons |   4.280909   .1520681    28.15   0.000      3.982861    4.578957
-------------+----------------------------------------------------------------
    /lnalpha |  -20.50022          .                             .           .
-------------+----------------------------------------------------------------
       alpha |   1.25e-09          .                             .           .
------------------------------------------------------------------------------
Likelihood-ratio test of alpha=0:  chibar2(01) =     0.00 Prob>=chibar2 = 1.000
```

Negative binomial regression

Number of obs	= 241
LR chi2(12)	= 59.21
Prob > chi2	= 0.0000
Pseudo R2	= 0.0342

Log likelihood = -836.57473

graduation~e	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_grad	.0047097	.0012909	3.65	0.000	.0021796	.0072398
teachedu	.00046	.0010044	0.46	0.647	-.0015086	.0024285
pupil_spend	-9.81e-06	.0000115	-0.85	0.393	-.0000323	.0000127
delta	-.0276071	.0264005	-1.05	0.296	-.079351	.0241369
size	-.0001806	.0001832	-0.99	0.324	-.0005396	.0001785
studenttea~o	.0039901	.003505	1.14	0.255	-.0028795	.0108598
total_lunch	-.0001356	.0000499	-2.72	0.007	-.0002334	-.0000377
adult_hs	.0016723	.0016018	1.04	0.296	-.0014671	.0048117
blacks	-.0681072	.0824305	-0.83	0.409	-.2296679	.0934535
farm_subs	2.04e-06	1.02e-06	2.01	0.044	5.10e-08	4.03e-06
tanf	-.0000162	5.02e-06	-3.23	0.001	-.000026	-6.38e-06
size_black	.0005801	.0004794	1.21	0.226	-.0003595	.0015197
_cons	4.282139	.1518636	28.20	0.000	3.984491	4.579786
/lnalpha	-20.50022	.			.	.
alpha	1.25e-09	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

Generalized negative binomial regression

Number of obs	= 241
LR chi2(12)	= 77.05
Prob > chi2	= 0.0000
Pseudo R2	= 0.0421

Log likelihood = -877.04004

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
alg_percen~d						
w_alg	.0051652	.0010566	4.89	0.000	.0030944	.0072361
teachedu	.0007052	.0009632	0.73	0.464	-.0011827	.0025931
pupil_spend	-.0000132	.000011	-1.20	0.231	-.0000349	8.41e-06
delta	.0475798	.0396144	1.20	0.230	-.0300631	.1252227
size	-.000069	.0001153	-0.60	0.550	-.000295	.000157
studenttea~o	.0003055	.003454	0.09	0.930	-.0064642	.0070752
total_lunch	-.0000912	.0000478	-1.91	0.056	-.0001848	2.43e-06
adult_hs	-.0006475	.0015484	-0.42	0.676	-.0036822	.0023873
blacks	-.1704692	.0624033	-2.73	0.006	-.2927775	-.0481609
farm_subs	-1.68e-06	9.89e-07	-1.70	0.089	-3.62e-06	2.55e-07
tanf	5.44e-06	4.70e-06	1.16	0.247	-3.77e-06	.0000146
size_delta	-.0001712	.0001857	-0.92	0.357	-.0005351	.0001928
_cons	4.580097	.1480992	30.93	0.000	4.289827	4.870366
lnalpha						
_cons	-18.73192	.279512	-67.02	0.000	-19.27975	-18.18409

```
Negative binomial regression                      Number of obs   =        241
                                                  LR chi2(11)     =      76.80
                                                  Prob > chi2     =     0.0000
Log likelihood = -877.16491                       Pseudo R2       =     0.0419

------------------------------------------------------------------------------
alg_percen~d |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w_alg |   .0054576   .0011131     4.90   0.000     .0032759    .0076393
    teachedu |   .0006294   .0009684     0.65   0.516    -.0012687    .0025274
 pupil_spend |  -.0000116   .0000111    -1.04   0.299    -.0000334    .0000103
       delta |   .0224549   .0252313     0.89   0.373    -.0269976    .0719073
        size |   -.000209   .0001764    -1.18   0.236    -.0005547    .0001367
studenttea~o |  -.0000762   .0033773    -0.02   0.982    -.0066957    .0065432
 total_lunch |  -.0000987   .0000478    -2.07   0.039    -.0001924   -5.06e-06
    adult_hs |  -.0005799   .0015427    -0.38   0.707    -.0036035    .0024437
      blacks |  -.2031577   .0790925    -2.57   0.010    -.3581761   -.0481393
   farm_subs |  -1.54e-06   9.76e-07    -1.58   0.115    -3.45e-06    3.75e-07
        tanf |   4.75e-06   4.79e-06     0.99   0.321    -4.63e-06    .0000141
  size_black |   .0003679   .0004635     0.79   0.427    -.0005405    .0012762
       _cons |    4.58565   .1475241    31.08   0.000     4.296508    4.874792
-------------+----------------------------------------------------------------
    /lnalpha |  -24.48159          .                             .           .
-------------+----------------------------------------------------------------
       alpha |   2.33e-11          .                             .           .
------------------------------------------------------------------------------
Likelihood-ratio test of alpha=0:  chibar2(01) =     0.00 Prob>=chibar2 = 1.000
```

```
Negative binomial regression                      Number of obs   =        241
                                                  LR chi2(10)     =     117.13
                                                  Prob > chi2     =     0.0000
Log likelihood = -853.80395                       Pseudo R2       =     0.0642

------------------------------------------------------------------------------
rlc_percen~d |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w_rlc |   .0059379   .0011705     5.07   0.000     .0036437    .0082322
    teachedu |   .0002495    .001008     0.25   0.805    -.0017262    .0022251
 pupil_spend |  -.0000375   .0000118    -3.17   0.002    -.0000607   -.0000143
       delta |  -.0065967   .0261894    -0.25   0.801    -.0579271    .0447336
        size |   -.000092   .0001134    -0.81   0.417    -.0003143    .0001302
studenttea~o |   .0029737   .0035144     0.85   0.397    -.0039143    .0098618
 total_lunch |  -.0000816   .0000485    -1.68   0.093    -.0001767    .0000135
    adult_hs |   .0023433   .0015862     1.48   0.140    -.0007656    .0054522
      blacks |  -.1697449    .064429    -2.63   0.008    -.2960235   -.0434663
   farm_subs |  -4.69e-07   1.02e-06    -0.46   0.647    -2.48e-06    1.54e-06
        tanf |   1.62e-06   4.81e-06     0.34   0.736    -7.80e-06     .000011
       _cons |   4.402663   .1544812    28.50   0.000     4.099886    4.705441
-------------+----------------------------------------------------------------
    /lnalpha |  -20.13699          .                             .           .
-------------+----------------------------------------------------------------
       alpha |   1.80e-09          .                             .           .
------------------------------------------------------------------------------
Likelihood-ratio test of alpha=0:  chibar2(01) =     0.00 Prob>=chibar2 = 1.000
```

```
Negative binomial regression                      Number of obs   =        241
                                                  LR chi2(11)     =     117.41
                                                  Prob > chi2     =     0.0000
Log likelihood = -853.66368                       Pseudo R2       =     0.0643
```

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0059243	.0011706	5.06	0.000	.00363	.0082186
teachedu	.000244	.0010079	0.24	0.809	-.0017315	.0022195
pupil_spend	-.0000386	.000012	-3.21	0.001	-.0000621	-.0000151
delta	.0099341	.0407222	0.24	0.807	-.0698799	.0897481
size	-.0000742	.0001182	-0.63	0.530	-.0003058	.0001574
studenttea~o	.0032843	.0035646	0.92	0.357	-.0037023	.0102708
total_lunch	-.0000817	.0000485	-1.68	0.092	-.0001769	.0000134
adult_hs	.0024042	.0015906	1.51	0.131	-.0007133	.0055217
blacks	-.173814	.0649049	-2.68	0.007	-.3010253	-.0466026
farm_subs	-5.31e-07	1.03e-06	-0.52	0.607	-2.55e-06	1.49e-06
tanf	1.40e-06	4.83e-06	0.29	0.772	-8.06e-06	.0000109
size_delta	-.0001001	.0001892	-0.53	0.597	-.0004709	.0002707
_cons	4.399279	.1546656	28.44	0.000	4.09614	4.702418
/lnalpha	-20.81483	.			.	.
alpha	9.13e-10	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

Source	SS	df	MS
Model	4690.46916	11	426.406288
Residual	13688.82	229	59.7765066
Total	18379.2892	240	76.5803715

