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REGIONAL DISPARITIES IN EDUCATIONAL INVESTMENTS: MICHIGAN AND KENTUCKY, 1974-1994

By

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ABSTRACT

REGIONAL DISPARITIES IN EDUCATIONAL INVESTMENTS:
MICHIGAN AND KENTUCKY, 1974-1994

By

Pranab Rajbhandari

Regional disparities have existed in the United States since the nation's founding. Appalachian Kentucky and Michigan's Upper Peninsula are two of the more troubled areas that have lagged significantly behind other regions of their respective States.

My study looks at regional disparities in educational investments within Michigan and Kentucky over the years from 1974 to 1994. My aim is to evaluate whether inequalities in educational investments and opportunities are narrowing between the marginal and core areas within these States, and whether consequently, the life chances of young people in these states are less dependent upon the region of birth.

I observe that Appalachian Kentucky lagged far behind other Kentucky regions in school funding in 1974, but that by 1994 school funding in that region has surpassed the metropolitan areas and the more affluent West Central area. The Upper Peninsula of Michigan, however, was lagging behind the other regions of Michigan in school funding in 1974, but by 1994 had fallen even further behind.

To my loving parents,

Laxmi and Purushottam Rajbhandari

for their continuing support, understanding, love and patience

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Michigan's Upper Peninsula and Appalachian Kentucky have been economically marginalized "backyards" of their respective States. For many years they were neglected, forgotten places. These regional inequalities had and continue to have social consequences for people living in these regions.

The research reported here explores regional differentials in investment in Michigan and Kentucky over a period of twenty years, from 1974 through 1994. Michigan's Upper Peninsula is compared with Michigan's Lower Peninsula and metropolitan areas. Appalachian Kentucky is compared with West/Central Kentucky and Kentucky's metropolitan areas. My aim is to explore whether improvements have been made over the years in reducing the educational opportunity gap between the "core" and the "marginal" areas in these two states. Sher (1981) points out that country schools have been left off national educational agendas as country roads have been left off national maps. This neglect has had long-lasting and negative effects. Due to inadequate funding many rural schools fell into disrepair and became materially poorer in comparison with more affluent suburban schools.

The mistreatment of rural, marginal areas and their schools goes against egalitarian American ideals. According to Williams (1970), the "avowal of equality" and its practice has been a persistent theme through most of American history. Even modern economic organizations, which epitmomize inequality, stress the equality of opportunity. But Smith (1979) states that, "The American way of life presents a sharp contrast

between the rhetoric of liberty, freedom and justice, with its equalitarian overtones, and the reality of a relatively unconstrained capitalist economy which inevitably generates inequality." Lyson and Falk (1993) lament that throughout the long periods of economic growth in the United States since WWII, there are still rural regions which are stagnating and, in some cases, declining.

Thus, there seems to be an increasing disparity among the regions within the United States which is reflected in the deteriorating condition of schools in different regions. Berliner and Biddle (1995) state that "...although many Americans do not realize it, family incomes and financial support for schools are much more poorly distributed in our country than in other industrialized nations. This means that in the United States, very privileged students attend some of the world's best private and public schools, but it also means that large numbers of students who are truly disadvantaged attend public schools whose support is far below that permitted in other Western democracies. Thus, opportunities are not equal in America's schools. As a result, the achievements of students that cater to the rich and the poor in our country are also far from equal." (Berliner and Biddle, 1995)

The questions my research tries to answer are whether during the past two decades, starting from the mid-seventies, Kentucky and Michigan as States have alleviated regional inequalities pertaining to educational financing and, secondly, whether such efforts are reflected in changes in the levels of educational achievement.

Regional Inequality

Labao (1990) suggests that, "...space affects social relations because historical conditions are embodied in location. Uneven development within and between regions means that wealth and poverty are differently dispersed. Morever, capital tends to build upon pre-existing inequalities, which leads to their further entrenchment. Rural areas have continued to lag behind urban areas on virtually all socioeconomic indicators, and recently the gap has widened." Falk and Lyson (1993) believe that when looked at from a broader theoretical context, the dismal economic conditions found in many rural regions today can be seen as part and parcel of an historical process of uneven

development in the United States.

The peripheral regions found within the states of the United States (Beaulieu and Mulkey, 1995; Smith, 1979) can be seen as similar to the nations on the periphery in the world system (Wallerstein, 1984). These marginal areas are also known as internal colonies, places of exploitation. Michigan's Upper Peninsula, with its history of extraction and logging industries, and Appalachian Kentucky, with its coal industry and subsistence agriculture, are marginal areas in their respective States.

Billings and Tickamyer (1993) point out the role of societal structure in the creation of poverty in certain areas. According to Billings and Tickamyer, the sources of poverty are found in the structure of the local economy, employment opportunities and the linkage to the larger economy. West (1976) states that the poor are poor because of the nature of the system of ownership, production and distribution. In other words, regional poverty results from structural inequality pervasive within the societal system.

The inner city ghettos infested with crime, drugs and social problems must also be counted as poor, marginal regions/areas within the United States. Kozol (1991) in "Savage Inequalities," explored and described the extreme disparities present in the schools adjacent to each other in the inner cities and the suburbs. In the process of doing so, he looked at East St. Louis; the Southside of Chicago; New York City; Camden, New Jersey; Washington, DC; and San Antonio. Kozol notes the similar though slightly different nature of poverty between inner city schools and rural schools. "Children in the rural districts of Kentucky, northern Maine, and Arkansas, for instance, face a number of the problems we have seen in East St. Louis and Chicago, though the nature of the poverty in rural schools is often somewhat different." (Kozol, 1991) While Kozol focused on the inner cities, my study focuses on two rural, marginalized regions in the States of Michigan and Kentucky.

Urban poverty is serious. But, so is poverty in the countryside. There has been a lot of concern about inner city decay in the United States, and rightly so. But, according to Deavers and Hoppe (1992) and Jensen and Tienda (1989), rural poverty is as severe as poverty in urban places. Jenssen and McLaughlin (1995) state that, "Original computations from the US Census Bureau's 1990 Current Population Survey show that

the poverty rate in nonmetropolitan areas is higher than that in metropolitan areas (15.9 percent and 12.1 percent, respectively), and is almost as high as that in central cities of metropolitan areas (18.7 percent). Morever, when key race/ethnic groups are considered separately, poverty rates are consistently highest in nonmetropolitan America." Wilkinson (1995) discusses the work of Osha Gray Davidson, in Broken Heartland (1990), in which Davidson reports that conditions in America's rural communities are far worse than is generally recognized. "Contrary to national assumptions of rural tranquility, many small towns - even those white picket-fenced hamlets in the United States warrant the label "ghetto." No other word so vividly, and yet so accurately, conveys the air of ruin and desolation that now hangs over rural communities. It speaks of the relentless deterioration of health-care systems, schools, roads, buildings, and the emergence of homelessness, hunger and poverty. It speaks, too, of the inevitable outmigration of the best and brightest youths." (Wilkinson, 1995)

Jacqueline Jones (1995) describes rural distressed communities in America:

> Within some of the most scenic areas of the country, not far from the interstate highway, rustic campground, or upscale resort, lie scattered distressed communities. In parts of New England - the back country of Maine, New Hampshire, Vermont, and western Massachusetts - in upstate New York and down through the southern Appalachians, households struggle to make do during annual depressions, each winter time.

Thus, my research is being conducted to study the hidden yet pervasive nature of poverty, perpetuated by structural impediments, in the rural regions of the United States.

Two Rural Regions

The Northern Great Lakes cutover region and the Appalachian mountain region are generally recognized to have been two of the most difficult rural problem areas in the United States during the 1930s and 1940s. Michigan's Upper Peninsula and Appalachian Kentucky are located within these problem areas and, in many respects, reflect the issues that have characterized them (Schwarzweller, Mangalam, Brown, 1977; Billings and Tickamyer, 1993; Schwarzweller and Lean, 1993; Falk and Lyson, 1993; Robinson,

1969).

These two rural regions are distinctly different and have tended to lag behind the rest of their respective states in terms of economic and industrial development. Table 1.1 shows that, from 1959 to 1989, per capita incomes in the two regions have been 70 percent or less of their respective states. (Noor, 1996) The percentage of families below the poverty line was much greater in Appalachian Kentucky in comparison with West/Central Kentucky, from 1969 to 1989.

Table 1.1: Per Capita Average Income: Michigan and Kentucky, by Regions for Selected Years

Michigan:

	Average Income Per Capita ($)						
Region	1959	1969	1974	1979	1985	1987	1989
Lower Peninsula	$1,962	$3,392	$4,797	$7,761	$11,017	$12,101	$14,290
Upper Peninsula	$1,392	$2,360	$3,509	$5,654	$7,661	$8,296	$10,273
(Upper Peninsula Average as percentage of Lower Peninsula)	70.9	69.6	73.1	72.9	69.5	68.6	71.9

Kentucky:

	Average Income Per Capita ($)					
Region	1959	1969	1974	1979	1985	1989
West/Central Region	$1,462	$2,628	$3,942	$6,288	$9,215	$11,917
Appalachian Kentucky	$831	$1,613	$2,773	$4,774	$6,291	$7,934
(Appalachian Kentucky as percentage of WestCentral Kentucky)	56.8	61.4	70.3	75.9	68.3	66.6

Source: County and City Data Book, 1962-1980, and US Census Reports 1950-1990. (see Noor 1996).

According to Noor (1996), poverty levels are higher in both Michigan's Upper Peninsula as well as in Appalachian Kentucky in comparison with other areas of their respective States. Table 1.2 shows that in Appalachian Kentucky, 45 percent of families were below the poverty line in 1969. Poverty decreased to 22.3 percent in 1979, but increased again to 36 percent in 1989. The percentage of families below the poverty line for West/Central Kentucky was 25.3 in 1969, 12.6 in 1979 and 15.5 in 1989.

The percentage of families below the poverty line in Michigan's Upper Peninsula was 11.7 in 1969, 8.6 in 1979, and 11 in 1989. The percentage below the poverty line in the Lower Peninsula was 7.1 in 1969, 8.2 in 1979, and 10.2 in 1989. According to Blank (1995), poverty has hovered at around 11 to 15 percent for the United States in general. According to Blank's statistics on poverty rates, Appalachian Kentucky lags far behind all the regions while the Upper Peninsula Michigan hovers around the average.

Table 1.2: Percentage of Families Below Poverty Level: Michigan and Kentucky, by Regions for Selected Years

Michigan

Region/State	1969	1979	1989
Lower Peninsula Michigan	7.1	8.2	10.2
Upper Peninsula Michigan	11.7	8.6	11.0
Michigan Total	7.3	8.2	10.2

Kentucky

Region/State	1969	1979	1989
West/Central Region	25.3	12.6	15.5
Appalachian Kentucky	45.0	22.3	36.0
Kentucky Total	29.2	14.6	19.2

Sources: US Census, 1970, 1980, and 1990 (see Noor 1996)

The economic marginalization of Upper Peninsula Michigan and Appalachian Kentucky is also reflected in the writings of the authors who have studied and made these regions the focus of their work. Schwarzweller and Lean (1993) write, "...at least in Michigan, where the north country is a peninsula that stands geographically apart from the state's industrial heartland, this region, once regarded as a major problem area in America continues to struggle for recognition and respect." Davidson and Schwarzweller (1995) state that Upper Peninsula Michigan is marginal and far removed from the major centers of population, industrial activity and political power. Due to its remoteness, Upper Peninsula Michigan is often overlooked and forgotten by those residing downstate in the Lower Peninsula. Schwarzweller and Lean (1993) also observe that there are some significant differences between the Upper Peninsula and the Lower Peninsula in labor market structure (industrial composition of the labor force), availability of work (unemployment rates), and the opportunity of individuals and their families to generate good incomes. The chances of finding employment (especially for a young man or woman starting out on a work career), acquiring an upper-level position (professional, technical, managerial, administrative, skilled), and drawing a decent wage or salary, are better downstate.

In the same vein, authors writing about Appalachia describe it thus: "Appalachia is, as Frost noted, made up of the back yards of nine states. With the exception of West Virginia, no single state has been primarily concerned with Appalachia. Back yards are often a nuisance, and the states have preferred to use what political influence they had in Washington to improving their front yards. Because of this, there was never any sustained and powerful political pressure to improve conditions in Appalachia as a whole" (Munn, 1976). "The parallels between Third World, nonsocialist, underdeveloped countries and advanced capitalist nations, on the one hand, and Appalachia and metropolitan America, on the other, are striking!" (Dix, 1976).

The Appalachian educational system is described to be in dismal condition as well. Branscome (1976) writes that the educational experience in Appalachia is surreal and degrading. High schools there channel, they do not educate. Standardized tests have

also shown that the IQs of school children in the Appalachia have declined from ¼ to ½ a point each year for 13 years.

The above narration highlights the disparities between the marginal and core regions within the States of Michigan and Kentucky. Falk and Lyson (1993) state that, "...uneven development is really a characterization of some geographical feature: whether within a neighborhood, a town, a city, a county, a state, a region, a nation, or the world, not all areas are economic equals. And, any measures of this are driven by curiosity about how unequal or uneven these areas are. Thus, by whatever measure (education, income, births, deaths, etc.) the intent is the same: to know how alike any two or more areas are. The aim of this study is to use investments in education to measure the persistence of disparities within the regions of Michigan and Kentucky.

Education and Regional Development

As mentioned by Falk and Lyson (1993), education can be used as a measure of equality among areas. Education is taken as a component of human capital which adds to the returns an individual has by investing in it. According to Smith, Beaulieu and Seraphine (1995), "The notion of human capital, introduced by Becker (1962) and Schultz (1962), regards education in a manner analogous to financial capital, wherein individuals invest in further increments of education according to rational calculations of returns on their investment. From the outset, social capital was designed to serve as a conceptual extension of the theory of human capital, one in which the formal and informal education and training of an individual is regarded as a form of capital." The physical, financial and human capital are respectively the physical materials, financial resources and human skills and capacities (Duncan and Hofferth, 1995).

