

Economic Determinant Analysis of Student Academic Performance in Mississippi Public Schools

“What the best and wisest parent wants for his own child, that must be what the community want for all its children. Any other ideal for our schools is narrow and unlovely; acted upon it destroys our democracy” ~ John Dewey

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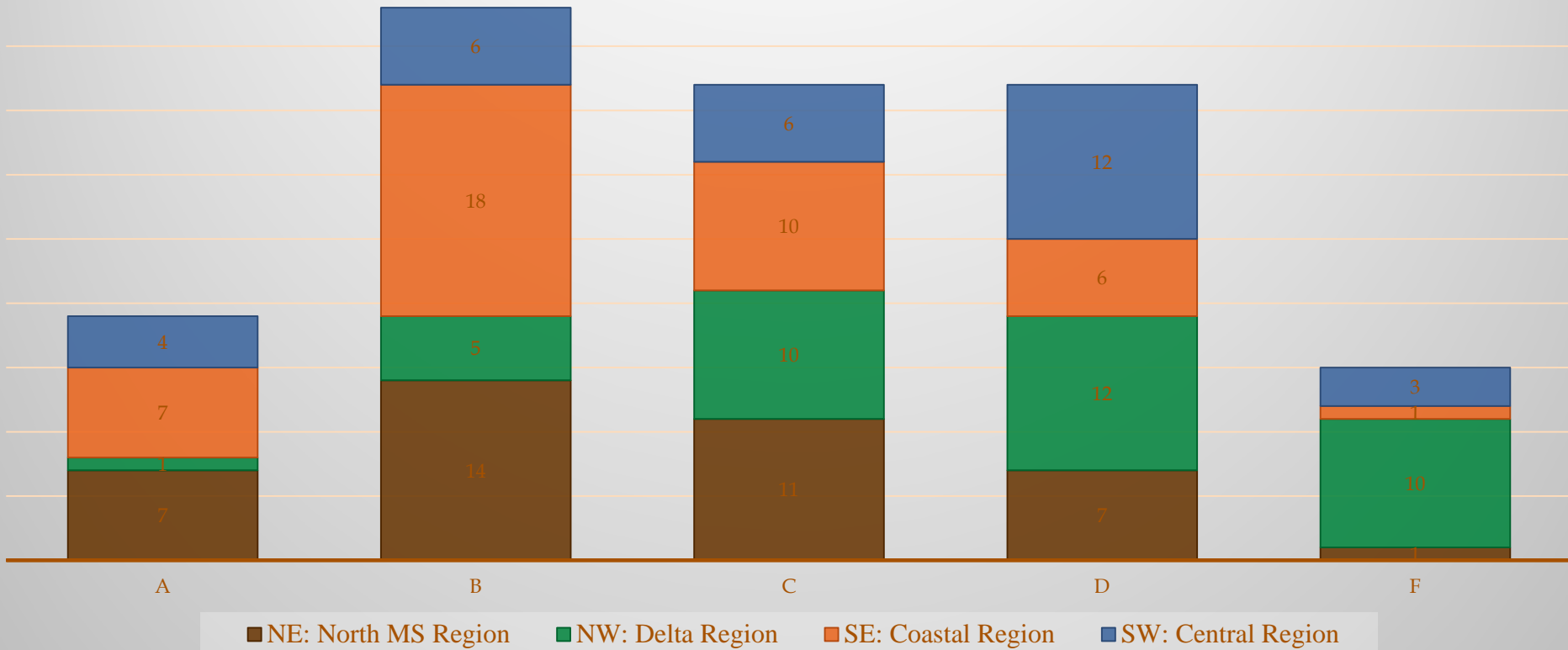
Table 1. Characteristics and Values: United States vs. Mississippi (2013)

Characteristics	United States	Mississippi	Rank
Per-pupil Expenditures	\$10,730.00	\$8,130.00	45th
Median Household Income	\$51,847	\$40,194	50 th
People Living in Poverty	16%	24%	50 th
Children Living in Poverty	22%	34%	50 th
Unemployment Rate	7.4%	8.7%	46 th
Children by Household Head's Educational Attainment	19%	13%	50 th
Composite ACT Score	20.7	18.9	49 th
Graduation Rate	81%	76%	43 rd
Dropout Rate	6.8%	13.9%	
K-12 Student Achievement: (State Report Cards: Quality Count)	70.2 (C)	57.1 (F)	50 th

Source:(U.S. Census Bureau, 2015; National Center for Education Statistics, 2015; National and State ACT Profile Report, 2015; Kids Count Datacenter, 2015; Bureau of Labor Statistics, 2015; and Education Week 2015).

Figure 1

Mississippi K-12 Public School District Accountability by Region



N=151; (A), High Performing (B), Successful (C), Academic Watch (D), Low Performing and (F) Failing. *SOURCE:* Annie E. Casey Foundation Kids Count Datacenter for 2012-2013; Mississippi State University- Extension Service Region Map (<http://msucares.com/nmrec/>)

Objective:

To determine the best predictor for explaining the differences in student academic performance as an educational outcome.

Primary Question:

Are economic factors limiting student academic performance in Mississippi public schools?