```
Number of obs =     241
F( 11,   229) =    7.13
Prob > F      =  0.0000
R-squared     =  0.2552
Adj R-squared =  0.2194
Root MSE      =  7.7315
```

graduation~e	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
w_grad	.3576388	.0885414	4.04	0.000	.1831789	.5320987
teachedu	.0483791	.070296	0.69	0.492	-.0901306	.1868888
pupil_spend	-.0007857	.0008	-0.98	0.327	-.0023621	.0007907
delta	-2.517856	1.828778	-1.38	0.170	-6.121239	1.085527
size	-.0007172	.0079698	-0.09	0.928	-.0164208	.0149864
studenttea~o	.3192336	.2462553	1.30	0.196	-.1659823	.8044496
total_lunch	-.0100012	.0033961	-2.94	0.004	-.0166927	-.0033097
adult_hs	.1123456	.1121413	1.00	0.317	-.1086151	.3333062
blacks	-.6179921	4.441265	-0.14	0.889	-9.36896	8.132976
farm_subs	.0001596	.0000712	2.24	0.026	.0000192	.0002999
tanf	-.0011264	.0003319	-3.39	0.001	-.0017803	-.0004725
_cons	71.64708	10.65177	6.73	0.000	50.65907	92.6351

Source	SS	df	MS
Model	4703.58291	12	391.965243
Residual	13675.7063	228	59.9811678
Total	18379.2892	240	76.5803715

Number of obs = 241
F(12, 228) = 6.53
Prob > F = 0.0000
R-squared = 0.2559
Adj R-squared = 0.2168
Root MSE = 7.7448

graduation~e	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
w_grad	.3574915	.0886934	4.03	0.000	.182728	.532255
teachedu	.0484789	.0704166	0.69	0.492	-.0902716	.1872293
pupil_spend	-.0007246	.000812	-0.89	0.373	-.0023246	.0008753
delta	-3.503376	2.792543	-1.25	0.211	-9.005867	1.999115
size	-.0018396	.0083366	-0.22	0.826	-.0182661	.014587
studenttea~o	.3025745	.2492362	1.21	0.226	-.1885263	.7936754
total_lunch	-.0100473	.0034033	-2.95	0.003	-.0167533	-.0033414
adult_hs	.1093094	.1125206	0.97	0.332	-.1124039	.3310226
blacks	-.3667036	4.481204	-0.08	0.935	-9.196573	8.463165
farm_subs	.0001628	.0000717	2.27	0.024	.0000215	.000304
tanf	-.0011136	.0003336	-3.34	0.001	-.0017709	-.0004563
size_delta	.006139	.0131292	0.47	0.641	-.0197312	.0320091
_cons	71.8345	10.67752	6.73	0.000	50.79527	92.87373

Poisson regression

Log likelihood = -837.30603

Number of obs = 241
LR chi2(11) = 57.75
Prob > chi2 = 0.0000
Pseudo R2 = 0.0333

graduation~e	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
w_grad	.0042968	.0012457	3.45	0.001	.0018553	.0067382
teachedu	.0005865	.0009987	0.59	0.557	-.0013709	.0025439
pupil_spend	-9.66e-06	.0000115	-0.84	0.400	-.0000322	.0000128
delta	-.032135	.0261449	-1.23	0.219	-.0833781	.0191081
size	-7.37e-06	.0001139	-0.06	0.948	-.0002306	.0002159
studenttea~o	.003814	.003503	1.09	0.276	-.0030518	.0106798
total_lunch	-.0001232	.0000489	-2.52	0.012	-.0002191	-.0000274
adult_hs	.0014282	.0015902	0.90	0.369	-.0016886	.004545
blacks	-.0038485	.0631624	-0.06	0.951	-.1276445	.1199475
farm_subs	2.00e-06	1.02e-06	1.97	0.049	7.66e-09	3.99e-06
tanf	-.0000147	4.86e-06	-3.03	0.002	-.0000243	-5.19e-06
_cons	4.278719	.1519304	28.16	0.000	3.980941	4.576497

Poisson regression

Log likelihood = -837.25887

Number of obs = 241
LR chi2(12) = 57.85
Prob > chi2 = 0.0000
Pseudo R2 = 0.0334

graduation~e	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
w_grad	.0042905	.0012459	3.44	0.001	.0018486	.0067324
teachedu	.0005887	.0009988	0.59	0.556	-.0013689	.0025463
pupil_spend	-9.07e-06	.0000116	-0.78	0.436	-.0000319	.0000137
delta	-.0416322	.0405068	-1.03	0.304	-.1210242	.0377597
size	-.0000177	.0001189	-0.15	0.881	-.0002507	.0002152
studenttea~o	.0036396	.0035478	1.03	0.305	-.0033141	.0105932
total_lunch	-.0001234	.0000489	-2.52	0.012	-.0002192	-.0000275
adult_hs	.0013955	.0015936	0.88	0.381	-.0017279	.004519
blacks	-.0016351	.0635626	-0.03	0.979	-.1262154	.1229453
farm_subs	2.04e-06	1.02e-06	1.99	0.047	2.98e-08	4.04e-06
tanf	-.0000146	4.88e-06	-2.99	0.003	-.0000242	-5.02e-06
size_delta	.0000581	.000189	0.31	0.759	-.0003123	.0004285
_cons	4.280909	.1520681	28.15	0.000	3.982861	4.578957

Poisson regression

Number of obs	=	241
LR chi2(12)	=	59.21
Prob > chi2	=	0.0000
Pseudo R2	=	0.0342

Log likelihood = -836.57473

graduation~e	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_grad	.0047097	.0012909	3.65	0.000	.0021796	.0072398
teachedu	.00046	.0010044	0.46	0.647	-.0015086	.0024285
pupil_spend	-9.81e-06	.0000115	-0.85	0.393	-.0000323	.0000127
delta	-.0276071	.0264005	-1.05	0.296	-.079351	.0241369
size	-.0001806	.0001832	-0.99	0.324	-.0005396	.0001785
studenttea~o	.0039901	.003505	1.14	0.255	-.0028795	.0108598
total_lunch	-.0001356	.0000499	-2.72	0.007	-.0002334	-.0000377
adult_hs	.0016723	.0016018	1.04	0.296	-.0014671	.0048117
blacks	-.0681072	.0824305	-0.83	0.409	-.2296679	.0934535
farm_subs	2.04e-06	1.02e-06	2.01	0.044	5.10e-08	4.03e-06
tanf	-.0000162	5.02e-06	-3.23	0.001	-.000026	-6.38e-06
size_black	.0005801	.0004794	1.21	0.226	-.0003595	.0015197
_cons	4.282139	.1518636	28.20	0.000	3.984491	4.579786

Poisson regression

Number of obs	=	241
LR chi2(11)	=	80.73
Prob > chi2	=	0.0000
Pseudo R2	=	0.0440

Log likelihood = -877.47973

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.0051972	.0010638	4.89	0.000	.0031122	.0072823
teachedu	.0007094	.0009631	0.74	0.461	-.0011782	.0025969
pupil_spend	-.0000115	.0000111	-1.03	0.301	-.0000333	.0000103
delta	.0198961	.0250316	0.79	0.427	-.0291648	.0689571
size	-.0000994	.0001096	-0.91	0.364	-.0003142	.0001153
studenttea~o	-.0002248	.0033728	-0.07	0.947	-.0068353	.0063857
total_lunch	-.0000911	.0000468	-1.94	0.052	-.0001829	7.03e-07
adult_hs	-.0007504	.0015284	-0.49	0.623	-.003746	.0022452
blacks	-.1636685	.0615531	-2.66	0.008	-.2843103	-.0430267
farm_subs	-1.59e-06	9.74e-07	-1.63	0.103	-3.50e-06	3.19e-07
tanf	5.83e-06	4.59e-06	1.27	0.204	-3.17e-06	.0000148
_cons	4.586179	.1475844	31.07	0.000	4.296919	4.875439

Poisson regression

Log likelihood = -877.04008

Number of obs = 241
LR chi2(12) = 81.61
Prob > chi2 = 0.0000
Pseudo R2 = 0.0445

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.005166	.001064	4.86	0.000	.0030806	.0072515
teachedu	.000705	.0009629	0.73	0.464	-.0011822	.0025923
pupil_spend	-.0000132	.0000113	-1.17	0.241	-.0000354	8.90e-06
delta	.0475738	.0386716	1.23	0.219	-.0282211	.1233687
size	-.0000689	.0001141	-0.60	0.546	-.0002927	.0001548
studenttea~o	.0003052	.0034226	0.09	0.929	-.0064029	.0070133
total_lunch	-.0000912	.0000469	-1.95	0.052	-.000183	6.59e-07
adult_hs	-.0006471	.0015328	-0.42	0.673	-.0036513	.0023571
blacks	-.1704573	.0620114	-2.75	0.006	-.2919973	-.0489172
farm_subs	-1.68e-06	9.78e-07	-1.72	0.085	-3.60e-06	2.33e-07
tanf	5.44e-06	4.61e-06	1.18	0.239	-3.60e-06	.0000145
size_delta	-.0001711	.0001828	-0.94	0.349	-.0005295	.0001872
_cons	4.580058	.1478208	30.98	0.000	4.290335	4.869782

Poisson regression

Log likelihood = -877.16491

Number of obs = 241
LR chi2(12) = 81.36
Prob > chi2 = 0.0000
Pseudo R2 = 0.0443

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.0054576	.0011131	4.90	0.000	.0032759	.0076393
teachedu	.0006294	.0009684	0.65	0.516	-.0012687	.0025274
pupil_spend	-.0000116	.0000111	-1.04	0.299	-.0000334	.0000103
delta	.0224549	.0252313	0.89	0.373	-.0269975	.0719074
size	-.000209	.0001764	-1.18	0.236	-.0005547	.0001367
studenttea~o	-.0000762	.0033773	-0.02	0.982	-.0066957	.0065432
total_lunch	-.0000987	.0000478	-2.07	0.039	-.0001924	-5.06e-06
adult_hs	-.0005799	.0015427	-0.38	0.707	-.0036035	.0024437
blacks	-.2031578	.0790925	-2.57	0.010	-.3581762	-.0481394
farm_subs	-1.54e-06	9.76e-07	-1.58	0.115	-3.45e-06	3.75e-07
tanf	4.75e-06	4.79e-06	0.99	0.321	-4.63e-06	.0000141
size_black	.0003679	.0004635	0.79	0.427	-.0005405	.0012762
_cons	4.58565	.1475241	31.08	0.000	4.296508	4.874792

Poisson regression

Number of obs = 241
LR chi2(11) = 127.56
Prob > chi2 = 0.0000
Log likelihood = -853.80395
Pseudo R2 = 0.0695

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0059379	.0011705	5.07	0.000	.0036437	.0082322
teachedu	.0002495	.001008	0.25	0.805	-.0017262	.0022251
pupil_spend	-.0000375	.0000118	-3.17	0.002	-.0000607	-.0000143
delta	-.0065967	.0261894	-0.25	0.801	-.0579271	.0447336
size	-.000092	.0001134	-0.81	0.417	-.0003143	.0001302
studenttea~o	.0029737	.0035144	0.85	0.397	-.0039143	.0098618
total_lunch	-.0000816	.0000485	-1.68	0.093	-.0001767	.0000135
adult_hs	.0023433	.0015862	1.48	0.140	-.0007656	.0054522
blacks	-.1697449	.064429	-2.63	0.008	-.2960235	-.0434663
farm_subs	-4.69e-07	1.02e-06	-0.46	0.647	-2.48e-06	1.54e-06
tanf	1.62e-06	4.81e-06	0.34	0.736	-7.80e-06	.000011
_cons	4.402663	.1544812	28.50	0.000	4.099886	4.705441

Poisson regression

Number of obs = 241
LR chi2(12) = 127.84
Prob > chi2 = 0.0000
Log likelihood = -853.66368
Pseudo R2 = 0.0697

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0059243	.0011706	5.06	0.000	.00363	.0082186
teachedu	.000244	.0010079	0.24	0.809	-.0017315	.0022195
pupil_spend	-.0000386	.000012	-3.21	0.001	-.0000621	-.0000151
delta	.0099341	.0407222	0.24	0.807	-.0698799	.0897481
size	-.0000742	.0001182	-0.63	0.530	-.0003058	.0001574
studenttea~o	.0032843	.0035646	0.92	0.357	-.0037023	.0102708
total_lunch	-.0000817	.0000485	-1.68	0.092	-.0001769	.0000134
adult_hs	.0024042	.0015906	1.51	0.131	-.0007133	.0055217
blacks	-.173814	.0649049	-2.68	0.007	-.3010253	-.0466026
farm_subs	-5.31e-07	1.03e-06	-0.52	0.607	-2.55e-06	1.49e-06
tanf	1.40e-06	4.83e-06	0.29	0.772	-8.06e-06	.0000109
size_delta	-.0001001	.0001892	-0.53	0.597	-.0004709	.0002707
_cons	4.399279	.1546656	28.44	0.000	4.09614	4.702418

```
Poisson regression                                Number of obs   =        241
                                                  LR chi2(12)     =     131.62
                                                  Prob > chi2     =     0.0000
Log likelihood = -851.77387                       Pseudo R2       =     0.0717
```

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0065891	.0012137	5.43	0.000	.0042103	.0089679
teachedu	.0000496	.0010131	0.05	0.961	-.001936	.0020353
pupil_spend	-.0000374	.0000119	-3.15	0.002	-.0000607	-.0000142
delta	.0004647	.0264016	0.02	0.986	-.0512815	.0522108
size	-.0003762	.0001813	-2.07	0.038	-.0007316	-.0000209
studenttea~o	.0033605	.0035179	0.96	0.339	-.0035345	.0102554
total_lunch	-.000102	.0000495	-2.06	0.039	-.0001991	-4.96e-06
adult_hs	.0027506	.001597	1.72	0.085	-.0003793	.0058806
blacks	-.274014	.0824624	-3.32	0.001	-.4356374	-.1123905
farm_subs	-3.40e-07	1.03e-06	-0.33	0.741	-2.35e-06	1.67e-06
tanf	-1.21e-06	5.00e-06	-0.24	0.809	-.000011	8.60e-06
size_black	.0009616	.0004767	2.02	0.044	.0000272	.001896
_cons	4.403799	.1543234	28.54	0.000	4.10133	4.706267

.