Lyson (1995) states that the stock of human capital in rural places is not up to urban standards and that many social scientists have argued that the human capital of rural places must be enhanced for it to close its gap with urban areas. Mulkey and Beaulieu (1995) reiterate Lyson when they say that the skill and abilities of rural residents are increasingly important to the growth and development and to the success of rural communities.

Education is generally regarded as a viable means to enhance the life chances of young people in poverty situations. In our modern, technologically sophisticated society education has become one of the more important channels for attaining upward social mobility. Williams (1970) states that "not only do the schools transmit the culture, they also winnow and sift the individuals who pass through them. If there is to be even nominally free access to the better paid and prestige-carrying occupations, the necessary education must be open to all who have the capacities and motivation to acquire it."

Education, even more so "good education," has been regarded as vital by Durkheim and John Dewey. "Society can survive only if there exists among its members a sufficient degree of homogeneity; education perpetuates and reinforces this homogeneity by fixing the child, from the beginning, the essential similarities that collective life demands" (Durkheim, 1956). Durkheim emphasized the necessity of the State to get involved in the education of its citizens because education is an essentially social function. Dewey (1964) stated that, "Only by being true to the full growth of all individuals who make it up, can society by any chance be true to itself. And in the self-direction thus given, nothing counts as much as the school..."

According to Williams (1970), there is and has been a widespread 'faith in education' within the United States which has been observed by both native and foreign observers. To some Americans, education is a magic panacea though there is widespread disaffection, criticism and low esteem towards it as well amongst others. Education is usually taken as the panacea for societal inequalities. People need to develop their skills to enable them to compete in the system and in the modern world. This narrow perspective in taking education as the panacea and the tendency to turn a blind eye towards the inherent faults in the pervasive system and the historical disadvantage that peripheral regions have had (Noble, 1994; Lobao, 1990) has been highly criticized.

But according to Snipp (1995) education is synonymous with economic opportunities. Education is the equalizer which makes economic opportunities available to those of otherwise disadvantaged origins. This perspective is also echoed by Labao (1990) who states that education broadens the mind and inculcates skills necessary for complete social and political participation. Higher educational attainments among poorly

educated people can allow them to compete for better quality jobs which in turn would lead to decrease in income inequality across areas. But a significant educational upgrade cannot be brought about without extensive investment in local schools and this, of course is more difficult for poorer communities. Therefore, one can argue that the poorer communities should receive greater subsidization from the federal government.

Importance of adequate financing

"Unequal education is perpetuated in the ways schools are financed. About half of the elementary and secondary school expenditures are financed by local property taxes and most of the remainder by state revenues, with only 10 percent financed by the federal government. Children in poorer states and localities are thus limited by lower educational expenditures" (Labao, 1990). Adequate financing is important in providing quality education to all students and in giving equal opportunities to disadvantaged youth in rural areas. Poor rural areas lag behind other areas in providing adequate education to its youth.

Hobbs (1995) states that:

> Although academic performance of students, whether rural or urban, is not greatly affected by expenditures per pupil, financial support is nevertheless essential to retaining quality schools. Compared to urban schools, there is greater variation in level of funding for rural schools. There are far more "poor" rural districts and generally rural localities find it necessary to commit a higher proportion of local government revenues to education in order to keep school doors open. Jansen (1991), for example, reports that in 1982, nonmetropolitan counties outspent metropolitan counties for education in all but seven states. ...At the local district level, even with some equalization of funding through state and federal supplements, low income rural counties spend less per pupil than wealthier counties, contributing to significant variation even within the same state.

Equitable school funding within sparsely populated regions has been brought to the forefront in the national educational agenda only within the recent years (Sher, 1981). Since 1989, courts have found school-finance systems unconstitutional in 13 states. Litigation is under way in eight others (Christian Science Monitor, 1997).

According to Gusky (1994), the Kentucky Supreme Court ruled in June 1989 that the public school system in the Commonwealth was "unconstitutional." Based on evidence presented in Rose v. the Council for Better Education, Inc (1989), the court concluded that each and every child in the Commonwealth was not being provided with an equal opportunity to have an adequate education. KERA (Kentucky Education Reform Act) of 1990 was based on the Supreme Court decision of 1989. KERA addresses issues of administration, governance, finance, school organization, accountability, professional development, curriculum and development of schools in Kentucky.

Michigan also saw reforms in school financing in 1993. In July 1993, the Legislature eliminated local school property taxes, reducing by nearly $7 billion the annual funding for Michigan's public schools beginning in the 1994-95 school year. The school finance reform plan diminished the State's reliance on local school operating property taxes as source of funding for K-12 public schools. The tax sources going to the School Aid Fund (SAF) were expanded to include revenue from the sales and use tax increases, the cigarette tax increase, the new state real estate transfer tax, the tax on tobacco products, and proceeds from the new State education property tax of six mills on all property. These tax reforms substantially changed the financing of K-12 education in Michigan, increasing the share of revenue by the State and decreasing the reliance on property taxes as a revenue source (School Finance in Michigan Before and After The Implementation of Proposal A).

Berliner and Biddle (1995) state that the ultimate test of society depends on how it treats its poorest and weakest citizens instead of the rich and powerful. The push for a more equitable distribution of resources to ensure quality education for youth in disadvantaged marginal areas such as Appalachian Kentucky and Upper Peninsula Michigan can be taken as an indicator of whether the States of Kentucky and Michigan truly care for their citizens. The provision of high quality education is necessary for a society to develop high levels of competency among its youth. A major prerequisite for high quality education is adequate financing. Inadequate financing can have negative lasting effects because poor schools are like poor homes.

CHAPTER II

RESEARCH PROCEDURES

Appalachian Kentucky and Michigan's Upper Peninsula, as I have tried to make clear, are rural marginal areas of their respective states. The economies of Michigan's Upper Peninsula and Appalachian Kentucky have been dependent upon extractive industries. Both of these regions, in many respects, are the backyards of their states. Benajamin Chintz suggests that Eastern Kentucky counties should be regarded as "low income counties" and the upper reaches of the Great lakes area, in which Upper Peninsula falls, as the "not-so-poor depressed rural area" (Robinson, 1969). Taking these similarities into consideration, a comparative and longitudinal research methodology was devised. Investments in education are used to compare the regions.

Description of the Study

The study period spans twenty years, from 1974 to 1994. The marginal regions of the two States are compared to the more affluent sectors: Upper Peninsula Michigan vs. Lower Peninsula Michigan and Appalachian Kentucky vs. West/Central Kentucky. The regional breakdown by counties for Michigan and Kentucky is presented in Appendix A. The two marginal areas, Upper Peninsula and Appalachian Kentucky, are also compared with the metropolitan areas of their respective states and similarly, the Lower Peninsula of Michigan and West/Central Kentucky are also compared with their States' Metropolitan areas.

The study population consists of the total school-going population of K-12 public schools of both states between the years of 1974-75 to 1993-94. Public schools educate approximately 90 percent of the student population in the United States and this is also

for the States of Michigan and Kentucky.

Sources of Data

Aggregated data of school financing at the county level (for Kentucky) and at the school district level (for Michigan) were obtained from the departments of education of the respective States. The ACT scores at the county level were obtained from the ACT office in Iowa. One of the main reasons for starting the research in 1974 was that ACT score data were not available for earlier years. Data on school funding (local, state and federal sources), average teacher's salary, and teacher-pupil ratio were obtained from the 1014 bulletin (a bulletin published annually by the Michigan Department of Education) for Michigan and from the "Profiles of Kentucky Public Schools, Receipts and Expenditures," and "Public School Salaries for Kentucky" published by the Kentucky State Department of Education. These data, from 1974 through 1994, were utilized as indicants of educational inputs.

The information available was not specified by ethnic/race composition nor by gender. Race as well as gender are vital issues in assessing educational inequalities, but consideration of these factors was not possible at this time. Metropolitan areas in both States were factored out from both their peripheral as well as core regions. This was done to look at the disparities among the core and peripheral regions controlling for the metropolitan effect.

In Michigan, neither high school graduation rates nor MEAP (Michigan Educational Assessment Program) scores could be utilized in the study. The high school graduation rates were unavailable while the MEAP scores were unreliable. The MEAP test format as well as the method of collecting scores had changed over the years. As for Kentucky, the high school graduation rates[1] were not used as the rates were unavailable for the years 1989/90, and the data collection has been suspended in recent years. The KIRIS (Kentucky Instructional Results Information System) test has been implemented only in the past two years therefore it was useless for this 20 year long trend study.

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1 See Table G in Appendix D for available high school graduation rates.

The ACT scores were divided into four categories: English, Math, Reading, Science. Scores ranged from a possible low of 1 to a maximum of 36. The English test focused on Usage/Mechanics and Rhetorical skills. The Reading test was divided into Arts and Literature, Social studies, and Science. The Mathematics test was divided into Pre-Algebra and Elementary Algebra; Intermediate and Coordinate Geometry; Plane Geometry and Trigonometry. The Science reasoning section was not divided into areas. The Comprehensive score measured the average of the English, Reading, Math and Science sections.

Measurement Strategies

Local, State, and Federal funding as well as the average annual teacher's salary and the pupil/teacher ratio were taken as the inputs into the educational infrastructure. Local, State and Federal funding was summed up as the total of all sources of funding available per pupil in each region (i.e. total per capita funding per pupil). Local funding is funding obtained from local county government sources. State and Federal funding is funding obtained from State and Federal sources. The average annual teacher's salary is the yearly salary received by teachers working in Michigan and Kentucky's school districts. The teacher/pupil ratio is the average number of students per teacher.

The data for Michigan were obtained from the 1014 bulletin published by the Michigan State Department of Education and were reported at the school district level. These data were then consolidated to the county level and further to the regional level[2].The data obtained from the Kentucky State Department of Education were reported at the county level and subsequently were consolidated to the regional level.

For Michigan, the funding per pupil in the school district was multiplied[3] by the number of pupils in the school district to obtain the total funding per pupil in the school district. To get the funding per pupil at the county level, the total sum of the funding per pupil in the school districts in the county was added up and then divided by the total number of students in the county.

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2 See Appendix B for the demarcation of regions in Michigan

3 See Appendix C for the formulas used to calculate, consolidate and aggregate data.

For both Michigan and Kentucky the per pupil funding at the county level, for all the counties making up the region, was multiplied by the number of students in that particular county. The product of the multiplication at the county level was summed according to the counties making up of the region and then divided by the total number of students in the region. This produced the funding per pupil at the regional level.

The calculation of the average teacher's salary involved more steps than the consolidation of the per capita funding data. For Michigan, the number of teachers was first calculated by dividing the number of pupils in the school district by the teacher/pupil ratio. The average teacher's salary at the school district level was then multiplied by the number of teachers in the school district to get the total amount of funds utilized for teachers' salaries within the school district. The school district teacher salary funds were added up for the whole county and then divided by the total number of teachers in the county to obtain the average teacher's salary at the county level. For both Michigan and Kentucky, the same methodology used to calculate teacher's salary to the county level was used to obtain teacher's salary at the county level and then at the regional level. The teacher/pupil ratio at the regional level was also calculated using the same methodology as for calculating per capita funding and the teacher salary.

ACT scores were obtained at the county level for both Michigan and Kentucky and were aggregated to the regional level using the methods outlined above for per capita funding, teacher's salary and the teacher/pupil ratio.

RESEARCH VARIABLES

(1) Funding

Money (the amount of funds available) has an impact on the running of schools and the quality of education afforded to students. Money for books, for the upkeep of the buildings, for science laboratory equipment, for attracting qualified teachers is necessary to ensure the smooth functioning of schools and in providing a good education for its students. Therefore, for present, the level of funding over the years was taken as the major problematic variable. Funding was further broken down into funding obtained at

the local level, state level, and the federal level to analyze changes in the distribution of the sources of funding, which of course may profoundly affect the total level of funding.

Berliner and Biddle (1995) state that "Extra funding usually means that schools can improve their facilities, cut class sizes, and hire teachers with better qualifications; and surely these steps should help to improve student performance." Phelps and Prock (1991) point out that the most easily addressed indicator of educational equality is fiscal equity. Though equal spending might not ensure equal education, it is a prerequisite.

(2) Teacher Salary and Teacher/Pupil Ratio

Average teacher salary is considered important because better salary levels are more apt to attract more qualified and better teachers, thus enhancing the quality of education where they teach.

Teacher/Pupil ratio is the number of students per teacher. The lower the number of students a teacher has to work with, the better it is because the teacher can pay more individual attention to the students. Therefore, lower teacher/pupil ratio would point to possibly higher quality of education.

(3) Educational assessment

Educational assessment scores were utilized to study the educational outcomes throughout the period. For in-state as well as inter-state comparisons the ACT (American College Testing) scores were used to assess outcomes in the development of human capital. The standardized ACT test is taken by high school students in preparation for their entry into colleges as most colleges use ACT scores as one of their criteria for admitting students.

But Berliner and Biddle (1995) point to the limitations of using ACT scores as measures:

> The American College Testing Program (ACT) was founded in 1959. Many students now take the twelfth-grade ACT instead of SAT. The ACT test does not have a fixed set of content topic but, rather, is revised each year by panels of consultants. Each year these experts propose new items to test the evolving curricula at American colleges and universities for the subjects tested, and since those curricula change over time, so does the coverage of ACT test. This means

> that average ACT scores for any given year should not be compared with those of of other years because tests they came from were measuring somewhat different things.

These limitations pointed out by Berliner and Biddle were circumvented since in this study the ACT score differences were used for comparing regions each year instead of for assessing the changes in ACT scores over time.

Reliability and Validity of data

The funding data as well as teacher's salary and pupil/teacher ratio data are reliable measures, for it is mandatory for the school districts and counties to make these official figures public. The reported figures affect their funding support by the State government. The ACT scores, obtained from the ACT office in Iowa, are reliable as well because the scores are taken as a measure of preparedness of students by colleges and have been used consistently by colleges as admission standards.