Research Hypotheses:

H_1 - Increased expenditures per pupil leads to higher student performance

H_2 - Higher median household income leads to higher student performance

H_3 - Higher poverty school districts leads to lower student performance

H_4 - Higher unemployment rates leads to lower student performance

Landmark Initiatives on Student Achievement in the United States

Elementary and Secondary Education Act (ESEA) of 1965

- ▶ Authorizes funds for primary and secondary schools in an effort to provide equal access to education and establish high standards and accountability.

Coleman Report (1966) “ Equality of Educational Opportunity”

- ▶ Massive study conducted by the National Center for Education Statistics in response to the Civil Rights Act of 1964 to examine equal educational opportunities for minority students in the U.S.

San Antonio Independent School District v. Rodriguez (1973)

- ▶ U.S. Supreme court held that the district’s financing system, based on local property taxes, was not an unconstitutional violation of the Fourteenth Amendment’s equal protection clause.

Nation at Risk: The Imperative of Education Reform (1983)

- ▶ The report was created in response to the assertion that the United States' educational system was failing to meet the national need for a competitive workforce.

Initiatives on Student Achievement in Mississippi

Mississippi Adequate Education Program Act (MAEP) of 1997

- The state formula used to establish adequate current operation funding levels necessary for the programs of each school district to meet a successful level of student performance.

Amendment to the State Constitution (2015 General Election Ballot)

Initiative Measure #42

- Required that the State must provide and the legislature must fund an adequate and efficient system of free public schools. This initiative would also authorize the chancery courts of this State to enforce this section with appropriate injunctive relief.

Alternative Measure to 42

- Proposed as a legislative alternative measure to Initiative Measure No. 42 and would require the Legislature to provide, by general law, for the establishment, maintenance and support of an effective system of free public schools.

Academic Literature on Per-pupil Expenditures and Student Performance

Economist Hanuseck (1986, 1996, and 1998)

There appears to be no strong or systematic relationship between per-pupil expenditures and student performance.

Meta-analysts Hedges, Laine and Greenwald (1996)

The relationship between per pupil expenditures and student performance are consistently positive and large enough to be educationally important.

Wenglinsky (1997)

Found that socioeconomic status and per pupil expenditures within school districts were both associated with student performance, but the effects for socioeconomic status were larger than those for per pupil expenditures.

Methodology

Research Design:

- The study consists of a quantitative cross-sectional research design.
- The sample population consisted of 151 school districts in Mississippi.
- Within those districts there were 1,058 schools serving 492,847 students; of which approximately 133,300 were attending high school.

Methodology

Data Collection:

- The on-line searchable database of the Mississippi Department of Education Children's First Annual Report for school year 2012 -2013.
- The on-line searchable database of the Annie E. Casey Foundation Kids Count Datacenter for 2013.

Data Analysis:

- Descriptive statistics
- Bivariate Pearson Correlation
- Multiple Linear Regression

Key Results

Table 2. Bivariate Correlation Between Economic Determinants and Student Performance Indicators

Variable	Composite ACT Score	Graduation Rate	Dropout Rate
Per-pupil Expenditure	-.512**	-.241**	.224**
Median Household Income	.532**	.331**	-.284**
Poverty School District	-.718**	-.383**	.361**
Unemployment Rate	-.062	-.104	.096

** $p \leq .05$

Key Results

Table 3. Multiple Linear Regression of Economic Determinants on Student Performance Indicators

Variables	<u>Model 1</u> Composite ACT Score	<u>Model 2</u> Graduation Rate	<u>Model 3</u> Dropout Rate
Per-pupil Expenditure	.000 (-.259)***	-0.001 (-.095)	.000 (.088)
Median Household Income	1.683E-5 (.073)	.000 (.130)	-.4723E-5 (-.048)
Poverty School District	-.086 (-.560)***	-.215 (-.251)**	.193 (.290)**
Unemployment Rate	.000 (-.008)	-.009 (-.075)	.007 (.071)

** $P < 0.001$; $p \leq .05$ (Composite ACT Score, $R^2 = .573$; Graduation Rate, $R^2 = .170$; Dropout Rate, $R^2 = .144$)

Discussion and Conclusion

Objective:

To determine the best predictor for explaining the differences in student performance as an educational outcome.

Primary Question:

Are economic factors limiting student academic performance in Mississippi public schools?

H_3 Higher poverty school districts leads to lower student performance.

The results showed that poverty school districts were found to be highly statistical significant and the best predictor across all three models. This predictor showed that higher poverty school districts leads to:

- ▶ Lower composite ACT scores
- ▶ Decrease in high school graduation rates
- ▶ Increase in dropout rates.

Delimitations of the Study

- ▶ Public school districts were not categorized by individual schools.
- ▶ The student achievement indicator as measured by American College Testing (ACT) was not broken down by subject matter.
- ▶ The study did not include all school expenditures and was limited to per-pupil expenditures
- ▶ Race and ethnicity were not utilized as statistical controls in the multiple regression model.

For Future Studies

- ▶ Analyze school districts by regions to determine if poverty school district remains the best predictor for explaining the differences in student performance as an educational outcome.
- ▶ Analyze instructional expenditures as an economic determinant apart from per-pupil expenditures.
- ▶ Analyze school district funding at each level of government (local, state, and federal) by regions and student performance indicators to determine strength of associations.

Questions, Comments or Queries