```
Negative binomial regression                      Number of obs   =        151
                                                  LR chi2(12)     =      94.76
                                                  Prob > chi2     =     0.0000
Log likelihood = -518.71784                       Pseudo R2       =     0.0837
```

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0049194	.0014777	3.33	0.001	.0020233	.0078156
adult_hs	.0031059	.0020833	1.49	0.136	-.0009774	.0071892
blacks	-.0011653	.0009759	-1.19	0.232	-.0030781	.0007475
farm_subs	1.42e-07	1.25e-06	0.11	0.909	-2.31e-06	2.60e-06
tanf	-4.97e-06	7.25e-06	-0.69	0.493	-.0000192	9.23e-06
delta	.0197532	.0328001	0.60	0.547	-.0445337	.0840402
size	-9.75e-06	5.67e-06	-1.72	0.085	-.0000209	1.36e-06
str	-.0138162	.0085171	-1.62	0.105	-.0305095	.0028771
lunch	-.0027145	.0007706	-3.52	0.000	-.0042249	-.0012041
teachedu	-.0003486	.0012365	-0.28	0.778	-.0027722	.0020749
pupil_spend	-.0000553	.0000171	-3.23	0.001	-.0000888	-.0000218
size_black	2.15e-07	1.23e-07	1.75	0.081	-2.62e-08	4.57e-07
_cons	4.853109	.2344619	20.70	0.000	4.393572	5.312646
/lnalpha	-18.61939	149.5706			-311.7723	274.5336
alpha	8.20e-09	1.23e-06			4.0e-136	1.7e+119

```
Likelihood-ratio test of alpha=0:  chibar2(01) = 0.0e+00 Prob>=chibar2 = 0.500

. log close
       log:  C:\DATA\regs.smcl
  log type:  smcl
 closed on:  21 Oct 2006, 16:39:43
```

Source	SS	df	MS
Model	7225.31134	11	656.846485
Residual	18451.6674	229	80.5749668
Total	25676.9787	240	106.987411

Number of obs =	241
F(11, 229) =	8.15
Prob > F =	0.0000
R-squared =	0.2814
Adj R-squared =	0.2469
Root MSE =	8.9764

alg_percen~d	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
w_alg	.475745	.0917135	5.19	0.000	.2950348	.6564553
teachedu	.0647873	.0816156	0.79	0.428	-.0960263	.2256009
pupil_spend	-.0010111	.0009288	-1.09	0.277	-.0028412	.000819
delta	1.88973	2.11978	0.89	0.374	-2.287037	6.066496
size	-.0086157	.0092436	-0.93	0.352	-.0268291	.0095976
studenttea~o	-.0212129	.2854172	-0.07	0.941	-.5835926	.5411667
total_lunch	-.0078865	.0039332	-2.01	0.046	-.0156363	-.0001367
adult_hs	-.0722362	.1301515	-0.56	0.579	-.3286838	.1842114
blacks	-14.82811	5.210471	-2.85	0.005	-25.09471	-4.561518
farm_subs	-.0001398	.0000813	-1.72	0.087	-.0003001	.0000204
tanf	.0005294	.0003831	1.38	0.168	-.0002254	.0012843
_cons	97.77587	12.44636	7.86	0.000	73.25184	122.2999

```
. reg rlc_percent_passed w_rlc teachedu pupil_spend delta size studentteach_ratio total_l
> unch adult_hs blacks farm_subs tanf
```

Source	SS	df	MS
Model	10523.7188	11	956.701711
Residual	15517.6583	229	67.7626999
Total	26041.3771	240	108.505738

Number of obs =	241
F(11, 229) =	14.12
Prob > F =	0.0000
R-squared =	0.4041
Adj R-squared =	0.3755
Root MSE =	8.2318

rlc_percen~d	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
w_rlc	.5079851	.0894027	5.68	0.000	.3318281	.6841421
teachedu	.017662	.0748285	0.24	0.814	-.1297785	.1651024
pupil_spend	-.0029387	.0008531	-3.44	0.001	-.0046197	-.0012577
delta	-.1685139	1.944185	-0.09	0.931	-3.999291	3.662263
size	-.0072597	.0084878	-0.86	0.393	-.0239839	.0094645
studenttea~o	.2613412	.2618584	1.00	0.319	-.2546187	.7773012
total_lunch	-.0067537	.0036096	-1.87	0.063	-.013866	.0003586
adult_hs	.190599	.11941	1.60	0.112	-.0446836	.4258817
blacks	-14.03439	4.783312	-2.93	0.004	-23.45932	-4.609463
farm_subs	-.0000401	.0000747	-0.54	0.592	-.0001872	.0001071
tanf	.0001386	.0003514	0.39	0.694	-.0005538	.000831
_cons	80.62773	11.39805	7.07	0.000	58.16928	103.0862

.

```
Negative binomial regression                      Number of obs   =        151
                                                  LR chi2(11)     =      33.46
                                                  Prob > chi2     =     0.0004
Log likelihood = -511.87272                       Pseudo R2       =     0.0316
```

grad_rate	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_grad	.0035734	.0015207	2.35	0.019	.0005929	.0065539
adult_hs	-.0012715	.0020525	-0.62	0.536	-.0052942	.0027513
blacks	.0016106	.0009244	1.74	0.081	-.0002012	.0034225
farm_subs	2.07e-06	1.24e-06	1.67	0.095	-3.60e-07	4.50e-06
tanf	-.0000134	6.87e-06	-1.94	0.052	-.0000268	1.19e-07
delta	-.0426781	.0325859	-1.31	0.190	-.1065452	.021189
size	-1.27e-06	3.19e-06	-0.40	0.689	-7.52e-06	4.97e-06
str	-.0016229	.0083479	-0.19	0.846	-.0179845	.0147387
lunch	-.0031238	.0007692	-4.06	0.000	-.0046314	-.0016162
teachedu	.0004572	.0012201	0.37	0.708	-.0019341	.0028486
pupil_spend	8.41e-06	.0000161	0.52	0.601	-.0000231	.00004
_cons	4.545706	.2297326	19.79	0.000	4.095438	4.995973
/lnalpha	-35.31524	.			.	.
alpha	4.60e-16	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

```
Negative binomial regression                      Number of obs   =        151
                                                  LR chi2(12)     =      33.71
                                                  Prob > chi2     =     0.0007
Log likelihood = -511.74541                       Pseudo R2       =     0.0319
```

grad_rate	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_grad	.0034807	.0015316	2.27	0.023	.0004788	.0064825
adult_hs	-.0013229	.0020556	-0.64	0.520	-.0053519	.002706
blacks	.0016269	.000925	1.76	0.079	-.0001861	.00344
farm_subs	2.10e-06	1.24e-06	1.69	0.091	-3.33e-07	4.54e-06
tanf	-.0000128	6.96e-06	-1.84	0.066	-.0000264	8.49e-07
delta	-.0534714	.0390017	-1.37	0.170	-.1299132	.0229705
size	-2.17e-06	3.65e-06	-0.59	0.553	-9.33e-06	5.00e-06
str	-.0019656	.0083751	-0.23	0.814	-.0183805	.0144492
lunch	-.0031177	.0007694	-4.05	0.000	-.0046258	-.0016096
teachedu	.0004766	.0012208	0.39	0.696	-.0019161	.0028692
pupil_spend	8.87e-06	.0000161	0.55	0.582	-.0000227	.0000405
size_delta	2.93e-06	5.80e-06	0.51	0.613	-8.43e-06	.0000143
_cons	4.554059	.2303052	19.77	0.000	4.102669	5.005449
/lnalpha	-35.31524	.			.	.
alpha	4.60e-16	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

Negative binomial regression

Number of obs	=	151
LR chi2(12)	=	33.59
Prob > chi2	=	0.0008
Pseudo R2	=	0.0318

Log likelihood = -511.80782

grad_rate	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_grad	.0034493	.0015594	2.21	0.027	.000393	.0065056
adult_hs	-.0014192	.0020939	-0.68	0.498	-.0055232	.0026847
blacks	.0017109	.0009656	1.77	0.076	-.0001817	.0036035
farm_subs	2.03e-06	1.25e-06	1.63	0.103	-4.11e-07	4.47e-06
tanf	-.0000126	7.16e-06	-1.76	0.078	-.0000267	1.40e-06
delta	-.0448324	.0331361	-1.35	0.176	-.1097779	.0201131
size	4.71e-07	5.78e-06	0.08	0.935	-.0000109	.0000118
str	-.001711	.0083505	-0.20	0.838	-.0180776	.0146557
lunch	-.0030856	.0007767	-3.97	0.000	-.0046079	-.0015634
teachedu	.0004923	.001224	0.40	0.688	-.0019066	.0028912
pupil_spend	8.42e-06	.0000161	0.52	0.601	-.0000231	.00004
size_black	-4.61e-08	1.28e-07	-0.36	0.719	-2.97e-07	2.05e-07
_cons	4.551159	.230228	19.77	0.000	4.09992	5.002397
/lnalpha	-35.31524	.			.	.
alpha	4.60e-16	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

Negative binomial regression

Number of obs	=	151
LR chi2(11)	=	54.86
Prob > chi2	=	0.0000
Pseudo R2	=	0.0495

Log likelihood = -526.92724

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.003583	.0012923	2.77	0.006	.0010501	.0061158
adult_hs	4.71e-06	.0019495	0.00	0.998	-.0038162	.0038256
blacks	-.0009487	.0008978	-1.06	0.291	-.0027084	.000811
farm_subs	-1.69e-06	1.17e-06	-1.44	0.149	-3.98e-06	6.03e-07
tanf	6.09e-06	6.49e-06	0.94	0.348	-6.63e-06	.0000188
delta	.0394042	.0305883	1.29	0.198	-.0205478	.0993563
size	-1.83e-06	2.97e-06	-0.62	0.538	-7.66e-06	4.00e-06
str	-.0139304	.0080241	-1.74	0.083	-.0296574	.0017965
lunch	-.0018063	.0007298	-2.47	0.013	-.0032367	-.0003758
teachedu	.0002879	.0011718	0.25	0.806	-.0020089	.0025847
pupil_spend	-.0000256	.0000159	-1.62	0.106	-.0000567	5.44e-06
_cons	4.912736	.2203207	22.30	0.000	4.480915	5.344557
/lnalpha	-34.93454	.			.	.
alpha	6.73e-16	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

Negative binomial regression

Number of obs = 151
LR chi2(12) = 55.19
Prob > chi2 = 0.0000
Log likelihood = -526.7616
Pseudo R2 = 0.0498

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.0036358	.0012953	2.81	0.005	.0010971	.0061746
adult_hs	.0000721	.0019523	0.04	0.971	-.0037543	.0038986
blacks	-.0009644	.0008983	-1.07	0.283	-.002725	.0007962
farm_subs	-1.71e-06	1.17e-06	-1.46	0.145	-4.00e-06	5.87e-07
tanf	5.43e-06	6.60e-06	0.82	0.410	-7.50e-06	.0000184
delta	.0507317	.0363509	1.40	0.163	-.0205148	.1219782
size	-9.00e-07	3.38e-06	-0.27	0.790	-7.52e-06	5.72e-06
str	-.0135173	.0080567	-1.68	0.093	-.0293081	.0022735
lunch	-.0018168	.0007299	-2.49	0.013	-.0032474	-.0003862
teachedu	.0002667	.0011724	0.23	0.820	-.0020312	.0025645
pupil_spend	-.000026	.0000159	-1.64	0.101	-.0000571	5.08e-06
size_delta	-3.15e-06	5.48e-06	-0.57	0.566	-.0000139	7.60e-06
_cons	4.902732	.2210291	22.18	0.000	4.469523	5.335941
/lnalpha	-34.93454	.			.	.
alpha	6.73e-16	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

Negative binomial regression

Number of obs = 151
LR chi2(12) = 56.17
Prob > chi2 = 0.0000
Log likelihood = -526.26929
Pseudo R2 = 0.0507

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.0038597	.0013138	2.94	0.003	.0012846	.0064348
adult_hs	.0004687	.0019886	0.24	0.814	-.0034288	.0043662
blacks	-.0012286	.00093	-1.32	0.186	-.0030513	.0005941
farm_subs	-1.52e-06	1.18e-06	-1.29	0.198	-3.83e-06	7.94e-07
tanf	3.76e-06	6.81e-06	0.55	0.581	-9.59e-06	.0000171
delta	.0451075	.0309705	1.46	0.145	-.0155934	.1058085
size	-7.07e-06	5.48e-06	-1.29	0.197	-.0000178	3.67e-06
str	-.0135464	.0080346	-1.69	0.092	-.029294	.0022012
lunch	-.0019374	.000738	-2.63	0.009	-.0033838	-.0004909
teachedu	.000189	.0011751	0.16	0.872	-.0021141	.0024921
pupil_spend	-.0000254	.0000159	-1.60	0.109	-.0000565	5.68e-06
size_black	1.35e-07	1.18e-07	1.15	0.251	-9.57e-08	3.67e-07
_cons	4.893519	.2209757	22.15	0.000	4.460415	5.326624
/lnalpha	-34.93454	.			.	.
alpha	6.73e-16	.			.	.

Likelihood-ratio test of alpha=0: chibar2(01) = 0.00 Prob>=chibar2 = 1.000

Negative binomial regression

Number of obs	=	151	
LR chi2(11)	=	91.72	
Prob > chi2	=	0.0000	
Pseudo R2	=	0.0810	

Log likelihood = -520.23779

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0044795	.0014574	3.07	0.002	.0016229	.007336
adult_hs	.0023933	.0020471	1.17	0.242	-.0016191	.0064056
blacks	-.0007111	.0009413	-0.76	0.450	-.002556	.0011339
farm_subs	-1.33e-07	1.24e-06	-0.11	0.915	-2.57e-06	2.30e-06
tanf	-1.18e-06	6.89e-06	-0.17	0.863	-.0000147	.0000123
delta	.0102878	.032385	0.32	0.751	-.0531857	.0737612
size	-1.62e-06	3.13e-06	-0.52	0.605	-7.75e-06	4.51e-06
str	-.0144262	.0085034	-1.70	0.090	-.0310925	.0022402
lunch	-.0025147	.0007633	-3.29	0.001	-.0040106	-.0010187
teachedu	-.0001949	.0012333	-0.16	0.874	-.002612	.0022223
pupil_spend	-.0000558	.0000171	-3.27	0.001	-.0000893	-.0000224
_cons	4.883206	.2337658	20.89	0.000	4.425034	5.341379
/lnalpha	-19.25415	167.5089			-347.5656	309.0573
alpha	4.35e-09	7.28e-07			1.1e-151	1.7e+134

Likelihood-ratio test of alpha=0: chibar2(01) = 5.8e-05 Prob>=chibar2 = 0.497

Negative binomial regression

Number of obs	=	151	
LR chi2(12)	=	91.87	
Prob > chi2	=	0.0000	
Pseudo R2	=	0.0811	

Log likelihood = -520.16534

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0045229	.0014617	3.09	0.002	.0016581	.0073877
adult_hs	.0024336	.0020493	1.19	0.235	-.0015831	.0064502
blacks	-.0007228	.0009419	-0.77	0.443	-.0025688	.0011232
farm_subs	-1.47e-07	1.24e-06	-0.12	0.906	-2.58e-06	2.29e-06
tanf	-1.65e-06	7.00e-06	-0.24	0.813	-.0000154	.0000121
delta	.0182586	.0385478	0.47	0.636	-.0572937	.0938109
size	-9.40e-07	3.59e-06	-0.26	0.793	-7.97e-06	6.09e-06
str	-.0141512	.0085343	-1.66	0.097	-.0308782	.0025758
lunch	-.0025203	.0007633	-3.30	0.001	-.0040163	-.0010243
teachedu	-.0002112	.001234	-0.17	0.864	-.0026297	.0022074
pupil_spend	-.0000561	.0000171	-3.28	0.001	-.0000896	-.0000226
size_delta	-2.15e-06	5.66e-06	-0.38	0.704	-.0000133	8.95e-06
_cons	4.876608	.2344257	20.80	0.000	4.417143	5.336074
/lnalpha	-19.40888	185.5473			-383.075	344.2572
alpha	3.72e-09	6.91e-07			4.3e-167	3.2e+149

Likelihood-ratio test of alpha=0: chibar2(01) = 7.3e-05 Prob>=chibar2 = 0.497