Funding of schools and average teacher salary are reasonably valid measures of educational inputs for this research. Both measures indicate investment in the educational infrastructure. Funding of schools indicates how much importance is given to education by certain levels of governance within that region. ACT scores is a reasonable measure of educational achievement as colleges use this indicator as one of the criteria of selecting students they see ready for college. The common uses of ACT scores are: Admissions (accepted by most, but not all, colleges and universities); talent identification; academic advising; freshman course placement decisions; awarding course credit, especially in English and Math courses.

CHAPTER III

FINDINGS

School funding per pupil, average teacher salary and teacher/pupil ratio were observed for the different regions of Michigan and Kentucky. Comparisons were made to assess regional disparities in the quality of education. The rationale behind these observations is that regional disparities within Michigan and Kentucky can be studied by observing regional financing differentials of the educational infrastructure. ACT scores were used to explore comparative performance outputs. The ACT test is a partial indicator of the readiness of students to take up college studies.

MICHIGAN

School funding per pupil

The modest funding gap in 1974/75 between the Upper Peninsula and the non-metropolitan Lower Peninsula in terms of Upper Peninsula funding as a percentage of the Lower Peninsula, gradually increased from 93.3 percent to 84.0 percent in 1993/94 (Table 3.1, Figure 1). Similarly, the overall funding gap between the Upper Peninsula and Metropolitan areas also increased from 91.4 percent to 80.9 percent of the Upper Peninsula as a percent of the Metropolitan areas (Table 3.1, Figure 1). Per pupil funding in the Lower Peninsula for both metropolitan and non-metropolitan areas has been nearly consistent over the years with the gap in all sources of funding increasing only negligibly, from 97.9 to 96.2 percent of the Lower Peninsula as a percent of Metropolitan areas (Table 3.1, Figure 1). In other words, there has been and continues to be very little difference in per pupil funding between the metropolitan and

Table 3.1: Michigan: Percentage Differences between Regions on Sources of School Funding, 1974 - 1994

Lower and Upper Peninsula as Percentage of Metro Areas Per Capita School Funding:

	Michigan Region	Local Funding	State Funding	Federal Funding	All Funding
1974-75	Lower Peninsula	96.3	100.7	96.9	97.9
	Upper Peninsula	64.7	129.8	124.1	91.4
1979-80	Lower Peninsula	97.3	96.5	96.3	97.0
	Upper Peninsula	76.9	98.0	122.0	87.2
1989-90	Lower Peninsula	95.3	98.4	96.4	96.2
	Upper Peninsula	63.0	115.3	119.0	80.3
1991-92	Lower Peninsula	95.1	99.4	95.0	96.1
	Upper Peninsula	62.5	125.0	103.6	80.6
1993-94	Lower Peninsula	95.1	99.3	95.8	96.2
	Upper Peninsula	62.2	120.5	110.4	80.9

Upper Peninsula as Percentage of Lower Peninsula Per Capita School Funding:

	Michigan Region	Local Funding	State Funding	Federal Funding	All Funding
1974-75	Upper Peninsula	67.2	129.0	128.0	93.3
1979-80	Upper Peninsula	79.1	101.5	126.7	89.9
1989-90	Upper Peninsula	66.2	117.2	123.3	83.5
1991-92	Upper Peninsula	65.7	125.8	109.0	83.9
1993-94	Upper Peninsula	65.4	121.3	115.3	84.0

nonmetropolitan area of the Lower Peninsula. But, per pupil funding gap is increasing between the Upper Peninsula and the rest of Michigan.

Teacher Salaries and Teacher/pupil Ratio

The gap in teacher's salary has increased somewhat between the nonmetropolitan Lower Peninsula and the Upper Peninsula, from 84.5 percent to 81.4 percent of the Upper Peninsula as percent of the Lower Peninsula (Table 3.2, Figure 2). But, teacher salary average in the nonmetropolitan Lower Peninsula has remained at a constant 96 percent of the Metropolitan areas while the gap between the Metropolitan areas and the Upper Peninsula increased from 81.8 percent to 78.4 percent of the Upper Peninsula as percent of Metropolitan areas (Table 3.2, Figure 2).

Table 3.2: Regional Distribution of Average Teacher's Salary: Michigan, by Region, 1974 - 1994

	Michigan Region	As Percentage of Metro Area Average	As Percentage of Lower Peninsula Average
1979-80	Lower Peninsula	96.9	
	Upper Peninsula	81.8	84.5
1989-90	Lower Peninsula	96.5	
	Upper Peninsula	78.6	81.4
1991-92	Lower Peninsula	96.5	
	Upper Peninsula	77.5	80.3
1993-94	Lower Peninsula	96.4	
	Upper Peninsula	78.4	81.4

As for the teacher/pupil ratio, the gap has only slightly increased (91.9 percent to 91.1 percent of the Upper Peninsula as percent of the Lower Peninsula) between the Lower Peninsula and the Upper Peninsula (Table 3.3, Figure 3). The gap in the teacher/pupil ratio too has remained similar between the Metropolitan areas and the

Lower Peninsula (99.5 percent to 98.9 percent of the Lower Peninsula as percent of the Metropolitan areas) as well as the Upper Peninsula (91.4 percent to 90.1 percent of the Upper Peninsula as percent of the Metropolitan areas). The number of students per teacher is slightly higher throughout the study period in Metropolitan areas and Lower Peninsula than in Upper Peninsula. The teacher/pupil ratio appears to be essentially standardized within the States, but the Upper Peninsula, with its sparser population maintains a slight advantage (i.e. a lower teacher/pupil ratio).

Table 3.3: Regional Distribution of Teacher/Pupil Ratio: Michigan, by Region, 1974 -1994

	Michigan Region	As Percentage of Metro Area Average	As Percentage of Lower Peninsula Average
1979-80	Lower Peninsula	99.5	
	Upper Peninsula	91.4	91.9
1989-90	Lower Peninsula	99.7	
	Upper Peninsula	93.5	93.8
1991-92	Lower Peninsula	99.5	
	Upper Peninsula	90.7	91.2
1993-94	Lower Peninsula	98.9	
	Upper Peninsula	90.1	91.1

ACT Scores (Achievement Scores)

The Upper Peninsula started out the study period, in 1979/80, with slightly higher ACT scores than the Lower Peninsula. But by the end of the study period, in 1993/94, ACT scores were essentially the same for the Upper Peninsula as for both metropolitan and nonmetropolitan Lower Peninsula (Table 3.4). The comprehensive ACT scores are and have remained comparatively similar between the Metropolitan areas and the nonmetropolitan Lower Peninsula (Figure 4). Both Metropolitan areas and

Table 3.4: Regional Distribution of ACT Scores Mean Average: Michigan, by Region, 1974 - 1994

As Percentage of Michigan Metro Area ACT Score Average

	Michigan Region	English	Math	Reading	Science	Comprehensive
1974-75	Lower Peninsula	99.7	98.0	99.7	100.1	99.2
	Upper Peninsula	102.9	102.3	102.1	101.6	102.0
1979-80	Lower Peninsula	98.8	97.3	N/A	N/A	98.9
	Upper Peninsula	101.4	100.6	N/A	N/A	100.7
1989-90	Lower Peninsula	102.0	98.8	102.9	103.2	99.8
	Upper Peninsula	103.2	99.2	103.5	102.8	100.6
1991-92	Lower Peninsula	99.6	99.3	99.7	101.0	99.8
	Upper Peninsula	99.7	99.5	99.8	101.2	100.0
1993-94	Lower Peninsula	99.7	98.6	99.8	100.5	99.6
	Upper Peninsula	99.3	99.9	99.0	100.8	99.7

As Percentage of Lower Peninsula ACT Score Average

	Michigan Region	English	Math	Reading	Science	Comprehensive
1974-75	Upper Peninsula	103.2	104.4	102.4	101.6	102.8
1979-80	Upper Peninsula	102.6	103.3	N/A	N/A	101.8
1989-90	Upper Peninsula	101.1	100.4	100.5	99.7	100.9
1991-92	Upper Peninsula	100.1	100.2	100.1	100.2	100.2
1993-94	Upper Peninsula	99.6	101.3	99.1	100.3	100.1

the nonmetropolitan Lower Peninsula closed the gap with the Upper Peninsula by improving their performance on all components (English, Math, Reading, and Science) of the ACT tests (Figures 21, 22, 23, 24).

Summary of Michigan Observations

The funding gap between Michigan's Upper Peninsula and both metro and nonmetro Lower Peninsula areas increased over the years, 1974/75 -1993/94. Thus, there are lesser resources becoming available to the students in the marginalized region of Michigan, relatively speaking. Regional inequalities have become more evident. Teacher salaries in Michigan's Upper Peninsula also decreased in comparison to the Lower Peninsula and the Metropolitan areas. But the average family income in the Upper Peninsula is 70 percent of the Lower Peninsula, one could assume that teachers in the Upper Peninsula may be doing relatively better than their peers downstate. The Upper Peninsula has the least amount of students per teacher among the regions, probably because of the sparsely populated rural areas in Upper Peninsula Michigan. ACT scores were only slightly higher for the Upper Peninsula in the 1970s but the Lower Peninsula and Metropolitan areas have caught up by the end of the study period and there are now negligible differences between the three regions.

KENTUCKY

School funding per pupil

The per pupil funding gap between West/Central Kentucky and Kentucky Metropolitan areas, and between Appalachian Kentucky and Kentucky Metropolitan areas has narrowed over the period of twenty years, 1974 to 1994 but especially particularly for Appalachian Kentucky. More importantly, there is now a per pupil funding gap between West/Central Kentucky and Appalachian Kentucky in favor of Appalachian Kentucky. Appalachian Kentucky had more overall per pupil funding in 1994 than did West/Central Kentucky. West/Central Kentucky has had a modest overall increase in all sources of funding per pupil relative to Metropolitan areas, increasing

Table 3.5: Kentucky Percentage Differences between Regions on Sources of School Funding, 1974 - 1994

WestCentral and Appalachian Kentucky as Percentage of Metro Areas Per Capita School Funding:

	Kentucky Region	Local Funding	State Funding	Federal Funding	All Funding
1974-75	WestCentral	50.1	108.8	85.0	79.2
	Appalachian	22.3	120.1	134.4	78.9
1979-80	WestCentral	37.4	100.1	122.6	83.1
	Appalachian	17.8	98.6	178.9	79.2
1989-90	WestCentral	39.9	104.7	127.7	82.8
	Appalachian	22.2	105.3	181.5	80.8
1991-92	WestCentral	50.3	111.7	107.4	89.4
	Appalachian	34.0	124.7	150.2	94.7
1993-94	WestCentral	51.3	114.7	100.8	90.1
	Appalachian	34.3	132.7	139.9	97.4

Appalachian Kentucky as Percentage of WestCentral Kentucky Per Capita School Funding:

	Kentucky Region	Local Funding	State Funding	Federal Funding	All Funding
1974-75	Appalachian	44.5	110.4	158.1	99.7
1979-80	Appalachian	47.4	98.5	146.0	95.3
1989-90	Appalachian	55.7	100.6	142.1	97.5
1991-92	Appalachian	67.6	111.7	139.9	105.9
1993-94	Appalachian	66.9	115.7	138.8	108.1

from 79.2 percent in 1974 to 90.1 percent in 1994 (Table 3.5). Appalachian Kentucky also has had an overall but much larger increase over the years in all sources of funding per pupil relative to Metropolitan area funding. The Appalachian Kentucky funding as a proportion of the Metropolitan area funding increased from 78.9 percent to 97.4 percent over the years (Table 3.5) bringing per pupil funding in Appalachian Kentucky to a nearly equal level with Metropolitan areas and surpassing per pupil funding level in West/Central Kentucky (Figure 5). In proportion to West/Central Kentucky, Appalachian Kentucky's funding from all sources per pupil was nearly equal in 1974 at 99.7 percent and had surpassed West/Central Kentucky in 1994 and was 108.1 percent of West/Central Kentucky funding in 1994 (Table 3.5).

Table 3.6: Regional Distribution of Average Teacher's Salary: Kentucky, by Region, 1974 - 1994

	Kentucky Region	As Percentage of Metro Area Average	As Percentage of WestCentral Average
1974-75	WestCentral	87.0	
	Appalachian	85.1	97.7
1979-80	WestCentral	91.2	
	Appalachian	88.6	97.2
1989-90	WestCentral	91.9	
	Appalachian	88.5	96.4
1991-92	WestCentral	93.2	
	Appalachian	94.5	101.4
1993-94	WestCentral	93.0	
	Appalachian	94.2	101.3

Teacher Salaries and Teacher/pupil Ratio

Teacher's salaries in both West/Central Kentucky and Appalachian Kentucky increased somewhat, from 1974/75 to 1993/94, in comparison with the Metropolitan

areas. West/Central Kentucky increased from 87.0 percent as a proportion of Metropolitan area salary to 93.0 percent in 1994 while Appalachian Kentucky increased from 85.1 percent to 94.2 percent as proportion of the Metropolitan area salary. Teacher salaries in Appalachian Kentucky, which were 97.7 percent of West/Central Kentucky teacher salary in 1974, increased and slightly surpassed it and was 101.3 percent of West/Central region salary in 1994 (Table 3.6, Figure 6).

West/Central Kentucky had about equal and Appalachian Kentucky had more students per teacher in 1974 in comparison to Metropolitan areas. By 1994, West/Central Kentucky and Appalachian Kentucky both had less students per teacher at 97.0 percent and 93.4 percent as proportion of the Metropolitan area teacher/pupil ratio. Appalachian Kentucky started out in the study period with more students per teacher than West/Central Kentucky and decreased from 101.9 percent to 96.3 percent as a proportion of West/Central Kentucky teacher/pupil ratio by the end of the study period (Table 3.7,

Table 3.7: Regional Distribution of Teacher/Pupil Ratio: Kentucky, by Region, 1974 - 1994

	Kentucky Region	As Percentage of Metro Area Average	As Percentage of WestCentral Average
1974-75	WestCentral Kentucky	100.5	
	Appalachian Kentucky	102.4	101.9
1979-80	WestCentral Kentucky	104.5	
	Appalachian Kentucky	110.2	105.5
1989-90	WestCentral Kentucky	100.8	
	Appalachian Kentucky	103.0	102.2
1991-92	WestCentral Kentucky	97.6	
	Appalachian Kentucky	96.4	98.8
1993-94	WestCentral Kentucky	97.0	
	Appalachian Kentucky	93.4	96.3

Table 3.8: Regional Distribution of ACT Scores Mean Average: Kentucky, by Region, 1974 - 1994

As Percentage of Kentucky Metro Area ACT Score Average

	Kentucky Region	English	Math	Reading	Science	Comprehensive
1974-75	WestCentral	99.2	94.4	95.1	98.5	97.0
	Appalachian	95.0	84.1	90.9	94.1	91.1
1979-80	WestCentral	99.2	95.7	0.0	0.0	97.8
	Appalachian	95.4	88.6	0.0	0.0	93.1
1989-90	WestCentral	99.5	97.8	99.7	105.8	98.3
	Appalachian	94.2	91.0	95.2	101.5	92.8
1991-92	WestCentral	98.7	97.8	98.3	97.9	98.1
	Appalachian	93.3	91.7	92.7	93.1	92.6
1993-94	WestCentral	99.0	98.7	97.7	98.7	98.6
	Appalachian	92.1	90.5	91.4	92.9	91.9

As Percentage of WestCentral Kentucky ACT Score Average

	Kentucky Region	English	Math	Reading	Science	Comprehensive
1974-75	Appalachian	95.8	89.1	95.5	95.6	93.9
1979-80	Appalachian	96.1	92.5	0.0	0.0	95.1
1989-90	Appalachian	94.6	93.0	95.5	95.9	94.4
1991-92	Appalachian	94.6	93.8	94.4	95.0	94.5
1993-94	Appalachian	93.0	91.6	93.5	94.2	93.3

Figure 7). There has been an overall decrease in the teacher/pupil ratio in all regions of Kentucky between 1974 and 1994 (Figure 7).

ACT Scores (Achievement Scores)

ACT scores in Appalachian Kentucky have been consistently lower than West/Central and metro Kentucky. The difference between metro and West/Central Kentucky has been and remains minor.

West/Central Kentucky comprehensive ACT scores 1974/75 were 97.0 percent of metropolitan areas but had increased to 98.6 percent of the metro areas in 1993/94 while the Appalachian Kentucky ACT comprehensive scores had hardly changed, starting from 91.1 percent of the metro areas in 1974/75 to 91.9 percent in 1993/94. The comprehensive ACT score for Appalachian Kentucky in proportion of West/Central Kentucky was 93.9 percent in 1974/75 and remained 93.9 percent in1993/94 (Table 3.8, Figure 8).

Summary of Kentucky Observations

School funding in Appalachian Kentucky had lagged considerably behind both West/Central Kentucky and Kentucky Metropolitan regions in 1974 but the gap had closed by 1994. In fact, by 1994/95 Appalachian Kentucky had surpassed West/Central Kentucky in per pupil funding and was nearly equal to Metropolitan Kentucky per pupil funding. Further, there has been an overall decrease in the teacher/pupil ratio in all regions of Kentucky . Teacher salaries increased in the Appalachian Kentucky region surpassing West/Central Kentucky teacher salaries and becoming nearly equal to the Metropolitan area average. Nevertheless, Appalachian Kentucky ACT scores have continuously lagged behind the other Kentucky regions during the entire study period and had even fallen further behind by 1994.

SOURCES OF FUNDING

As can be observed from the findings above, patterns of change were different in Kentucky and Michigan during this study period. Regional differentials in per student

funding in Michigan seem to have remained constant, relatively speaking, while there have been major changes in regional funding differentials in Kentucky.

Michigan

Local sources of school funding has generally become more important in school financing in Michigan, but the pattern has been varied over the years. Clearly, local funding is and has been the biggest source of funding for all regions of Michigan except in the early 1970s in the Upper Peninsula, when the State contributed over half. Local funding contributes approximately 60 percent of school funding in the Lower Peninsula and Metropolitan areas while it makes up only 50 percent of all sources of funding in the Upper Peninsula. Federal funding provides the least amount of funding, never going over a nine percent in any of the regions between 1974 and 1994. (Table 3.9)

The Lower Peninsula local funding per pupil has increased proportionally over the years while State and Federal proportions have decreased. Local funding increased from 57.5 percent of all funding to 63.7 percent while State funding decreased from 36.9 percent to 28.6 percent (Table 3.9, Figure 9). Federal funding dropped from 5.4 percent to 4.5 percent (Figure 9). Local funding has been the biggest funding source for the Lower Peninsula within the study period and in the recent years the burden on it as a source of funding has increased (Table 3.9, Figure 10).

During the early 1970s the Upper Peninsula had proportionally more funding per pupil from State sources than Local sources but Local funding had surpassed State funding by far by the end of the study period. State funding took over as the main source of funding per pupil between the years of 1974 and 1980 (Figure 11). The Upper Peninsula gets proportionally more from Federal sources than is the case downstate. Local funding increased from 41.4 percent to 49.6 percent. State funding decreased from 50.9 percent to 41.3 percent. Federal funding decreased from 7.5 percent to 6.1 percent (Table 3.9, Figure 12).

Local funding has been the biggest source of funding for the Metropolitan areas and its role has increased over the study period (Figure 13) from 58.5 percent of all

sources to 64.5 percent. The State funding decreased from 35.8 percent to 27.7 percent while Federal funding decreased from 5.5 to 4.5 percent (Table 3.9, Figure 14).

Table 3.9: Local, State, Federal Funding Per Pupil as Percent of Total Funding: Michigan, by Regions, 1974 - 1994

	Michigan Region	Local Funding Per Pupil	State Funding Per Pupil	Federal Funding Per Pupil
1974-75	Lower Peninsula	57.5	36.9	5.4
	Upper Peninsula	41.4	50.9	7.5
	Metro Areas	58.5	35.8	5.5
1979-80	Lower Peninsula	58.5	35.5	5.8
	Upper Peninsula	51.5	40.1	8.2
	Metro Areas	58.3	35.7	5.9
1989-90	Lower Peninsula	66.5	29.5	3.9
	Upper Peninsula	52.7	41.4	5.7
	Metro Areas	67.2	28.9	3.9
1991-92	Lower Peninsula	64.1	28.0	4.2
	Upper Peninsula	50.2	42.0	5.5
	Metro Areas	64.8	27.1	4.3
1993-94	Lower Peninsula	63.7	28.6	4.5
	Upper Peninsula	49.6	41.3	6.1
	Metro Areas	64.5	27.7	4.5

Kentucky

State funding is the most important source of funding for all regions of Kentucky making up around 70 percent for West/Central and Appalachian Kentucky and 53.5 percent for Metropolitan areas (Table 3.10). Local funding has been the second biggest source of funding for West/Central and Metropolitan areas while it remains as the least amount of per pupil funding sources for Appalachian Kentucky (Table 3.10).

Local funding has been the lowest source of funding for Appalachian Kentucky and has remained consistently so over the years between 1974 and 1994 (Figure 15). It

Table 3.10: Local, State, Federal Funding Per Pupil as Percent of Total Funding: Kentucky, by Region, 1974 - 1994

	Kentucky Region	Local Funding Per Pupil	State Funding Per Pupil	Federal Funding Per Pupil
1974-75	WestCentral	28.0	55.7	16.3
	Appalachian	12.5	61.6	25.9
	Metro Areas	44.3	40.5	15.2
1979-80	WestCentral	13.8	71.0	15.1
	Appalachian	6.9	73.4	23.2
	Metro Areas	30.7	59.0	10.3
1989-90	WestCentral	17.5	71.0	11.5
	Appalachian	10.0	73.3	16.7
	Metro Areas	36.4	56.2	7.4
1991-92	WestCentral	20.1	68.8	11.1
	Appalachian	12.8	72.6	14.6
	Metro Areas	35.7	55.1	9.2
1993-94	WestCentral	20.8	68.0	11.2
	Appalachian	12.9	72.8	14.3
	Metro Areas	36.6	53.5	10.0

was 12.5 percent of all sources of funding in 1974 and had only slightly increased to 12.9 percent by 1994 (Figure 15). Federal funding made up 25.9 percent in 1974 and decreased to 14.3 percent by 1994 (Figure 15). State funding has been the biggest source of funding starting out at 61.6 percent and increasing to 72.8 percent by 1994 (Table 3.10, Figure 15).

State funding made up the highest proportion of all sources of funding for West/Central Kentucky in the beginning of the study period and had increased by the

end of the study period (Figure 16). It started out at 55.7 percent of all sources in 1974 and increased to 68.0 percent by 1994 (Figure 16). Local and Federal funding decreased over the years. Local funding dropped from 28.0 percent to 20.8 percent while Federal funding decreased from 16.3 to 11.2 percent (Table 3.10, Figure 16).

Local funding was the highest proportion of funding source at 44.3 percent for Metropolitan areas in 1974 but had decreased to 36.6 percent by 1994 (Figure 17). State funding which was the second biggest source in 1974 at 40.5 percent increased to 53.5 percent in 1994 and in doing so took over the lead from local funding to become the biggest source of funding. The reversal in leads as the major source of school funding per pupil between local funding and state funding took place in the years between 1974 and 1980 (Figure 17). There had been a decrease in Federal funding from 15.2 percent in 1974 to 10.0 percent by 1994 (Table 3.10, Figure 17).

Excepting Appalachian Kentucky, Federal funding has been the lowest source of funding in all the regions of Michigan and Kentucky during the study period. State is the most important source of funding for Kentucky regions while Local sources of funding is the leading source of funding for all Michigan regions. The importance of State funding had increased during the study period for Kentucky while it had decreased in Michigan.

Comparing The Two States

The two States exhibit different patterns of change over time in dealing with regional inequalities in school funding, teacher salaries, teacher/pupil ratios and ACT scores. The gap in per pupil funding has closed between the marginal and core regions of Kentucky in the study period while it has enlarged, with the Upper Peninsula Michigan falling further behind, in Michigan. Kentucky has vastly improved the funding of its educational infrastructure in its marginal area in comparison to the other regions within the State while the marginal area, Upper Peninsula, in Michigan has further fallen behind its counterpart regions within the State of Michigan.

Kentucky has strategically relied on the State to provide bulk of the funding for its public schools while Michigan relied more and more on the local sources as the most

important source for public school funding during the study period. With the implementation of the Kentucky Reform Act, the emphasis on State provision of funds to marginalized regions vastly increased in Kentucky. This can be observed by the closure of the gap in per pupil funding among the Kentucky regions. In Michgan, the legislation implemented in 1993 diminished the reliance on local sources as sources of funding for public schools and increased the reliance on the State to provide funds instead. This is a change in the established and increasing pattern of the growing importance of reliance on local sources for funding public schools in Michigan.

CHAPTER IV

SUMMARY AND CONCLUSION

During the past two decades, Michigan and Kentucky have instituted rather dramatic, but quite different reforms in how local primary and secondary school education is financed. These changes, especially in Kentucky, in many ways are reflected in the data we have examined here to assess changes in regional differentials and funding inequalities over the years.

The Kentucky Reform Act, of 1990, appears to be having a positive effect in leveling school funding inequities which existed in the past among Kentucky counties and regions. In 1974 dollar valuation[4] , per pupil funding in Appalachian Kentucky had increased by 84 percent, West/Central by 70 percent, and the metro areas by only 50 percent between 1974/75 and 1993/94. Per pupil educational funding in Appalachian Kentucky now surpasses that of West/Central Kentucky and has nearly caught up with per pupil educational funding in the metropolitan areas of Kentucky.

But the gap in total per pupil school funding between Michigan's Upper Peninsula and the state's metropolitan areas and between Michigan's Upper Peninsula and the Lower Peninsula has increased. In 1974 dollar valuation[5] , Michigan's Lower Peninsula and Metro area per pupil funding had increased by 45 percent and 47 percent respectively while there had only been a 30 percent increase in Michigan's Upper Peninsula from 1974/75 to 1993/94. The school funding reforms initiated in Michigan after 1994 have shifted funding responsibilities more to the State. It remains to be seen

[4] See Table H in Appendix C for the Consumer Price Index, 1974-1994
[5] See Table H in Appendix C for the Consumer Price Index, 1974-1994

whether the regional gap that has appeared during the early phase of Michigan's school funding reform is adjusted in some way or whether the Upper Peninsula region is in the early stages of what will become a difficult financial struggle to maintain the historic strength and success of its local schools. There is no question, however, that the data point to a serious emerging problem, and the manifestations of an increasing inequity in the funding of Upper Peninsula local schools.

Teacher salaries in Michigan's Lower Peninsula also lag behind those in the Metropolitan area and this has been so for the entire study period. Using the 1979/80 dollar value as the base value[6], the average teacher salary is seen to have increased 12 percent for Michigan's Lower Peninsula and metro areas while there has only been an 8 percent increase in the Upper Peninsula teacher salaries between 1979/80 and 1993/94. Though the cost of living is quite a bit less in the Upper Peninsula than it is downstate (family incomes in the UP are only 70 percent of average family incomes downstate), it is quite likely that teachers in the UP are doing reasonably well relative to their counterparts downstate.

The teacher salary gap relative to the metropolitan areas of Kentucky has narrowed for both the Appalachian and West/Central regions. Using 1974/75 dollar as the base value[7], both WestCentral and Appalachian Kentucky teacher salaries have increased by 20 percent and 24 percent respectively while metro areas teacher salary increased by only 12 percent between 1974/75 and 1993/94. Indeed, by 1994, teacher salaries in Appalachian Kentucky had surpassed those of West/Central Kentucky. This is a strong sign of the attention and importance that is now being given to enhancing the quality of local education in Kentucky rural areas (as reflected in the great increase in Appalachian Kentucky). These observations contrast sharply with what appears to be relative stagnation, in terms of teacher salaries among the regions of Michigan.