```
. reg grad_rate w_grad adult_hs blacks farm_subs tanf delta size str lunch teac
> hedu pupil_spend

      Source |       SS       df       MS              Number of obs =     151
-------------+------------------------------           F( 11,   139) =    5.23
       Model |  2723.63432    11  247.60312            Prob > F      =  0.0000
    Residual |  6581.68778   139  47.3502718           R-squared     =  0.2927
-------------+------------------------------           Adj R-squared =  0.2367
       Total |   9305.3221   150  62.0354807           Root MSE      =  6.8812

------------------------------------------------------------------------------
   grad_rate |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      w_grad |   .2924043   .0956306     3.06   0.003     .1033256     .481483
    adult_hs |  -.1018685   .1268464    -0.80   0.423    -.3526663    .1489294
      blacks |   .1300061   .0579079     2.25   0.026      .015512    .2445003
   farm_subs |   .0001689   .0000771     2.19   0.030     .0000164    .0003213
        tanf |  -.0010668   .0004223    -2.53   0.013    -.0019017   -.0002319
       delta |  -3.504811   2.013494    -1.74   0.084    -7.485846     .476225
        size |  -.0000917   .0001926    -0.48   0.635    -.0004726    .0002892
         str |  -.1350513    .516871    -0.26   0.794    -1.156997    .8868945
       lunch |  -.2531517    .047626    -5.32   0.000    -.3473168   -.1589867
    teachedu |   .0363767   .0762684     0.48   0.634    -.1144195    .1871728
 pupil_spend |   .0006821    .001001     0.68   0.497    -.0012971    .0026614
       _cons |   93.27391   14.24186     6.55   0.000     65.11522    121.4326
------------------------------------------------------------------------------

. reg grad_rate w_grad adult_hs blacks farm_subs tanf delta size str lunch teac
> hedu pupil_spend size_delta

      Source |       SS       df       MS              Number of obs =     151
-------------+------------------------------           F( 12,   138) =    4.80
       Model |  2741.83134    12  228.485945           Prob > F      =  0.0000
    Residual |  6563.49076   138  47.5615273           R-squared     =  0.2947
-------------+------------------------------           Adj R-squared =  0.2333
       Total |   9305.3221   150  62.0354807           Root MSE      =  6.8965

------------------------------------------------------------------------------
   grad_rate |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      w_grad |   .2855106   .0964895     2.96   0.004     .0947215    .4762996
    adult_hs |  -.1068571   .1273846    -0.84   0.403    -.3587352    .1450209
      blacks |   .1311823    .058068     2.26   0.025     .0163642    .2460004
   farm_subs |   .0001709   .0000773     2.21   0.029      .000018    .0003238
        tanf |   -.001024   .0004288    -2.39   0.018    -.0018719   -.0001761
       delta |  -4.321105   2.411192    -1.79   0.075    -9.088763     .446554
        size |  -.0001539   .0002176    -0.71   0.481    -.0005842    .0002765
         str |  -.1635322   .5200651    -0.31   0.754    -1.191859    .8647943
       lunch |  -.2524782   .0477445    -5.29   0.000    -.3468836   -.1580728
    teachedu |    .037704   .0764685     0.49   0.623    -.1134973    .1889054
 pupil_spend |    .000716   .0010048     0.71   0.477    -.0012707    .0027028
  size_delta |   .0002246   .0003631     0.62   0.537    -.0004934    .0009427
       _cons |   93.99734   14.32143     6.56   0.000     65.67952    122.3152
------------------------------------------------------------------------------
```

```
. reg grad_rate w_grad adult_hs blacks farm_subs tanf delta size str lunch teac
> hedu pupil_spend size_black

      Source |       SS       df       MS              Number of obs =     151
-------------+------------------------------           F( 12,   138) =    4.77
       Model |  2729.24358    12  227.436965           Prob > F      =  0.0000
    Residual |  6576.07852   138  47.6527429           R-squared     =  0.2933
-------------+------------------------------           Adj R-squared =  0.2318
       Total |   9305.3221   150  62.0354807           Root MSE      =  6.9031

------------------------------------------------------------------------------
   grad_rate |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      w_grad |   .2848541   .0984272     2.89   0.004     .0902337    .4794745
    adult_hs |  -.1111949    .130122    -0.85   0.394    -.3684856    .1460958
      blacks |   .1356631   .0603871     2.25   0.026     .0162595    .2550668
   farm_subs |   .0001664   .0000777     2.14   0.034     .0000127      .00032
        tanf |  -.0010241   .0004415    -2.32   0.022    -.0018971   -.0001511
       delta |  -3.630786   2.053016    -1.77   0.079    -7.690222    .4286504
        size |   .0000151   .0003664     0.04   0.967    -.0007094    .0007396
         str |  -.1413455   .5188437    -0.27   0.786    -1.167257    .8845659
       lunch |  -.2506072   .0483501    -5.18   0.000    -.3462099   -.1550044
    teachedu |   .0384238   .0767439     0.50   0.617    -.1133222    .1901698
 pupil_spend |   .0006826   .0010042     0.68   0.498    -.0013031    .0026683
  size_black |  -2.67e-06   7.78e-06    -0.34   0.732     -.000018    .0000127
       _cons |   93.63197   14.32534     6.54   0.000     65.30642    121.9575
------------------------------------------------------------------------------

. reg alg_percent_passed w_alg adult_hs blacks farm_subs tanf delta size str lu
> nch teachedu pupil_spend

      Source |       SS       df       MS              Number of obs =     151
-------------+------------------------------           F( 11,   139) =    7.66
       Model |  4905.19584    11  445.926895           Prob > F      =  0.0000
    Residual |  8089.35724   139  58.1968147           R-squared     =  0.3775
-------------+------------------------------           Adj R-squared =  0.3282
       Total |  12994.5531   150  86.6303539           Root MSE      =  7.6287

------------------------------------------------------------------------------
alg_percen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w_alg |   .3294891   .0946366     3.48   0.001     .1423756    .5166025
    adult_hs |  -.0049827   .1407018    -0.04   0.972    -.2831753    .2732098
      blacks |  -.0845326   .0650418    -1.30   0.196    -.2131318    .0440666
   farm_subs |  -.0001477   .0000836    -1.77   0.079     -.000313    .0000176
        tanf |   .0005381    .000467     1.15   0.251    -.0003853    .0014615
       delta |   3.538465   2.209809     1.60   0.112    -.8307201     7.90765
        size |  -.0001602   .0002136    -0.75   0.454    -.0005826    .0002621
         str |   -1.17737   .5719207    -2.06   0.041    -2.308158   -.0465806
       lunch |  -.1621929   .0527885    -3.07   0.003    -.2665651   -.0578207
    teachedu |   .0264299   .0845141     0.31   0.755    -.1406694    .1935293
 pupil_spend |  -.0021509   .0011053    -1.95   0.054    -.0043362    .0000345
       _cons |   125.4494   15.79036     7.94   0.000     94.22905    156.6698
------------------------------------------------------------------------------
```

. reg alg_percent_passed w_alg adult_hs blacks farm_subs tanf delta size str lu
> nch teachedu pupil_spend size_delta

Source	SS	df	MS
Model	4936.89951	12	411.408292
Residual	8057.65358	138	58.3887941
Total	12994.5531	150	86.6303539

Number of obs =	151
F(12, 138) =	7.05
Prob > F =	0.0000
R-squared =	0.3799
Adj R-squared =	0.3260
Root MSE =	7.6413

alg_percen~d	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
w_alg	.3343909	.0950257	3.52	0.001	.1464961	.5222856
adult_hs	.0018209	.1412358	0.01	0.990	-.2774452	.281087
blacks	-.0859767	.0651784	-1.32	0.189	-.2148543	.0429009
farm_subs	-.0001491	.0000837	-1.78	0.077	-.0003147	.0000165
tanf	.0004785	.0004748	1.01	0.315	-.0004603	.0014172
delta	4.589113	2.632936	1.74	0.084	-.6170004	9.795226
size	-.0000784	.0002411	-0.33	0.746	-.0005551	.0003983
str	-1.13731	.5754371	-1.98	0.050	-2.275124	.0005041
lunch	-.1632425	.0528947	-3.09	0.002	-.2678313	-.0586537
teachedu	.0249219	.0846781	0.29	0.769	-.1425124	.1923561
pupil_spend	-.0021886	.0011083	-1.97	0.050	-.0043801	2.84e-06
size_delta	-.0002952	.0004006	-0.74	0.462	-.0010874	.000497
_cons	124.472	15.8719	7.84	0.000	93.08848	155.8556

. reg alg_percent_passed w_alg adult_hs blacks farm_subs tanf delta size str lu
> nch teachedu pupil_spend size_black

Source	SS	df	MS
Model	5024.26842	12	418.689035
Residual	7970.28466	138	57.755686
Total	12994.5531	150	86.6303539

Number of obs =	151
F(12, 138) =	7.25
Prob > F =	0.0000
R-squared =	0.3866
Adj R-squared =	0.3333
Root MSE =	7.5997

alg_percen~d	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
w_alg	.3550349	.0959413	3.70	0.000	.1653297	.54474
adult_hs	.0378417	.1433056	0.26	0.792	-.2455169	.3212003
blacks	-.1091167	.0670188	-1.63	0.106	-.2416333	.0233998
farm_subs	-.0001324	.0000839	-1.58	0.117	-.0002984	.0000336
tanf	.0003293	.0004875	0.68	0.501	-.0006346	.0012931
delta	4.039771	2.228932	1.81	0.072	-.3675033	8.447046
size	-.0006474	.0004005	-1.62	0.108	-.0014394	.0001445
str	-1.142138	.5702772	-2.00	0.047	-2.269749	-.0145272
lunch	-.1745106	.0532831	-3.28	0.001	-.2798675	-.0691536
teachedu	.0175702	.084419	0.21	0.835	-.1493517	.1844921
pupil_spend	-.0021321	.0011012	-1.94	0.055	-.0043094	.0000453
size_black	.0000122	8.49e-06	1.44	0.153	-4.60e-06	.000029
_cons	123.6933	15.77788	7.84	0.000	92.49567	154.891