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[6] See Table H in Appendix C for the Consumer Price Index, 1974-1994

[7] See Table H in Appendix C for the Consumer Price Index, 1974-1994

The teacher/pupil ratio is another measure that reflects funding strategy differences between the two states. Kentucky, since 1974/75, has experienced an overall reduction in teacher/pupil ratios. Teacher/pupil ratios had been higher in Appalachian Kentucky at the start of the study period but by the end of 1994/95 the region had the lowest teacher/pupil ratio among the Kentucky regions. On the other hand, the teacher/pupil ratio has remained unchanged in the Michigan regions during the study period with Michigan's Upper Peninsula having the lowest teacher/pupil ratio among the regions. All regions of Michigan and Kentucky started out with nearly equal teacher/pupil ratios but by 1993/94, Kentucky regions had a much lower teacher/pupil ratio than Michigan regions. Lower teacher/pupil ratios reflect an aspect of higher quality of education available to the students as lower number of students are handled by each teacher. Therefore, over the years, Kentucky has surpassed Michigan in this indicator of quality of education while within Kentucky, Appalachian Kentucky has pulled ahead of other Kentucky regions by the end of the study period.

ACT scores tell a somewhat different story when comparing these two States and their regions. Michigan's Upper Peninsula has done quite well in comparison with the other regions of Michigan. Perhaps this is due to a selection bias among the students taking the ACT test. Motivated students aspiring to move out of the Upper Peninsula might be the ones taking the test upstate while the students taking the ACT test could be less self-selective downstate which would pull down the ACT scores for the Lower Peninsula. But ACT scores have remained similar for the peripheral and core regions of Michigan throughout the study period. In West/Central Kentucky ACT scores in 1994/95 were nearly equal to the Metropolitan area scores but Appalachian Kentucky ACT scores lagged behind both regions throughout the study period. This could be disheartening if one takes into account the efforts that have been put into reinforcing schools in the Appalachian region. But it should be kept in mind that Appalachian Kentucky has borne the brunt of neglect for a long time and it will take quite a few years

for this marginalized region to catch up with its stronger counterparts in the other parts of Kentucky.

With implementation of the Kentucky Education Reform Act, Kentucky has attempted to integrate its rural marginal areas into the mainstream. Funding per pupil as well as teacher salaries have increased enormously in Appalachian Kentucky, where most of the counties are poor and rural, in proportion to the other regions in the State. The average teacher/pupil ratio in Appalachian Kentucky has declined. But not much has changed in Michigan. Indeed, the situation appears to have worsened in Michigan's Upper Peninsula. Funding per pupil and teacher salaries in the Upper Peninsula still lag behind the other regions of Michigan and the teacher/pupil ratio has remained the same.

How do the results of this study relate to theories of uneven development and to human capital theory? Perspectives on uneven development is derived from Marxist theory. Trotsky was the originator of the phrase drawing the concept of "uneven development" from Marxist literature and consistent with Marxist ideas about the discontinuities in capitalism. McIntyre (1992) writes that for Trotsky, unevenness was "the most general law of historic process which reveals itself most sharply and complexly in the destiny of the backward countries." Trotsky's conceptualization of unevenness can also be related to the regions within the United States and is relevant in looking at the historical processes of the rise of peripheral, marginal regions within various parts of America, such as northern Michigan and eastern Kentucky. Upper Peninsula Michigan was a rich source of timber as well as mining and was exploited for these resources while Appalachian Kentucky was rich in coal as well as timber. These resources were heavily exploited by outside capital, thus marginalizing these two regions in the process. The remnants of marginalization of these regions persist to the present day as reflected in the per pupil funding and teacher salary differentials within the two States. Kentucky has made efforts to demarginalize its eastern mountain region, which is reflected in the student funding and teacher salary differentials which have undergone

remarkable changes bringing them up to par with WestCentral Kentucky and nearly equaling the metro area student funding and teacher salary levels. As for Michigan, the marginalization process still persists, and the danger is that education in the Upper Peninsula will be further marginalized as can be seen from the existing and increasing regional differentials of per pupil funding and teacher salaries.

Per pupil funding, teacher pupil ratios as well as teacher salaries can be taken as indicators of investment in human capital. Human capital refers to skills and abilities of individuals. The notion of human capital, introduced by Becker (1962) and Schultz (1962), regards education in a manner analogous to financial capital in which individuals invest in further increments of education according to rational calculations of returns on their investment. (Smith, Beaulieu, Seraphine, 1995) Investment in human capital is of great importance. Probably the most impressive piece of evidence testifying to the economic importance of human capital is that more highly educated and skilled persons tend to earn more than others. (Becker, 1964) In my study, differentials in human capital investment were noticeable within the regions of both states. But the direction taken in the two states to equalize the differences varies. Kentucky has increased its input into human capital investment in its marginal areas over the years, especially after the implementation of the Kentucky Education Reform Act of 1990 while Michigan's Upper Peninsula is faring even less well than the regions downstate by the end of the study period. Michigan education policy-makers can learn invaluable lessons from Kentucky about how to revitalize a rural peripheral region within its jurisdiction.

Further research should be done looking at changes which might have taken place from 1993/94 to 1996/97, especially since Michigan legislation to shift funding from local to state sources was implemented in 1994. It would also be interesting to look at changes which might have taken place in Kentucky relative to educational funding as well as ACT scores since there had been no improvement in the ACT scores in the Appalachian region even in 1993/94 which was a few years after the implementation of

Appalachian region even in 1993/94 which was a few years after the implementation of the Kentucky Education Reform Act. The relationship between per pupil funding and ACT scores could also be explored in further studies. It should be kept in mind that ACT tests, like most other tests currently available, are not a good method to evaluate educational programs in terms of efficiency and effectiveness of school programs within State regions and between States. The national testing program currently being proposed by President Clinton, if implemented, might become an enormous source of data to evaluate educational programs.

Education is a very important factor in opening up career opportunities for young people. It is a capital investment that young people can build upon to ensure better futures for themselves and their families. But, as can be seen from this study, some regional that affect educational opportunities tend to persist, particularly in Michigan and Kentucky regions. Kentucky, it seems is trying desperately to achieve regional equality of education and to overcome its long history of overlooking the human resource potential located in its eastern mountain region. Equality of educational opportunity, and more importantly, the quality of education should be ensured so that there is an equal chance for everyone to maximize their inherent potential of becoming productive members of American society. Without that, the avowal of equality which has been a persistent theme in American history will be present only as rhetoric.

Figure 1: Michigan: School Funding Total Per Pupil: 1974-1994

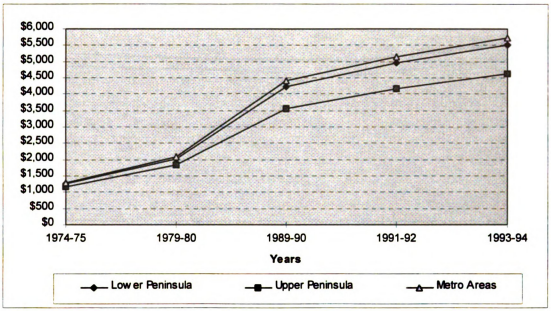


Figure 2: Michigan: Teacher's Salary Average: 1974-1994

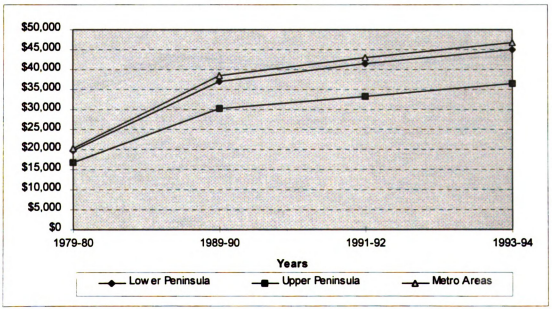


Figure 3: Michigan: Teacher/Pupil Ratio Average: 1974-1994

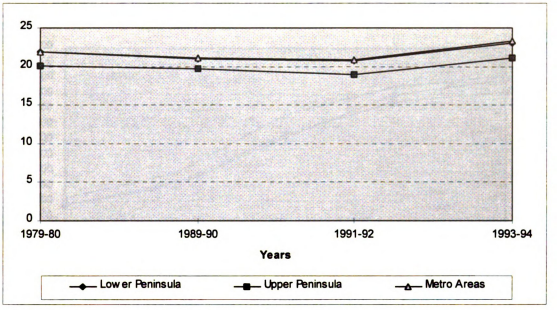


Figure 4: Michigan: Comprehensive ACT Scores Average, 1974-1994

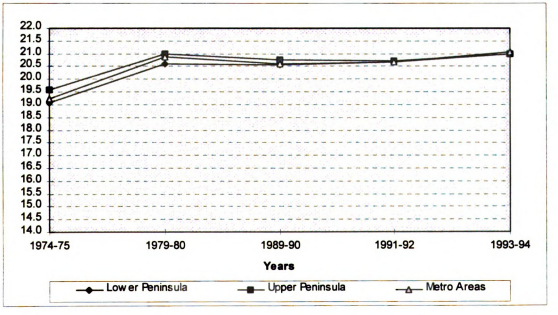


Figure 5: Kentucky: School Funding Total Per Pupil: 1974-1994

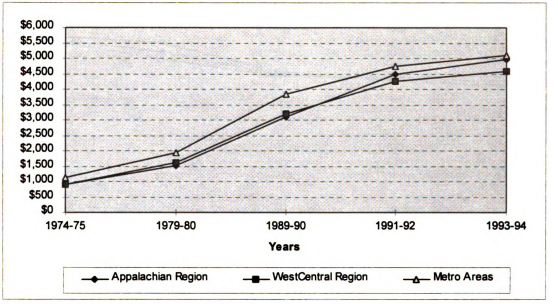


Figure 6: Kentucky: Teacher's Salary Average, 1974-1994

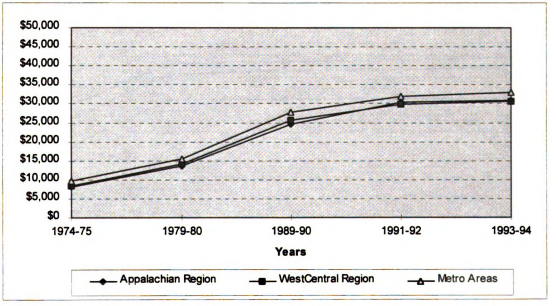


Figure 7: Kentucky: Teacher/Pupil Ratio Average, 1974-1994

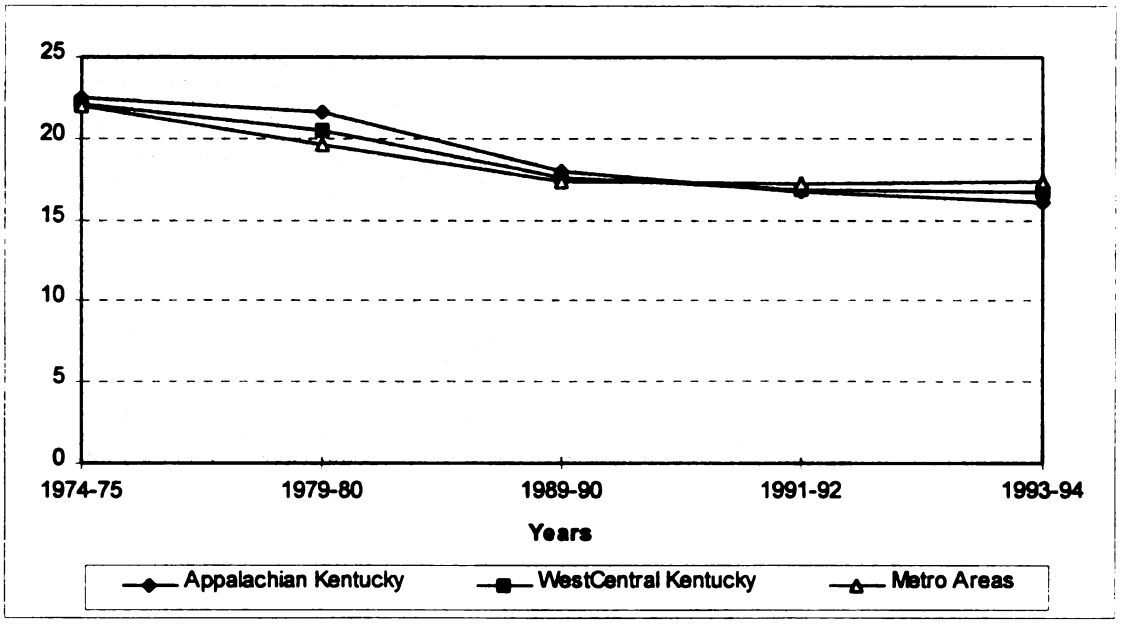


Figure 8: Kentucky: Comprehensive ACT Scores Average, 1974-1994

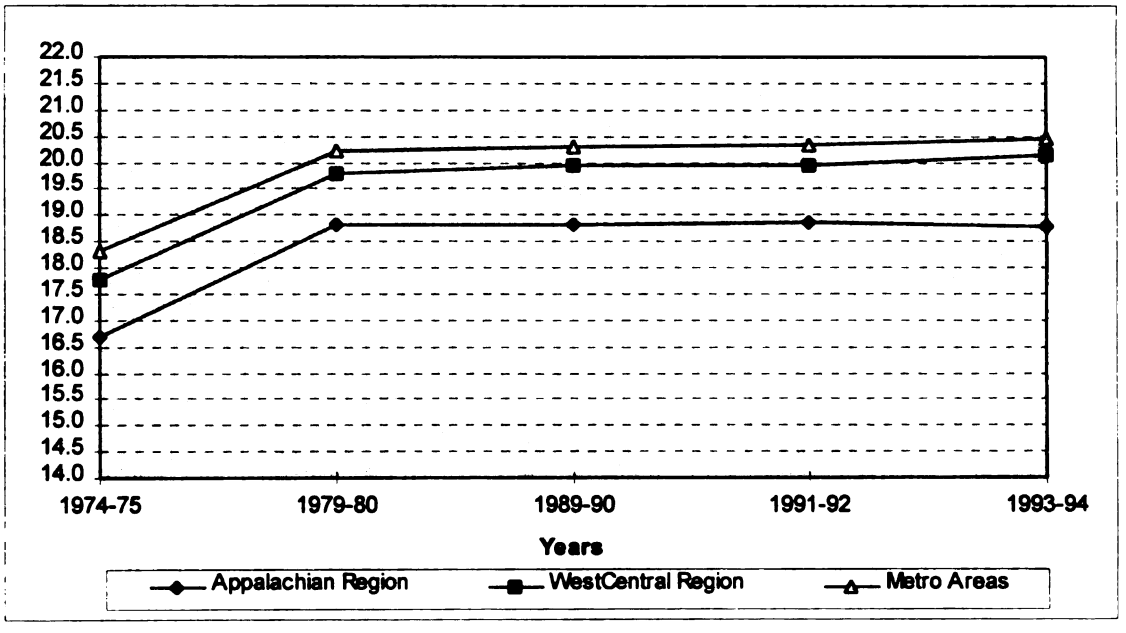


Figure 9: Michigan Lower Peninsula: Funding from Local, State, Federal Sources as Percent of Total Funding Per Pupil, 1974 - 1994