```
. reg rlc_percent_passed w_rlc adult_hs blacks farm_subs tanf delta size str lu
> nch teachedu pupil_spend

      Source |       SS       df       MS              Number of obs =     151
-------------+------------------------------           F( 11,   139) =   13.06
       Model |  7726.69745    11  702.427041           Prob > F      =  0.0000
    Residual |  7476.87569   139  53.7904726           R-squared     =  0.5082
-------------+------------------------------           Adj R-squared =  0.4693
       Total |  15203.5731   150  101.357154           Root MSE      =  7.3342

------------------------------------------------------------------------------
rlc_percen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w_rlc |   .3775503   .0984864     3.83   0.000     .1828253    .5722754
    adult_hs |   .1854842   .1357206     1.37   0.174    -.0828596     .453828
      blacks |  -.0527131   .0624648    -0.84   0.400    -.1762171    .0707909
   farm_subs |  -7.57e-06   .0000807    -0.09   0.925    -.0001672     .000152
        tanf |  -.0001172   .0004489    -0.26   0.794    -.0010048    .0007704
       delta |   .8903465   2.126831     0.42   0.676    -3.314776    5.095469
        size |  -.0001188   .0002053    -0.58   0.564    -.0005248    .0002872
         str |  -1.023201   .5494258    -1.86   0.065    -2.109514     .063111
       lunch |  -.2091514   .0507465    -4.12   0.000    -.3094863   -.1088165
    teachedu |  -.0217271   .0811986    -0.27   0.789    -.1822711     .138817
 pupil_spend |   -.004084   .0010605    -3.85   0.000    -.0061809   -.0019872
       _cons |   116.8804   15.18488     7.70   0.000     86.85724    146.9037
------------------------------------------------------------------------------

. reg rlc_percent_passed w_rlc adult_hs blacks farm_subs tanf delta size str lu
> nch teachedu pupil_spend size_delta

      Source |       SS       df       MS              Number of obs =     151
-------------+------------------------------           F( 12,   138) =   11.92
       Model |  7739.10069    12  644.925058           Prob > F      =  0.0000
    Residual |  7464.47245   138  54.0903801           R-squared     =  0.5090
-------------+------------------------------           Adj R-squared =  0.4663
       Total |  15203.5731   150  101.357154           Root MSE      =  7.3546

------------------------------------------------------------------------------
rlc_percen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w_rlc |   .3810533   .0990311     3.85   0.000     .1852387    .5768678
    adult_hs |   .1895456   .1363625     1.39   0.167    -.0800844    .4591756
      blacks |  -.0536078   .0626665    -0.86   0.394    -.1775185     .070303
   farm_subs |  -8.57e-06    .000081    -0.11   0.916    -.0001687    .0001515
        tanf |  -.0001541   .0004567    -0.34   0.736    -.0010571     .000749
       delta |   1.549098   2.537931     0.61   0.543    -3.469162    6.567357
        size |  -.0000677    .000232    -0.29   0.771    -.0005264    .0003911
         str |   -.99804   .5534552    -1.80   0.074    -2.092389    .0963089
       lunch |  -.2097614   .0509037    -4.12   0.000    -.3104135   -.1091092
    teachedu |  -.0226494   .0814474    -0.28   0.781    -.1836957    .1383969
 pupil_spend |  -.0041056   .0010644    -3.86   0.000    -.0062103   -.0020008
  size_delta |  -.0001847   .0003857    -0.48   0.633    -.0009474     .000578
       _cons |    116.262   15.28182     7.61   0.000     86.04523    146.4788
------------------------------------------------------------------------------
```

```
. reg rlc_percent_passed w_rlc adult_hs blacks farm_subs tanf delta size str lu
> nch teachedu pupil_spend size_black

      Source |       SS       df       MS              Number of obs =     151
-------------+------------------------------           F( 12,   138) =   12.65
       Model |  7962.34249    12  663.528541           Prob > F      =  0.0000
    Residual |  7241.23065   138  52.4726859           R-squared     =  0.5237
-------------+------------------------------           Adj R-squared =  0.4823
       Total |  15203.5731   150  101.357154           Root MSE      =  7.2438

------------------------------------------------------------------------------
rlc_percen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w_rlc |   .4131777   .0987147     4.19   0.000      .2179888    .6083666
    adult_hs |   .2440726   .1368692     1.78   0.077     -.0265594    .5147045
      blacks |  -.0877064   .0638665    -1.37   0.172     -.2139899    .0385772
   farm_subs |   .0000134   .0000803     0.17   0.868     -.0001454    .0001722
        tanf |  -.0004053   .0004638    -0.87   0.384     -.0013223    .0005116
       delta |   1.601011   2.127217     0.75   0.453     -2.605143    5.807166
        size |  -.0008028   .0003812    -2.11   0.037     -.0015564   -.0000491
         str |  -.9703942   .5432259    -1.79   0.076     -2.044517    .1037282
       lunch |   -.225914   .0507414    -4.45   0.000     -.3262451   -.1255828
    teachedu |  -.0336672   .0803955    -0.42   0.676     -.1926335    .1252991
 pupil_spend |  -.0040328   .0010478    -3.85   0.000     -.0061045   -.0019611
  size_black |   .0000171   8.07e-06     2.12   0.036      1.15e-06    .0000331
       _cons |    114.359   15.04485     7.60   0.000      84.61074    144.1072
------------------------------------------------------------------------------

. log close
       log:  C:\DATA\regs.smcl
  log type:  smcl
 closed on:  21 Oct 2006, 16:27:44
--------------------------------------------------------------------------------
```

```
Poisson regression                                Number of obs   =        151
                                                  LR chi2(11)     =      33.46
                                                  Prob > chi2     =     0.0004
Log likelihood = -511.87272                       Pseudo R2       =     0.0316

------------------------------------------------------------------------------
   grad_rate |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      w_grad |   .0035734   .0015207     2.35   0.019      .0005929    .0065539
    adult_hs |  -.0012715   .0020525    -0.62   0.536     -.0052942    .0027513
      blacks |   .0016106   .0009244     1.74   0.081     -.0002012    .0034225
   farm_subs |   2.07e-06   1.24e-06     1.67   0.095     -3.60e-07    4.50e-06
        tanf |  -.0000134   6.87e-06    -1.94   0.052     -.0000268    1.19e-07
       delta |  -.0426781   .0325859    -1.31   0.190     -.1065452     .021189
        size |  -1.27e-06   3.19e-06    -0.40   0.689     -7.52e-06    4.97e-06
         str |  -.0016229   .0083479    -0.19   0.846     -.0179845    .0147387
       lunch |  -.0031238   .0007692    -4.06   0.000     -.0046314   -.0016162
    teachedu |   .0004572   .0012201     0.37   0.708     -.0019341    .0028486
 pupil_spend |   8.41e-06   .0000161     0.52   0.601     -.0000231      .00004
       _cons |   4.545706   .2297326    19.79   0.000      4.095438    4.995973
------------------------------------------------------------------------------
```

```
Poisson regression                                Number of obs   =        151
                                                  LR chi2(12)     =      33.71
                                                  Prob > chi2     =     0.0007
Log likelihood = -511.74541                       Pseudo R2       =     0.0319
```

grad_rate	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_grad	.0034807	.0015316	2.27	0.023	.0004788	.0064825
adult_hs	-.0013229	.0020556	-0.64	0.520	-.0053519	.002706
blacks	.0016269	.000925	1.76	0.079	-.0001861	.00344
farm_subs	2.10e-06	1.24e-06	1.69	0.091	-3.33e-07	4.54e-06
tanf	-.0000128	6.96e-06	-1.84	0.066	-.0000264	8.49e-07
delta	-.0534714	.0390017	-1.37	0.170	-.1299132	.0229705
size	-2.17e-06	3.65e-06	-0.59	0.553	-9.33e-06	5.00e-06
str	-.0019656	.0083751	-0.23	0.814	-.0183805	.0144492
lunch	-.0031177	.0007694	-4.05	0.000	-.0046258	-.0016096
teachedu	.0004766	.0012208	0.39	0.696	-.0019161	.0028692
pupil_spend	8.87e-06	.0000161	0.55	0.582	-.0000227	.0000405
size_delta	2.93e-06	5.80e-06	0.51	0.613	-8.43e-06	.0000143
_cons	4.554059	.2303052	19.77	0.000	4.102669	5.005449

```
Poisson regression                                Number of obs   =        151
                                                  LR chi2(12)     =      33.59
                                                  Prob > chi2     =     0.0008
Log likelihood = -511.80782                       Pseudo R2       =     0.0318
```

grad_rate	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_grad	.0034493	.0015594	2.21	0.027	.000393	.0065056
adult_hs	-.0014192	.0020939	-0.68	0.498	-.0055232	.0026847
blacks	.0017109	.0009656	1.77	0.076	-.0001817	.0036035
farm_subs	2.03e-06	1.25e-06	1.63	0.103	-4.11e-07	4.47e-06
tanf	-.0000126	7.16e-06	-1.76	0.078	-.0000267	1.40e-06
delta	-.0448324	.0331361	-1.35	0.176	-.1097779	.0201131
size	4.71e-07	5.78e-06	0.08	0.935	-.0000109	.0000118
str	-.001711	.0083505	-0.20	0.838	-.0180776	.0146557
lunch	-.0030856	.0007767	-3.97	0.000	-.0046079	-.0015634
teachedu	.0004923	.001224	0.40	0.688	-.0019066	.0028912
pupil_spend	8.42e-06	.0000161	0.52	0.601	-.0000231	.00004
size_black	-4.61e-08	1.28e-07	-0.36	0.719	-2.97e-07	2.05e-07
_cons	4.551159	.230228	19.77	0.000	4.09992	5.002397