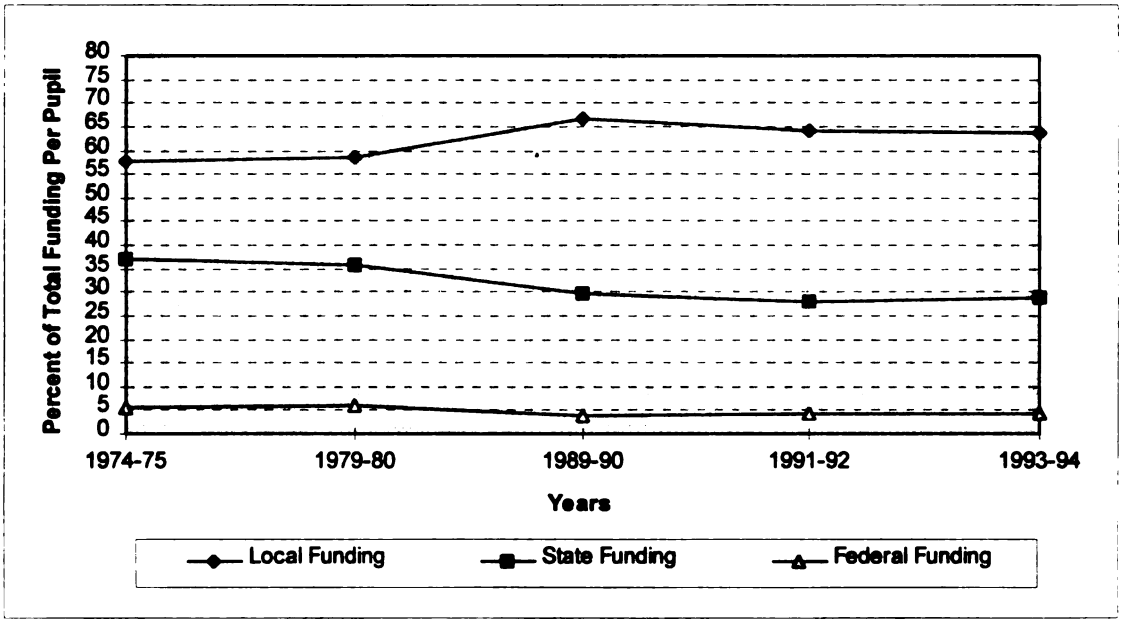


Figure 10: Michigan Lower Peninsula: School Funding Per Pupil by Source, 1974-1994

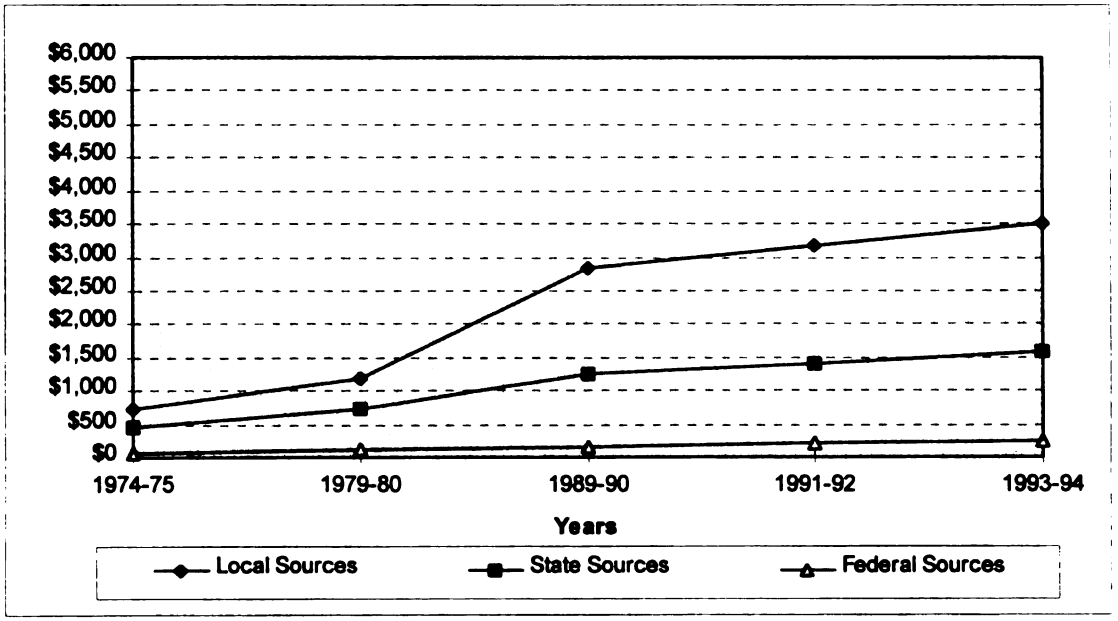


Figure 11: Michigan Upper Peninsula: School Funding Per Pupil by Source, 1974 - 1994

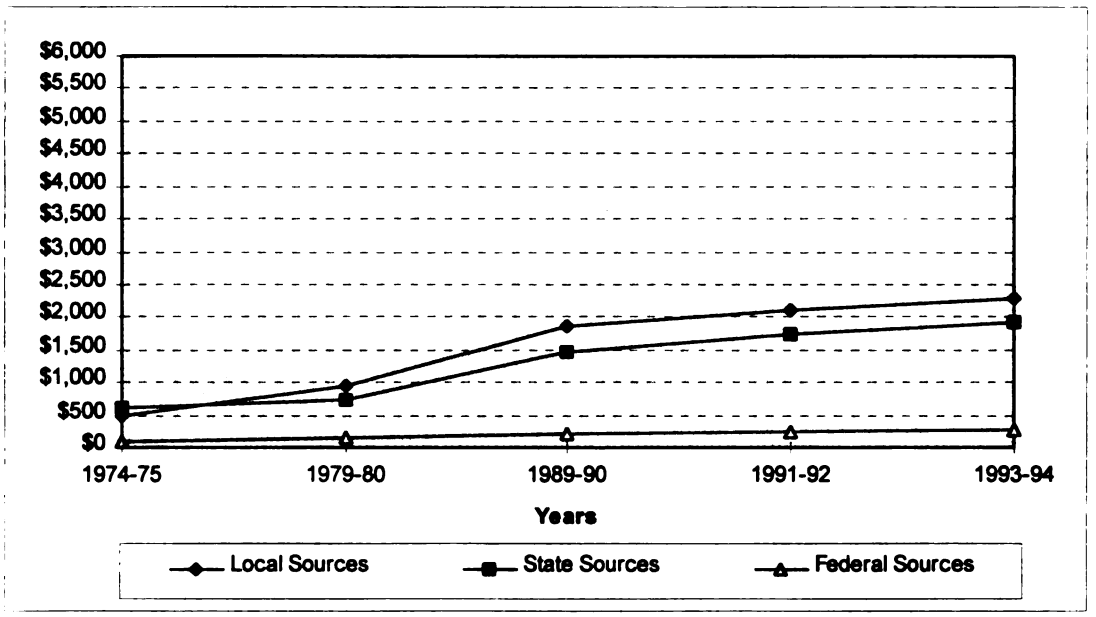


Figure 12: Michigan Upper Peninsula Funding for Local, State, Federal Sources as Percent of Total Funding Per Pupil, 1974 - 1994

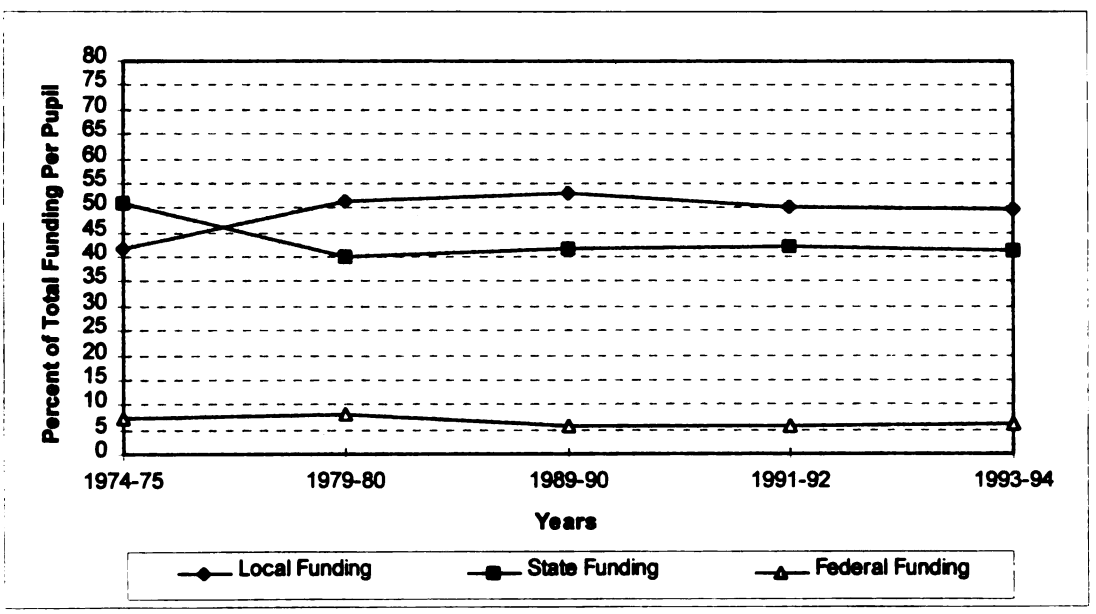


Figure 13: Michigan Metro Areas: School Funding Per Pupil by Source, 1974 - 1994

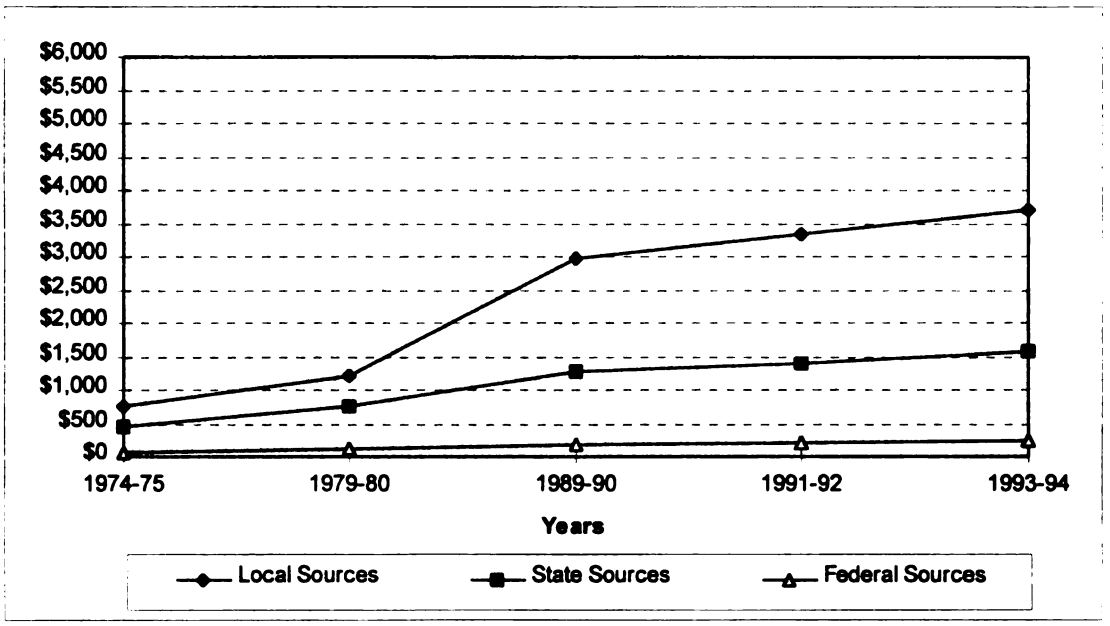


Figure 14: Michigan Metro Areas: Funding from Local, State, Federal Sources as Percent of Total Funding Per Pupil, 1974 - 1994