```
Poisson regression                                Number of obs   =        151
                                                  LR chi2(11)     =      54.86
                                                  Prob > chi2     =     0.0000
Log likelihood = -526.92724                       Pseudo R2       =     0.0495
```

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.003583	.0012923	2.77	0.006	.0010501	.0061158
adult_hs	4.71e-06	.0019495	0.00	0.998	-.0038162	.0038256
blacks	-.0009487	.0008978	-1.06	0.291	-.0027084	.000811
farm_subs	-1.69e-06	1.17e-06	-1.44	0.149	-3.98e-06	6.03e-07
tanf	6.09e-06	6.49e-06	0.94	0.348	-6.63e-06	.0000188
delta	.0394042	.0305883	1.29	0.198	-.0205478	.0993563
size	-1.83e-06	2.97e-06	-0.62	0.538	-7.66e-06	4.00e-06
str	-.0139304	.0080241	-1.74	0.083	-.0296574	.0017965
lunch	-.0018063	.0007298	-2.47	0.013	-.0032367	-.0003758
teachedu	.0002879	.0011718	0.25	0.806	-.0020089	.0025847
pupil_spend	-.0000256	.0000159	-1.62	0.106	-.0000567	5.44e-06
_cons	4.912736	.2203207	22.30	0.000	4.480915	5.344557

Poisson regression — Number of obs = 151; LR chi2(12) = 55.19; Prob > chi2 = 0.0000; Pseudo R2 = 0.0498

Log likelihood = -526.7616

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.0036358	.0012953	2.81	0.005	.0010971	.0061746
adult_hs	.0000721	.0019523	0.04	0.971	-.0037543	.0038986
blacks	-.0009644	.0008983	-1.07	0.283	-.002725	.0007962
farm_subs	-1.71e-06	1.17e-06	-1.46	0.145	-4.00e-06	5.87e-07
tanf	5.43e-06	6.60e-06	0.82	0.410	-7.50e-06	.0000184
delta	.0507317	.0363509	1.40	0.163	-.0205148	.1219782
size	-9.00e-07	3.38e-06	-0.27	0.790	-7.52e-06	5.72e-06
str	-.0135173	.0080567	-1.68	0.093	-.0293081	.0022735
lunch	-.0018168	.0007299	-2.49	0.013	-.0032474	-.0003862
teachedu	.0002667	.0011724	0.23	0.820	-.0020312	.0025645
pupil_spend	-.000026	.0000159	-1.64	0.101	-.0000571	5.08e-06
size_delta	-3.15e-06	5.48e-06	-0.57	0.566	-.0000139	7.60e-06
_cons	4.902732	.2210291	22.18	0.000	4.469523	5.335941

Poisson regression — Number of obs = 151; LR chi2(12) = 56.17; Prob > chi2 = 0.0000; Pseudo R2 = 0.0507

Log likelihood = -526.26929

alg_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_alg	.0038597	.0013138	2.94	0.003	.0012846	.0064348
adult_hs	.0004687	.0019886	0.24	0.814	-.0034288	.0043662
blacks	-.0012286	.00093	-1.32	0.186	-.0030513	.0005941
farm_subs	-1.52e-06	1.18e-06	-1.29	0.198	-3.83e-06	7.94e-07
tanf	3.76e-06	6.81e-06	0.55	0.581	-9.59e-06	.0000171
delta	.0451075	.0309705	1.46	0.145	-.0155934	.1058085
size	-7.07e-06	5.48e-06	-1.29	0.197	-.0000178	3.67e-06
str	-.0135464	.0080346	-1.69	0.092	-.029294	.0022012
lunch	-.0019374	.000738	-2.63	0.009	-.0033838	-.0004909
teachedu	.000189	.0011751	0.16	0.872	-.0021141	.0024921
pupil_spend	-.0000254	.0000159	-1.60	0.109	-.0000565	5.68e-06
size_black	1.35e-07	1.18e-07	1.15	0.251	-9.57e-08	3.67e-07
_cons	4.893519	.2209757	22.15	0.000	4.460415	5.326624

Poisson regression — Number of obs = 151; LR chi2(11) = 95.65; Prob > chi2 = 0.0000; Pseudo R2 = 0.0842

Log likelihood = -520.23782

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0044795	.0014574	3.07	0.002	.0016229	.007336
adult_hs	.0023933	.0020471	1.17	0.242	-.0016191	.0064056
blacks	-.0007111	.0009413	-0.76	0.450	-.002556	.0011339
farm_subs	-1.33e-07	1.24e-06	-0.11	0.915	-2.57e-06	2.30e-06
tanf	-1.18e-06	6.89e-06	-0.17	0.863	-.0000147	.0000123
delta	.0102878	.032385	0.32	0.751	-.0531857	.0737612
size	-1.62e-06	3.13e-06	-0.52	0.605	-7.75e-06	4.51e-06
str	-.0144262	.0085034	-1.70	0.090	-.0310925	.0022402
lunch	-.0025147	.0007633	-3.29	0.001	-.0040106	-.0010187
teachedu	-.0001949	.0012333	-0.16	0.874	-.002612	.0022223
pupil_spend	-.0000558	.0000171	-3.27	0.001	-.0000893	-.0000224
_cons	4.883206	.2337657	20.89	0.000	4.425034	5.341379

```
Poisson regression                                Number of obs   =        151
                                                  LR chi2(12)     =      95.80
                                                  Prob > chi2     =     0.0000
Log likelihood = -520.16538                       Pseudo R2       =     0.0843
```

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.004523	.0014617	3.09	0.002	.0016582	.0073878
adult_hs	.0024336	.0020494	1.19	0.235	-.0015831	.0064502
blacks	-.0007228	.0009419	-0.77	0.443	-.0025688	.0011232
farm_subs	-1.47e-07	1.24e-06	-0.12	0.906	-2.58e-06	2.29e-06
tanf	-1.65e-06	7.00e-06	-0.24	0.813	-.0000154	.0000121
delta	.0182587	.0385479	0.47	0.636	-.0572939	.0938113
size	-9.40e-07	3.59e-06	-0.26	0.793	-7.97e-06	6.09e-06
str	-.0141512	.0085344	-1.66	0.097	-.0308782	.0025758
lunch	-.0025203	.0007633	-3.30	0.001	-.0040163	-.0010243
teachedu	-.0002111	.001234	-0.17	0.864	-.0026297	.0022074
pupil_spend	-.0000561	.0000171	-3.28	0.001	-.0000896	-.0000226
size_delta	-2.15e-06	5.66e-06	-0.38	0.704	-.0000133	8.95e-06
_cons	4.8766	.2344265	20.80	0.000	4.417132	5.336067

```
Poisson regression                                Number of obs   =        151
                                                  LR chi2(12)     =      98.69
                                                  Prob > chi2     =     0.0000
Log likelihood = -518.71784                       Pseudo R2       =     0.0869
```

rlc_percen~d	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
w_rlc	.0049194	.0014777	3.33	0.001	.0020233	.0078156
adult_hs	.0031059	.0020833	1.49	0.136	-.0009774	.0071892
blacks	-.0011653	.0009759	-1.19	0.232	-.0030781	.0007475
farm_subs	1.42e-07	1.25e-06	0.11	0.909	-2.31e-06	2.60e-06
tanf	-4.97e-06	7.25e-06	-0.69	0.493	-.0000192	9.23e-06
delta	.0197532	.0328001	0.60	0.547	-.0445337	.0840402
size	-9.75e-06	5.67e-06	-1.72	0.085	-.0000209	1.36e-06
str	-.0138162	.0085171	-1.62	0.105	-.0305095	.0028771
lunch	-.0027145	.0007706	-3.52	0.000	-.0042249	-.0012041
teachedu	-.0003486	.0012365	-0.28	0.778	-.0027722	.0020749
pupil_spend	-.0000553	.0000171	-3.23	0.001	-.0000888	-.0000218
size_black	2.15e-07	1.23e-07	1.75	0.081	-2.62e-08	4.57e-07
_cons	4.853109	.2344618	20.70	0.000	4.393573	5.312646