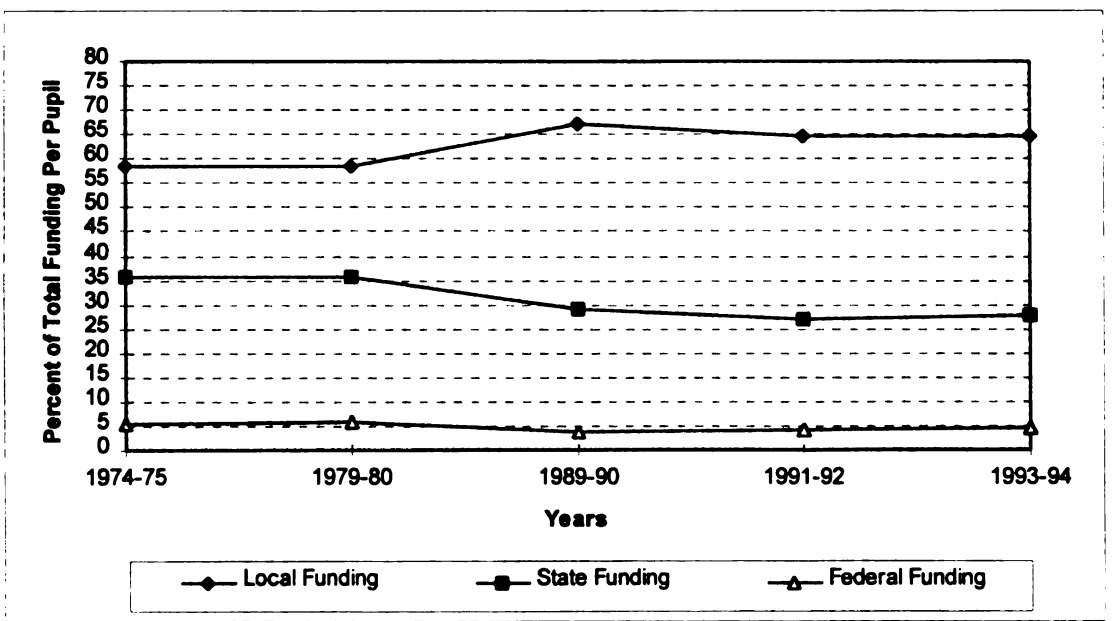


Figure 15: Kentucky Appalachian Region: Funding from Local, State, Federal Sources as Percent of Total Funding Per Pupil, 1974 - 1994

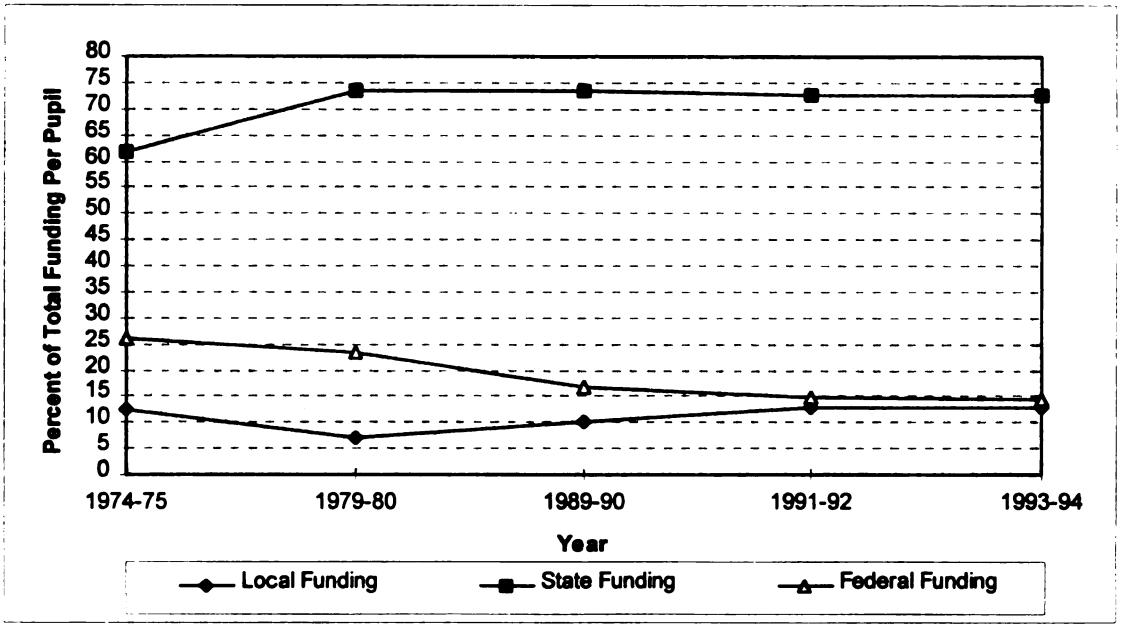


Figure 16: Kentucky WestCentral Region: Funding from Local, State, Federal Sources as Percent of Total Funding Per Pupil, 1974 - 1994

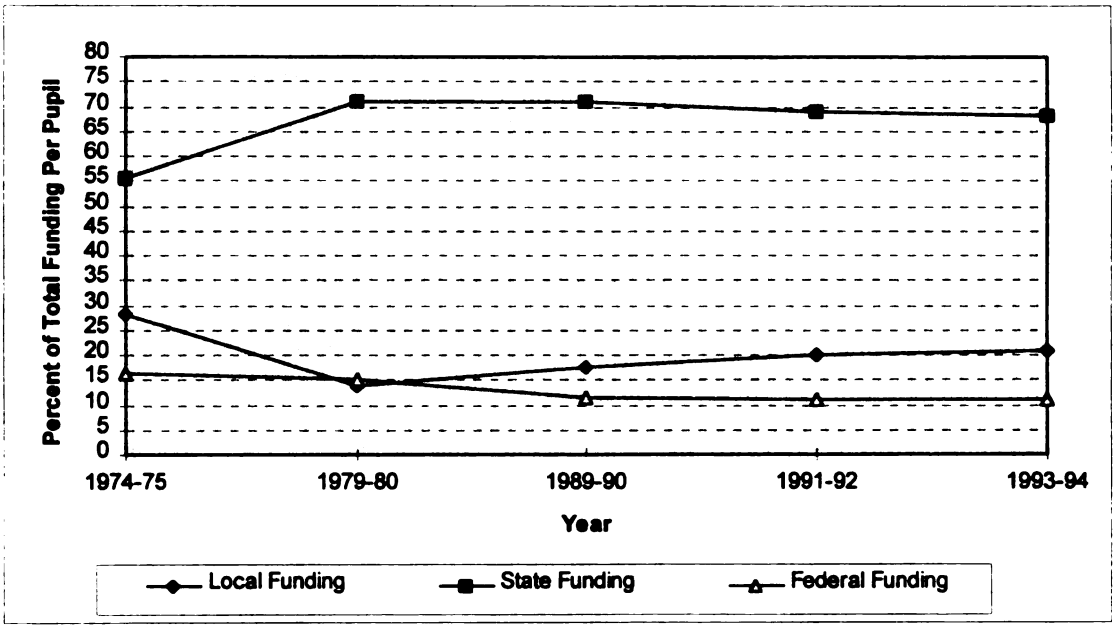


Figure 17: Kentucky Metro Areas: Funding from Local, State, Federal Sources as Percent of Total Funding Per Pupil, 1974 - 1994

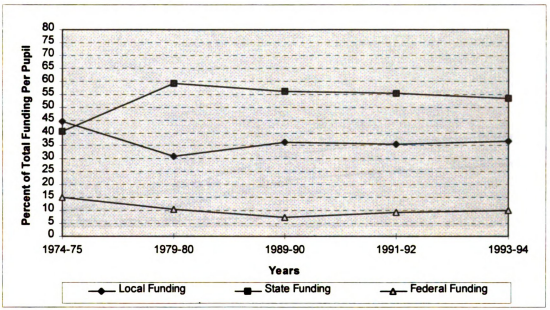


Figure 18: Kentucky WestCentral Region: School Funding Per Pupil by Source, 1974 - 1994

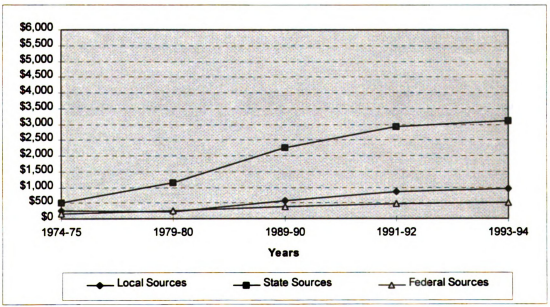


Figure 19: Kentucky Metro Areas: School Funding Per Pupil by Source, 1974 - 1994

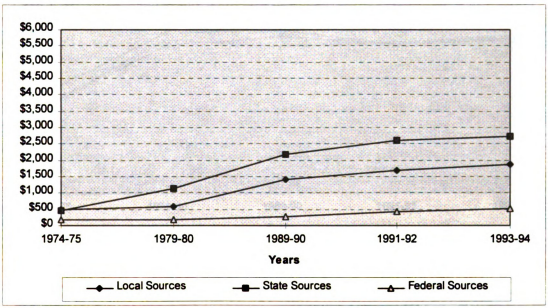


Figure 20: Kentucky Appalachian Region: School Funding Per Pupil by Source, 1974 - 1994

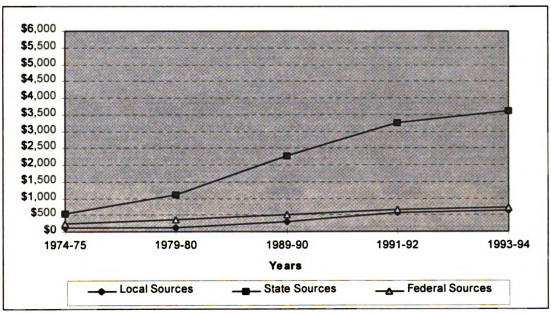


Figure 21: Michigan: ACT English Scores Average, 1974 -1994

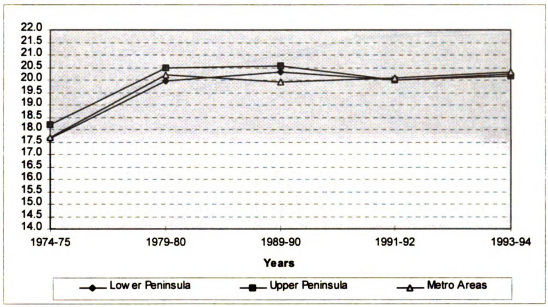


Figure 22: Michigan: ACT Math Scores Average, 1974 - 1994

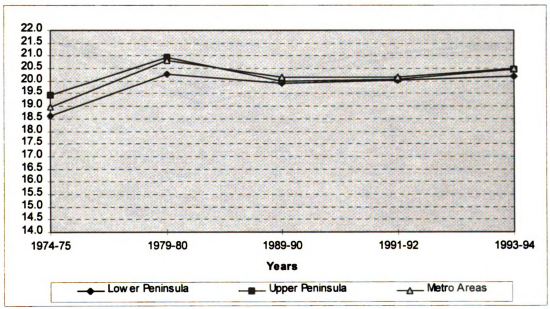


Figure 23: Michigan: ACT Reading Scores Average, 1974 - 1994

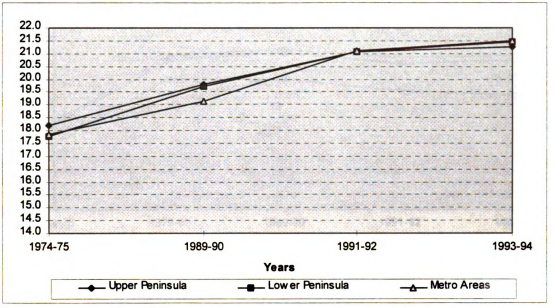


Figure 24: Michigan: ACT Science Scores Average, 1974 - 1994

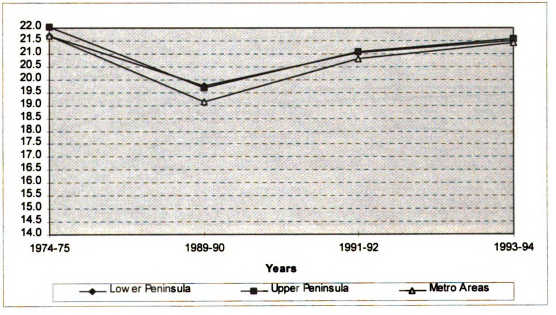


Figure 25: Kentucky: ACT English Scores Average, 1974 - 1994

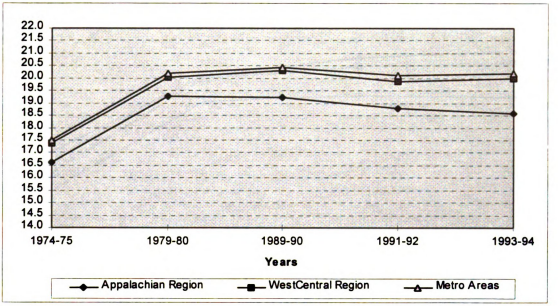


Figure 26: Kentucky: ACT Math Scores Average, 1974 - 1994

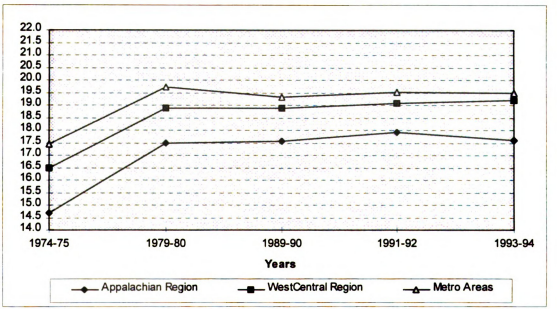


Figure 27: Kentucky: ACT Reading Scores Average, 1974 - 1994

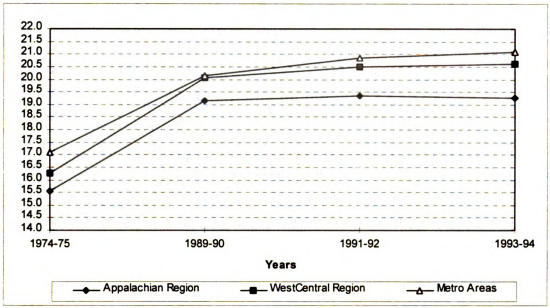
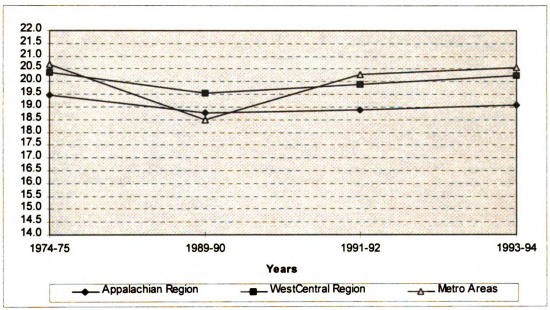