```
. log close
       log:  C:\DATA\regs.smcl
  log type:  smcl
 closed on:  21 Oct 2006, 16:33:21
```

REFERENCES

Abbott, Martin; Jeff Joireman, and Heather R. Stroh. "The Influence of District Size, School Size and Socioeconomic Status on Student Achievement in Washington: A Replication Study Using Hierarchical Linear Modeling. Technical Report." (February 2002). Report Number WSRC-TR-3. Available online from http://www.spu.edu/wsrc.

Acs, Zoltan and Catherine Armington. "Using Census BITS to Explore Entrepreneurship, Geography, and Economic Growth". (February 2005). Small Business Administration. Available on line from http://www.sba.gov/advo/research/rs248tot.pdf.

Aiken, Charles S. "A New Type of Black Ghetto in the Plantation South". *Annals of the Association of American Geographers,* Vol. 80, No. 2 (June, 1990), 223-246.

"Alabama's Small Rural High Schools Close Persistence Gap". *Rural Policy Matters Newsletter* (September 2005). Available online from http://www.ruraledu.org. Retrieved April 7, 2006.

Aldrich, Lorna and Lorin Kusmin. (1997). "Rural Economic Development: What Makes Rural Communities Grow?" *Agriculture Information Bulletin*. No. 737, United States Department of Agriculture.

Alexander, Michael. "Fishy Business." *Atlanta Journal and Constitution,* October 30, 1990.

Allen-Smith, Joyce E., Ronald C. Wimberley, and Libby V. Morris. "America's Forgotten People and Places: Ending the Legacy of Poverty in the Rural South" *Journal of Agricultural and Applied Economics*, Vol. 32, No. 2 (August 2000): 319-329.

Atkinson, R.C. " Rural and Village Districts". *Educational Research Bulletin*. Vol. 10, No. 2 (Jan. 21, 1931), 37-42, 56.

Bard, Joe, Clark Gardener and Regi Wieland. (2005). " Rural School Consolidation Report: History, Research Summary, Conclusions and Recommendation". National Rural Education Association. NREA Consolidation Task Force.

Barker, R., & Gump, P. (1964). *Big School, Small School*. Palo Alto, CA: Stanford University Press.

Barkley, David L. "The Economics of Change in Rural America." *American Journal of Agricultural Economics*, Vol. 77, No. 5, Proceedings Issue (December 1995): 1252-1258.

Barkley, David L., Mark S. Henry and Ferdinand DiFurio. "Does School Quality Contribute to Local Labor Force Quality?" *Regional Economic Development Research Laboratory*. (March 2004) Research Report 03-2004-01.

Barkley, David, Mark Henry and Haizhen Li. "Does Human Capital Affect Rural Economic Growth? Evidence From the South." In *The Role of Education: Promoting the Economic & Social Vitality of Rural America*, Lionel J. Beaulieu and Robert Gibbs, eds., January 2005: 10-15.

Barkley, David L. and Mark S. Henry (2001). "Advantages and Disadvantage of Targeting Industry Clusters." *REDRL Research Report, Clemson University Public Service Division*, 9 (2001): 2-10.

Barlow, William (1989). *Looking Up at a Down: The Emergence of Blues Culture.* Philadelphia: Temple University Press.

Bauch, Patricia. (2005). "School-Community Partnerships in Rural Schools: Leadership, Renewal and a Sense of Place". Tuscaloosa, AL: University of Alabama.

Berry, Christopher (2004). "School Size and Returns to Education: Evidence from the Consolidation Movement, 1930-1970". Program on Education Policy and Government: Harvard University.

Bickel, Robert. "School Size, Socioeconomic Status, and Achievement: A Georgia Replication of Inequity in Education." Randolph, VT: Rural Challenge Policy Program, 1999. (ERIC Document Reproduction Service No. ED 433 985).

----------------. "School Size, Socioeconomic Status, and Achievement: A Texas Replication of Inequity in Education." Randolph, VT: Rural Challenge Policy Program, 1999. (ERIC Document Reproduction Service No. ED 433 986).

Bickel, Robert and Craig Howley. "The Influence of Scale on School Performance: Multi-Level Extension of the Matthew Principle". Education Policy Analysis Archives. (May 10, 2000). Vol. 8, No. 22.

Bidwell, C. E. and J.D Kasarda (1975). "District Organization and Student Achievement. *American Sociological Review*, 40(1), 55-70.

Biere, Arlo (1995). " Community Change". *Beyond the Amber Waves of Grain*. Boulder, CO: Westview Press.

Bobbett, Gordon C., Russell L. French, and Charles M. Achilles. (1993). " The Impact of Community/School Characteristic on Student Outcomes: An Analysis of Report Cards on Schools". Paper presented at the Annual Meeting of the American Educational Research Association (AERA), Atlanta, Georgia, April 13, 1993.

Branfon, Cotton Kingdom of the New South. " A Survey of Mississippi". *Debow's Review 23* (December 1857), 649.

Broomhall, David E. and Thomas G. Johnson. " Economic Factors That Influence Educational Performance in Rural Schools." *American Journal of Agricultural Economics*, Vol. 76, No. 3 (August 1994): 557-567.

Chakraborty, K. B. Biswas, and W.C. Lewis (2000). "Economies of scale in public education: An econometric analysis". *Contemporary Economic Policy*, 18(2), 238-247.

Chambers, J. (1972). An Analysis of School Size Under a Voucher System. Stanford, CA: Standford University Press. (ERIC Document Reproduction Service No. ED 085 881).

Cheatam, Jr. Edgar J. (1950) " Washington County, Mississippi: Its Antebellum Generation". Master's Thesis, Tulane University.

Christaller, Walter. *Die zentralen Orte in Süddeutschland.* Jena: Gustav Fischer, 1933. (Translated (in part), by Charlisle W. Baskin, as *Central Places in Southern Germany*. Prentice Hall 1966).

Clemson University. (2006). Office of Access and Equity's Emerging Scholars Program. Information available online from http://www.clemson.edu/access/

Cohn, David L. (1935). *God Shakes Creation*. New York: Harper and Brothers.

Coleman, James S., E.Q. Campbell, C.I. Hobson, J. McPartland, A. Mood, F.D. Weinfeld, and R. L. York (1966). *Equality of Educational Opportunity*. Washington DC: Government Printing Office.

Conant, James (1959). *The American High School Today: A First Report to Interested Citizens*. New York: McGraw Hill.

Conrad, David E. (1965). *The Forgotten Farmers: The Story of Sharecroppers in the New Deal*. Urbana: University of Illinois Press.

Cotton, Kathleen. (1996). " School Size, School Climate and Student Performance". School Improvement Series, Office of Educational Research and Improvement.

Cubberley, E. (1922). *Rural life and education: A study of the rural-school problem as a phase of the rural-life problem* (Rev. ed.). New York: Houghton-Mifflin. (ED 392 559, original work published 1915).

Daniel, Pete. "The Transformation of the Rural South, 1930 to present." *Agricultural History* 55 (July 1981).

--------------. (1985). *Breaking the Land: The Transformation of Cotton, Tobacco, and Rice Cultures Since 1880*. Urbana: University of Illinois Press.

Delta State University (2006). *The Lower Mississippi Delta Development Commission Papers Collection*. Retrieved October 17, 2006 from http://www.deltastate.edu.

Department of Commerce, Bureau of the Census Thirteenth Census of the United States, vol. 5, Agriculture (1909-1910))Washington, 1914, 884.

Driscoll, Donna, Dennis Halcoussis, and Shirley Svorny (2003). "District Size and Student Performance." *Economics of Education Review* 22(2003) 193-201.

Dunbar, Anthony (1990). D*elta Time: A Journey Through Mississippi*. New York: Pantheon.

Duncan, Cynthia (1999). *Worlds Apart: Why Poverty Persists in Rural America*. New Haven: Yale University Press.

Economic Research Service (2005). “Areas with Lower Educational Attainment Face Additional Challenge”. Retrieved September 16, 2005 from http://www.ers.usda.gov.

--------------------------------- (2005). “Low Skill Employment and the Changing Economy of Rural America”. *ERR-10*. Retrieved November 19, 2006 from http://www.ers.usda.gov/publications/err10/err10g.pdf.

Ferguson, R. F. and H.F. Ladd (1996). “Paying for Public Education: New Evidenceon How and Why Money Matters”. *Harvard Journal of Legislation*, 28 466-498.

Fetler, M. (1989). “ School Drop Out Rates, Academic Performance, Size and Poverty: Correlates of Educational Reform”. *Educational Evaluation and Policy Analysis* 11(2), 109-116.

Fitchen, Janet M. (1991). *Endangered Spaces, Enduring Places, Change, Identity and Survival in Rural America*. Boulder, CO: Westview Press.

Florida, Richard. (2003). *The Rise of the Creative Class*. Available online from http://www.creativeclass.org. Retrieved June 26, 2006.

Fowler, William J. and Herbert J. Walberg. “School Size, Characteristics, and Outcomes.” *Educational Evaluation and Policy Analysis*, Vol 13, No. 2 (Summer 1991), 189-202.

Fox, John (1997). *Applied Regression Analysis, Linear Modelts, and Related Methods*. Thousand Oaks, CA: Sage Publications.

Fox, W.F. (1981). “Reviewing Economies of Size in Education”. *Journal of Education Finance,* 6(3), 273-296.

Friars Point *Gazette*, April 15, October 7, 1881.

Friedkin, Noah and Juan Nechochea. “ School System Size and Performance: A Contigency Perspective”. *Educational Evaluation and Policy Analysis,* Vol. 10. No.3 (Autumn, 1988): 237-249.

Friedman, Ian C. (2004). *Education Reform*. New York: Library of Congress.

Funk, P.E. and J. Bailey. (1999). *Small Schools, Big Results: Nebraska High School Completion and Postsecondary Enrollment rates by Size of District*. Nebraska Alliance for Rural Education.

Gibbs, Robert. "Education as a Rural Development Strategy." *Amber Waves* (November 2005) issue. Available online from http://www.ers.usda.gov/AmerWaves/November05/Features/Education.htm.

-----------------. (2000). "College Graduates in the Nonmetropolitan South: Origins and Prospects." *Southern Rural Sociology*. Vol. 16: 36-59.

Gibbs, Robert, Lorin Kusmin, and John Cromartie. "Low-Skill Employment and the Changing Economy of Rural America." Economic Research Service (October 2005). Report No. 10. United States Department of Agriculture. Available online from www.ers.usda.gov.

Gibson, Arrell. (1971) Gibson, Arrell M. *The Chickasaws*. Norman: University of Oklahoma Press, 1971.

"Giving a Voice to a Shared Past: Public Education and (De) Segregation in Mississippi, 1868-2000." Compiled by Jackson State University Department of History and Philosophy. Available on line from http://www.jsums.edu/~history/Voices/Voices_From_A_Shared_Past_-_Origins%20of%20Public%20Education.html. Retrieved December 3, 2005.

Gjelten, T. (1982). " A Typology of Rural School Settings." Clearinghouse on Rural Education and Small Schools, Charleston, WV. (ERIC Document No. ED 215 858).
Green, Gary Paul (2003). "Work-Based Learning in Rural America." *Promoting the Economic and Social Vitality of Rural America: The Role of Education*. New Orleans, LA:4: 1-40.

Governor's Special Task Force for Economic Development Planning. State of Mississippi. Available online from http://www.ihl.state.ms.us/urv/planning/righttrk99.htm. Retrieved March 31, 2006.
Guthrie, J.W. "Organizational Scale and School Success." *Educational Evaluation and Policy Analysis* (1989): 1, 17-27.

Hailey, Larry. (1992). "Educational Capacity of School Systems." Chapter 7 in *A Social and Economic Portrait of the Mississippi Delta*. Available on line from the Social Science Research Center at Mississippi State University http://www.ssrc.msstate.edu/Publications/Delta_book.pdf.

Haller, E. D. Monk, and L. Tien. (1993). “Small Schools and Higher-Order Thinking Skills.” *Journal of Research in Rural Education*, 9(2), 66-73.

Hanushek, Eric A. (2003). “The Importance of School Quality.” In *Our Schools and Our Future... Are We Still At Risk?* Paul E. Peterson (ed). Stanford: Hoover Press.

Harris, William C. (1979). *The Day of the Carpetbagger: Republican Reconstruction in Mississippi*. Baton Rouge: Louisiana State University Press.

Harrison, Robert W. “Levee Building in Mississippi Before the Civil War.” *Journal of Mississippi History* 12 (April 1950): 80-92.

Henderson, H.J. “In the Cotton Delta.” *Survey Graphic 36* (January 1947).

Heyns, Barbara. “Social Selection and Stratification within Schools.” *American Journal of Sociology*. (May 1974)

Hobson v. Hansen, *327 F. supp*. (D.D.C., 1971).

Hooker, Clifford and Van Mueller. (1970). *The Relationship of District Reorganization to State Aid Distribution System*. National Education Finance Project Special Study Number 11.

Hoover, Edgar and Fran Giarratani. *An Introduction to Regional Economics*, Chapter 8, "The Location of Urban Places." (http://www.rri.wvu.edu/WebBook/Giarratani/chaptereight.htm) Retrieved January 23, 2006.

Howley, Craig B. “ What is the Effect of Small-Scale Schooling on Student Achievement?” ERIC Digest (1989). ERIC Clearinghouse on Rural Education and Small Schools Charleston WV. ED308062.

-------------------. “Ongoing Dilemmas of School Size: A Short Story”. *ERIC Digest* (1996). ERIC Clearinghouse on Small Schools: Charleston, WV.

Howley, Craig (1996). “Compounding Disadvantage: The Effects of School and District Size on Student Achievement in West Virginia”. *Journal of Research in Rural Education* Spring 1996, Vol 12, No. 1, 25-32.

------------------. "The Matthew Project: State Report for Montana. Randolph, VT: Rural Challenge Policy Program". (1999) (ERIC Document Reproduction Service No. ED 433 173).

--------------------. "The Matthew Project: State Report for Ohio. Randolph, VT: Rural Challenge Policy Program". (1999) (ERIC Document Reproduction Service No. ED 433 175).

Howley, Craig B. and Aimee A. Howley. "School Size and Influence of Socioeconomic Status on Student Achievement: Confronting the Threat of Size Bias in National Data Sets." *Education Policy Analysis Archives*. (September 2004). Vol. 12, No. 52.

Hox, J. J. (1995). *Applied multilevel analysis, 2nd Ed.*. Amsterdam: TT-Publikaties. Available at http://www.fss.uu.nl/ms/jh/publist/amaboek.pdf.

Hoxby, Caroline (2000). "Does Competition Among Public Schools Benefit Students and Taxpayers?" *American Economic Review* 90, 1209-1238.

Huang, G. and C. Howley. (1993). "Mitigating Disadvantage: Effects of Small-Scale Schooling on Students' Achievement in Alaska." *Journal of Research in Rural Education*, 9(3), 137-149.