Figure 28: Kentucky: ACT Science Scores Average, 1974 - 1994



APPENDICES

APPENDIX A

DELINEATION OF STUDY REGIONS

Michigan Upper Peninsula Region (Non-Metropolitan Counties)

1. Schoolcraft
2. Dickinson
3. Gogebic
4. Houghton
5. Delta
6. Alger
7. Baraga
8. Chippewa
9. Marquette
10. Menominee
11. Ontonagon
12. Mackinac
13. Iron
14. Keweenaw
15. Luce

Michigan Lower Peninsula Region (Non-Metropolitan Counties)

1. Alcona
2. Alpena
3. Antrim
4. Arenac
5. Barry
6. Benzie
7. Branch
8. Cass
9. Charlevoix
10. Cheboygan
11. Clare
12. Crawford
13. Emmet
14. Gladwin
15. Grand Traverse
16. Gratiot
17. Hillsdale
18. Huron
19. Ionia
20. Iosco
21. Isabella
22. Kalkaska
23. Lake
24. Leelanau
25. Manistee
26. Mason
27. Mecosta
28. Missaukee
29. Montcalm
30. Montmorency
31. Newaygo
32. Oceana
33. Ogemaw
34. Osceola
35. Oscoda
36. Otsego
37. Presque Isle
38. Roscommon
39. Sanilac
40. Shiawassee
41. St. Joseph
42. Tuscola
43. Wexford

Michigan Metropolitan Area (All Metro Counties are in the Lower Peninsula)

1. Allegan
2. Bay
3. Berrien
4. Calhoun
5. Clinton
6. Eaton
7. Genesee
8. Ingham
9. Jackson
10. Kalamazoo
11. Kent
12. Lapeer
13. Leenawee
14. Livingston
15. Macomb
16. Midland
17. Monroe
18. Muskegon
19. Oakland
20. Ottawa
21. Saginaw
22. St. Clair
23. Van Buren
24. Washtenaw
25. Wayne

Kentucky Appalachian Region (Non-Metropolitan Counties)

1. Bell
2. Breathitt
3. Clay
4. Elliot
5. Estill
6. Floyd
7. Greenup
8. Harlan
9. Jackson
10. Johnson
11. Knott
12. Knox
13. Laurel
14. Lee
15. Leslie
16. Letcher
17. Lewis
18. Martin
19. Magoffin
20. McCreary
21. Menifee
22. Morgan
23. Owsley
24. Perry
25. Pike
26. Powell
27. Rowan
28. Whitley
29. Wolfe

Kentucky West/Central Region (Non-Metropolitan Counties)

1. Adair
2. Allen
3. Anderson
4. Ballard
5. Barren
6. Bath
7. Boyle
8. Bracken
9. Breckenridge
10. Butler
11. Caldwell
12. Calloway
13. Carlisle
14. Carroll
15. Casey
16. Clinton
17. Crittendon
18. Cumberland
19. Edmonson
20. Fleming
21. Franklin
22. Fulton
23. Gallatin
24. Garrad
25. Grant
26. Graves
27. Grayson
28. Green
29. Hancock
30. Hardin
31. Harrison
32. Hart
33. Henry
34. Hickman
35. Hopkins
36. Larue
37. Lawrence
38. Lincoln
39. Livingston
40. Logan
41. Lyon
42. Madison
43. Marion
44. Marshall
45. Mason
46. McCracken
47. McLean
48. Meade
49. Mercer
50. Metcalfe
51. Monroe
52. Montgomery
53. Muhlenberg
54. Nelson
55. Nocholes
56. Ohio
57. Owen
58. Pendleton
59. Pulaski
60. Robertson
61. Rockcastle
62. Russell
63. Simpson
64. Spencer
65. Taylor
66. Todd
67. Trigg
68. Trimble
69. Union
70. Warren
71. Washington
72. Wayne
73. Webster

Kentucky Metropolitan Areas (* Indicates Appalachian Metro Counties)

1. Boone
2. Boyde
3. Bourbon
4. Bullitt
5. Campbell
6. Carter
7. Christian
8. Clark
9. Davies
10. Fayette
11. Greenup *
12. Henderson
13. Jefferson
14. Jessamine
15. Kenton
16. Oldham
17. Scott
18. Shelby
19. Woodford

APPENDIX B

FORMULAS FOR DATA CONSOLIDATION

School funding (Local, State, and Federal level)

Per Pupil funding in school district multiplied by No. of Pupils in the school district = Total funding in school district

Total funding in all school districts in a county divided by Total no. of pupils in all school districts in a county = Per pupil funding at county level

The per pupil funding at the regional level is also calculated using the similar formula.

Per pupil funding in a county multiplied by No. of pupils in a county = Total funding in a county

Total funding all counties in the region divided by Total no. of pupils all counties in the region = Per pupil funding at the regional level

Average Teacher's Salary

No. of pupils divided by Teacher/pupil ratio = No. of teachers

No. of teachers in school district multiplied by Average annual salary of teachers in school district = Total funding for teacher's salary in school district

Total average annual salary in all school districts in the county divided by No. of teachers in all school districts in the county = Average annual salary of teachers at the county level

Average salary at the regional level was calculated using similar formula.

No. of teachers in county multiplied by Average annual salary of teachers in county = Total funding for teacher's salary in county

Total average annual salary in all counties in the region divided by No. of teachers in all counties in the region = Average annual salary of teachers at the regional level

Pupil/Teacher ratio

Total no. of pupils at the county level divided by Total no. of teachers at the county level = Pupil/Teacher ratio at the county level

Total no. of pupils at the regional level divided by Total no. of teachers at the regional level = Pupil/Teacher ratio at the regional level

ACT Scores

Mean ACT scores multiplied by No. of students taking the ACT at the county level = Total ACT scores for county

Sum of total ACT scores for all the counties in the region divided by Total no. of students taking the ACT at the regional level = Mean ACT score at the regional level

APPENDIX C

TABLES

Table A: School Funding Per Pupil by Source: Michigan, by Region, 1974 -1994

	Michigan Region	Local Funding Per Pupil	State Funding Per Pupil	Federal Funding Per Pupil	Total Funding Per Pupil
1974-75	Lower Peninsula	$723	$463	$68	$1,256
	Upper Peninsula	$486	$597	$87	$1,172
	Metro Areas	$750	$460	$70	$1,283
1979-80	Lower Peninsula	$1,190	$722	$119	$2,032
	Upper Peninsula	$941	$733	$150	$1,827
	Metro Areas	$1,223	$747	$123	$2,095
1989-90	Lower Peninsula	$2,820	$1,251	$165	$4,238
	Upper Peninsula	$1,866	$1,466	$203	$3,538
	Metro Areas	$2,960	$1,271	$171	$4,405
1991-92	Lower Peninsula	$3,175	$1,388	$210	$4,954
	Upper Peninsula	$2,087	$1,746	$229	$4,157
	Metro Areas	$3,340	$1,396	$222	$5,156
1993-94	Lower Peninsula	$3,512	$1,578	$246	$5,511
	Upper Peninsula	$2,297	$1,914	$283	$4,631
	Metro Areas	$3,694	$1,589	$256	$5,727

Table B: School Funding Per Pupil by Source: Kentucky, by Region, 1974 - 1994

	Kentucky Region	Local Funding Per Pupil	State Funding Per Pupil	Federal Funding Per Pupil	Total Funding Per Pupil
1974-75	WestCentral	$250	$497	$146	$892
	Appalachian	$111	$548	$230	$890
	Metro Areas	$499	$457	$171	$1,127
1979-80	WestCentral	$221	$1,135	$242	$1,599
	Appalachian	$105	$1,118	$354	$1,524
	Metro Areas	$591	$1,134	$198	$1,923
1989-90	WestCentral	$559	$2,266	$366	$3,191
	Appalachian	$311	$2,280	$521	$3,111
	Metro Areas	$1,401	$2,165	$287	$3,852
1991-92	WestCentral	$852	$2,921	$470	$4,242
	Appalachian	$576	$3,262	$657	$4,494
	Metro Areas	$1,693	$2,615	$437	$4,745
1993-94	WestCentral	$956	$3,127	$513	$4,596
	Appalachian	$640	$3,617	$712	$4,970
	Metro Areas	$1,865	$2,727	$509	$5,101

Table C: Average Teacher's Salary and Teacher/Pupil Ratio: Michigan, by Region, 1974 - 1994

	Michigan Region	Annual Teachers' Salary	Teacher/ Pupil Ratio
1979-80	Lower Peninsula	$19,677	21.8
	Upper Peninsula	$16,626	20.1
	Metro Areas	$20,316	21.9
1989-90	Lower Peninsula	$37,105	21.0
	Upper Peninsula	$30,203	19.7
	Metro Areas	$38,432	21.1
1991-92	Lower Peninsula	$41,483	20.7
	Upper Peninsula	$33,294	18.9
	Metro Areas	$42,988	20.8
1993-94	Lower Peninsula	$44,962	23.1
	Upper Peninsula	$36,580	21.1
	Metro Areas	$46,633	23.4

Table D: Average Teacher's Salary and Teacher/Pupil Ratio: Kentucky, by Region, 1974 - 1994

	Kentucky Region	Annual Teachers' Salary	Teacher/ Pupil Ratio
1974-75	WestCentral	$8,392	22.1
	Appalachian	$8,202	22.5
	Metro Areas	$9,642	22.0
1979-80	WestCentral	$14,007	20.5
	Appalachian	$13,609	21.6
	Metro Areas	$15,365	19.6
1989-90	WestCentral	$25,531	17.5
	Appalachian	$24,600	17.9
	Metro Areas	$27,795	17.4
1991-92	WestCentral	$29,889	16.8
	Appalachian	$30,295	16.6
	Metro Areas	$32,067	17.3
1993-94	WestCentral	$30,599	16.8
	Appalachian	$30,989	16.1
	Metro Areas	$32,896	17.3

Table E: ACT Scores Mean Average: Michigan, by Region, 1974 - 1994

	Michigan Region	English	Math	Reading	Science	Comprehensive
1974-75	Lower Peninsula	17.6	18.6	17.8	21.7	19.1
	Upper Peninsula	18.2	19.4	18.2	22.0	19.6
	Metro Areas	17.7	19.0	17.8	21.7	19.2
1979-80	Lower Peninsula	20.0	20.3	N/A	N/A	20.6
	Upper Peninsula	20.5	21.0	N/A	N/A	21.0
	Metro Areas	20.2	20.8	N/A	N/A	20.9
1989-90	Lower Peninsula	20.3	19.9	19.7	19.7	20.6
	Upper Peninsula	20.5	20.0	19.8	19.7	20.7
	Metro Areas	19.9	20.1	19.1	19.1	20.6
1991-92	Lower Peninsula	20.0	20.0	21.1	21.0	20.7
	Upper Peninsula	20.0	20.1	21.1	21.1	20.7
	Metro Areas	20.1	20.2	21.1	20.8	20.7
1993-94	Lower Peninsula	20.2	20.2	21.4	21.5	21.0
	Upper Peninsula	20.2	20.5	21.3	21.6	21.0
	Metro Areas	20.3	20.5	21.5	21.4	21.1

Table F: ACT Scores Mean Average: Kentucky, by Region, 1974 - 1994

	Kentucky Region	English	Math	Reading	Science	Comprehensive
1974-75	WestCentral	17.4	16.5	16.3	20.3	17.8
	Appalachian	16.6	14.7	15.5	19.5	16.7
	Metro Areas	17.5	17.4	17.1	20.7	18.3
1979-80	WestCentral	20.0	18.9	N/A	N/A	19.8
	Appalachian	19.3	17.5	N/A	N/A	18.8
	Metro Areas	20.2	19.7	N/A	N/A	20.2
1989-90	WestCentral	20.3	18.9	20.1	19.6	19.9
	Appalachian	19.2	17.6	19.2	18.7	18.8
	Metro Areas	20.4	19.3	20.1	18.5	20.3
1991-92	WestCentral	19.9	19.1	20.5	19.9	20.0
	Appalachian	18.8	17.9	19.3	18.9	18.8
	Metro Areas	20.1	19.5	20.8	20.3	20.3
1993-94	WestCentral	20.0	19.2	20.6	20.3	20.1
	Appalachian	18.6	17.6	19.3	19.1	18.8
	Metro Areas	20.2	19.5	21.1	20.5	20.4

Table G: Ninth Graders Graduating from High School

State	Percent Graduating from High School			
	1982	1988	1989	1990
Michigan	76.4	73.6	62.8	62
Kentucky	65.9	69	67.1	68.5

Source: Kids Count Data Book 1991/92, 1992/93, 1993/94

Kentucky

Region	Percent Graduating from High School		
	1974/75	1979/80	1991/92
Appalachia	54.5	55.3	64.5
West/Central	67.9	68.1	73
Metro Areas	67.8	68.2	69.2

Source: Profile of Kentucky Schools 1974/75, 1979/80, 1991/92

Table H: Consumer Price Index, 1974-1994

Year	All Item *
1974	49.3
1975	53.8
1979	72.6
1980	82.4
1989	124
1990	130.7
1991	136.2
1992	140.3
1993	144.5
1994	148.2

* All Item includes Commodities, Food, Apparel and Upkeep, Energy, Shelter, Transportation, Medical Care, Fuel Oil, Electricity, Utility (Piped) gas, Telephone Service

Source: Statistical Abstract of the United States 1996

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