Hyman Rickover, quoted in Ravitch. *Left Back: A Century of Battle Over School Reform*, p. 419.

Ilvento, T. W. (1990). In Luloff, A. and L. Swanson (Eds). *Education and Community*. Boulder, CO: Westview Press.

Jencks, Christopher S. (1972). " The Quality of the data collected by the Equality of Educational Opportunity Survey". Pp: 437-512 in Frederick Mosteller and Daniel P. Moynihan (eds), *On Equality of Educational Opportunity*. New York Vintage Books.

Johnson, Jerry C., Craig B. Howley , and Aimee A. Howley (2002). "Size Excellence and Equity: A Report on Arkansas Schools and Districts". Educational Studies Department, College of Education, Ohio Univerity: Athens, OH.

Jones, Reid, John Thornell and Gene Hamon. " Educational Attainment in the Delta." In *A Social and Economic Portrait of the Mississippi Delta*. Arthur G. Cosby, Mitchell W. Brackin, T. David Mason, Eunice R. McCulloch (eds). Mississippi State, MS: Social Science Research Center: December 1992.

Kay, S., N. Hargood, and R.K. Russell. (1982). *The Effect of Consolidation on Fidelity to Traditional Value Systems*. Frankfort: Kentucky State University Community Research Service.

Kelley, Arthell (1954). *Some Aspects of the Geography of the Yazoo Basin, Mississippi* . PhD dissertation, University of Nebraska, 1954.

Kennedy, J. (1914). *Rural life and the Rural School*. New York: American Book Company.

"Kentucky Study Sheds New Light on Benefits of Small Schools, Particularly in Rural Areas". *Rural Policy Matters Newsletter* (November2005). Available online from http://www.ruraledu.org. Retrieved April 7, 2006.

Khattri, N., K.W. Riley, and M.B. Kane. (1997). "Students at Risk in Poor, Rural Areas: A Review of the Research". *Journal of Research in Rural Education*, (13)2, 79-100.

Kiesling, H.J. (1967). "Measuring a Local Government Service: A Study of Districts in New York State. *The Review of Economics and Statistics* 49(3), 356-367.

Kimble, J. W. (1976, April). *Basic Quality of Secondary Education in Rural Montana. (Bulletin 685). Montana Agricultural Experimental Station*. Bozeman, MT: Montana State University.

Kirby, Gretchen G., Jerome Gallagher, LaDonna A. Pavetti, Milda Saunders and Tennille Smith (1997) Washington, DC: The Urban Institute.

Kirwan, Albert D. (1951). *The Revolt of the Rednecks, Mississippi Politics 1876-1925*. Lexington, KY: Peter Smith Publications.

Klein, R. L. (1962). *An Introduction to Econometrics*. Englewood Cliffs, NJ: Prentice Hall.

Kleinfeld, J., McDiarmid, G. Williamson, and D. Hagstrom. (1985). Alaska's Small Rural High Schools: Are They Working? (Abridged Edition). (Report No. ISER-R-

57). Institute of Social and Economic Research and Center for Cross-Cultural Studies. Anchorage, AK: University of Alaska.

Klonsky, Michael. “What Are Small Schools.” Small Schools Workshop Information Center. Available online from http://www. smallschoolsworkshop.org/info1.html. Retrieved April 7, 2006.

Krueger, Alan B. and Mikael Lindahl. (2001). “Education for Growth: Why and for Whom?” *Journal of Economic Literature* XXXIX: 1101-1136.

Kousser, J. Morgan (1974). *The Shaping of Southern Politics: Suffrage Restriction and the Establishment of the One Party South*. New Haven, CT: Yale University Press.

Lasley, Paul, Larry Leistritz, F. Lobao, M. Linda and Katherine Meyer. (1995) *Beyond the Amber Waves of Grain*. Westview Press: Boulder, CO.

Lee, Jaekyung and Walter G. McIntire. “Understanding Rural Student Achievement: Identifying Instructional and Organizational Differences Between Rural and Nonrural Schools.” Final Report Submitteed to the NAEP Secondary Analysis Grant Program. (May 2000). The University of Maine.

Lee Valerie and Julia B. Smith. “ High School Size: Which Works Best and for Whom?” *Educational Evaluation and Policy Analysis*. Vol. 19, No. 3 (Autumn, 1997), 205-227.

Lewis, R.D. (1984). *Delta Council: Transformer of an Agrarian Mind*. M.Ed thesis, Delta State University.

Lu, Y. and L. Tweeten (1973). “The Impact of busing on student achievement.” Growth and Change, 4(4). 44-46.

Luloff, A. and L. Swanson (Eds) (1990). *Education and Community*. Boulder, CO; Westview Press.

Lyon, John D. (2001). “Do School Facilities Really Impact A Child’s Education.” U.S. Department of Education. Available online http://www.ed.gov. Retrieved August 28, 2006.

Lyson, Thomas A. (2002). “What Does a School Mean to a Community? Assessing the Social and Economic Benefits of Schools to Rural Villages in New York.” *Journal of Research in Rural Education* 17: 131-137.

Maddala, G.S. (2001). *Introduction to Econometrics, Third Edition*. West Sussex, England: John Wiley & Sons, Ltd.

Mason, T. David. “The Poverty Hurdle: Poverty as an Impediment to Development in the Mississippi Delta.” In *A Social and Economic Portrait of the Mississippi Delta*. Arthur G. Cosby, Mitchell W. Brackin, T. David Mason, Eunice R. McCulloch (eds). Mississippi State, MS: Social Science Research Center: December 1992.

McLaughlin, Donald M., Mette B. Huberman, Evelyn K. Hawkins, and Lee M. Hoffman. (1997). “Characteristics of Small and Rural Districts.” National Center for Education Statistics. *Statistical Analysis Report* May 1997.

McMillen, Neil R. (1989). *Dark Journey Black Mississippians in the Age of Jim Crow*. Urbana: University of Illinois Press.

Mendez, Teresa. “Is a smaller school always a better choice”. *Christian Science Monitor*. Available online from http://www.csmonitor.com/2004/1214/p16s02-legn.html. Retrieved April 7, 2006.

Michelson, S. (1972). “Equal School Resource Allocation.” *Journal of Human Resources*, 7(3), 283-306.

Molnar, Alex (editor). “School Reform Proposals: The Research Evidence.” Education Policy Research Unit (EPRU). Tempe, AZ: Education Policy Studies Laboratory.

Monk, D.H. (1982). “ Resource Allocation in Classrooms: An Economic Analysis.” *Journal of Curriculum Studies*, 14(2), 167-181.

--------------- (1987). “ Secondary School Size and Curriculum Comprehensiveness”. *Economics of Education Review*. 6: 137-150.

Mosteller, Frederick and Daniel P. Moynihan (eds). (1972). *On Equality of Educational Opportunity*. New York: Vintage Books.

Mullins, Andrew P. Jr. (1992). *Building Consensus: A History of the Passage of the Mississippi Education Reform Act of 1982.* Meridian, MS: Phil Hardin Foundation and the Mississippi Humanities Council.

-----------------------------------. Personal Interview. May 5, 2006.

Nachtigal, Paul (1982). *In Search of a Better Way*. Boulder: Westview Press.

National Center for Education Statistics (2006). Retrieved from http://nces.ed.gov. October 16, 2006.

National Commission on Excellence in Education (1983). *A Nation at Risk*. Washington, DC.

Niskanen, William A. and Mickey Levy. (1974). *Cities and Schools: A Case for Community Government in California*. Berkeley: University of California, Graduate School of Public Policy.

Oakerson, Ronald J. "Size, Function, and Structure: Jurisdictional Size Effects on Public Sector Performance." National Rural Studies Committee: A Proceedings of the Annual Meeting (5th Las Vegas, New Mexico, May 14-16, 1992). ERIC Document ED 354-132.

Odland, John. (1988). *Spatial Autocorrelation*. Newbury Park, CA: Sage Publications, Inc.

Orr, David W. (1992). *Ecological Literacy: Education and the Transition to a Postmodern World*. New York: State University of New York Press.

Ott, R. Lyman and Michael Longnecker. (2001). *An Introduction to Statistical Methods and Data Analysis 5th Edition*. Pacific Grover, CA: Duxbury of Thomson Learning Division, Inc.

Overbay, Amy. " School Size: A Review of the Literature." Wake County Public School System Research Watch. Evaluation and Research Department (February 12, 2003). E&R Report no.03.03.

Pearce to Sharkey, July 15, 1865, Sharkey correspondence as noted in Cobb, 1992.

Peshkin, Alan (1978). *Growing Up American*. Chicago: The University of Chicago Press.

Pittman, R. B. and P. Haughwout P. “Influence of High School Size on Dropout Rate.” *Educational Evaluation and Policy Analysis* (1987) 9, 337-343.

Potts, Barbara (2006). “Student-Teacher Ratio”. Retrieved November 19, 2006 from http://school.familyeducation.com/classroom-management/education-administration/42476.html.

Ramirez, Al (1992). “Size, Cost, and Quality of Schools and Districts: A Question of Content”. *Source Book on School and District Size, Cost, and Quality*. ERIC document number ED 361 162.

Ravitch, Diane. (1983). *The Troubled Crusade*. New York: Basic Books.

------------------. (2000). *Left Back: A Century of Battle Over School Reform*. New York: Simon & Schuster.

Raywid, Mary Ann. (January 1999). “Current Literature on Small Schools”. ERIC Digest EDO-RC-98-8. Retrieved from http://www.ael.org October 8, 2005.

Reeves, Edward B. (2001). “ Disentangling the Effects of Nonmetro Location and Student Poverty on School Performance and Improvement: A Multilevel Analysis of School Assessment Data.” Available on line from http://edtech.connect.msu.edu/searchaera2002/viewproposaltext.asp?propID=5092.

Reynolds, David. (1999). *There Goes the Neighborhood: Rural School Consolidation at The Grass Roots in the Early Twentieth-Century Iowa*. Iowa City: University of Iowa Press.

Roeder, P.W. (2002). “Resisting the Urge to Merge: Does School Size Matter?”. ERIC Documentation Reproduction Service No. ED 464 793.

Rural School and Community Trust. (2004). “The Fiscal Impacts of School Consolidation: Research Based Conclusions”. Retrieved October 23, 2005 from http://www.ruraledu.org.

Rutter, M. , B. Maugham, P. Moritmore, J. Ouston, and A. Smith. (1979). *Fifteen Thousand Hours: Secondary Schools and Their Effects on Children*. Cambridge, MA Harvard University Press.

Sebold, F. D. and Dato W. (1981). " School Funding and Student Achievement: An Empirical Analysis". *Public Finance Quarterly* 9, 91-105.

Schneider, B.L. (1985). "Further Evidence of School Effects." *Journal of Education Research*, 78 (6), 351-356.

Schwarz, Christina and Benjamin Schwarz. "Mississippi Monte Carlo." *The Atlantic Monthly*, (January 1996) p. 67.

South Carolina State Education Oversight Committee. (2003). " District Organization in South Carolina: Evaluating Performance and Fiscal Efficiency". Available on line at http://www.state.sc.us/eoc/PDF/. Retrieved November 7, 2005.

Southern Growth Policies Board (2000) "Reinventing the Wheel Report".http://www.southern.org. Retrieved June 27, 2006.

Stockard, J., and M. Mayberry. (1992). "Resources and School and Classroom Size." Chapter 3 in *Effective Educational Environments*. Newbury Park, CA: Corwin Press, Inc. 40-58.

Strang, David. (1987). "The Administrative Transformation of American Education: District Consolidation, 1938-1980". *Administrative Science Quarterly* 32, 352-366.

Stauber, Karl (2002). "Why Invest in Rural America – And How? A Critical Public Policy Question for the 21st Century: 9-29.

Steeds, David R. and Ismail Seargeldin, (1997). *Rural Well-Being: From Vision to Action*. Washington, DC: The World Bank.

Summers, A.A. and B.L. Wolfe (1976). " Which school resources help learning? Efficiency and equity in Philadelphia Public Schools." IRDC Bulletin, 11(3):1-17.

Taylor, W. L, and D.M. Piche (1991). *A Report on Shortchanging Children: The Impact of Fiscal Inequity on the Education of Students at Risk*. Washington, DC: U.S. Government Printing Office.

Teixeira, Ruy and David A. McGranahan (1998). "Rural Employer Demand and Worker Skills." *Rural Education and Training in the New Economy: The Myth of the Rural Skills Gap*. Ames, IA: Iowa State University Press: 115-130.

Tickamyer, Ann R. and Cynthia M. Duncan. "Poverty and Opportunity Structure in Rural America." *Annual Review of Sociology*, Vol. 16 (1990): 67-86.

Turner, R., G. Camilli, R. Kroc, and J. Hoover. (1986). "Policy Strategies, Teacher Salary Incentive, and Student Achievement: An Explanatory Model". *Educational Researcher*, 15: 5-11.

Tyack, David (1999). " Democracy in Education – Who Needs It?" *Education Week*. November 17, 1999.

U.S. Bureau of the Census, Eleventh Census of the United States, 1890, vol. 5, Statistics of Agriculture, 1895, 156-159.

U.S. Department of Agriculture, Rural Development Division, Office of Empowerment Communities and Enterprise Zones. Retrieved October 17, 2006 from http:// www.ezec.gov.

U.S. Department of Agriculture (1999). "Poverty and Well-Being in Rural America". Retrieved November 19, 2006 from http://www.usda.gov/cnpp/FENR/fenrv12n4p93.pdf.

Vance, R. B. (1966). *High Schools in the South: A Fact Book*. Nashville, TN: George Peabody College for Teachers.

Walberg, H.J. "Improving The Productivity of America's Schools." *Educational Leadership*, 41 (1984): 19-27.

-----------------. (1992). "On Local Control: Is Bigger Better?" *Source Book on School and District Size, Cost, and Quality*. ERIC Document ED 361 164.

Walberg, H.J. and W.J. Fowler, Jr. "Expenditures and Size Efficiences of Public Districts. *Educational Researcher*, 16(7) (1987): 5-11.

Walsh, Margaret and Cynthia M. Duncan. "Race and Poverty in the Rural South." *Race and Poverty*. (May/June 2001): 1-8.

Webb, Dean L., Arlene Metha, and K. Forbis Jordan. (2000). *Foundations of American Education*. Upper Saddle River, New Jersey: Merrill.

Wendling, W.W. and J. Cohen. "Education Resources and Size Efficiencies of Public Districts." *Educational Researcher*, 16(7) (1981): 5-13.

Wharton, Vernon Lane. (1965). *The Negro in Mississippi: 1865-1890*. New York.

Woodman, Harold G. "Postbellum Social Change and Its Effect on Marketing the South's Cotton Crop." *Agricultural History* 56 (January 1982), 224.

Woodruff, N.E. "Pick or Fight: The Emergency Farm Labor Program in the Arkansas and Mississippi Deltas during World War II." *Agricultural History* 64 (Spring 1990).

Wright, Gavin (1996). *Old South, New South: Revolutions in the Southern Economy Since the Civil War*. Baton Rouge: Louisiana State University Press.