Economic Determinant Analysis of Student Performance in Mississippi Public Schools

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2015 Fall JSU Public Policy Symposium
12/03/2015

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."

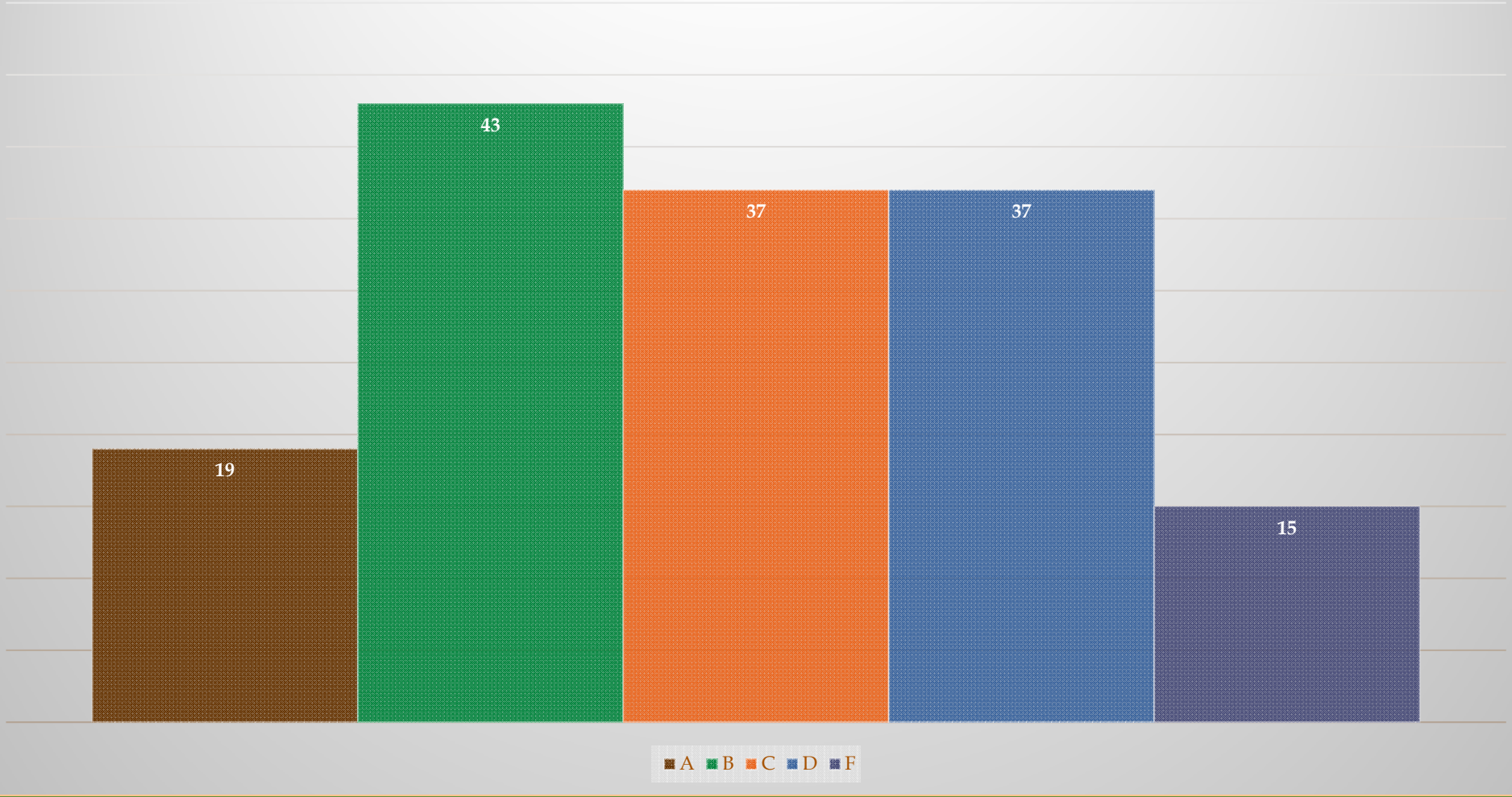
~ John Dewey

Table 1. Comparison and Rank of Per–pupil Expenditures, Socioeconomic Characteristics and Student Achievement Indicators in Mississippi to the United States (2013)

Characteristics	United States	Mississippi	Rank
Per-pupil Expenditures	$10,730.00	$8,130.00	45th
Median Household Income	$51.847	$40,194	50th
People Living in Poverty	16%	24%	50th
Children Living in Poverty	22%	34%	50th
Unemployment Rate	7.4%	8.7%	46th
Children by Household Head's Educational Attainment	19%	13%	50th
Composite ACT Score	20.7	18.9	49th
Graduation Rate	81%	76%	43rd
Dropout Rate	6.8%	13.9%	
K-12 Student Achievement: (State Report Cards: Quality Count)	70.2 (C)	57.1 (F)	50th

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



N=151; Star Districts (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

Objective:

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

Primary Question:

Are economic factors limiting school performances in Mississippi public schools?

Hypotheses:

H_1 - Higher expenditures per pupil leads to higher student achievement

H_2 - Students from families with higher median household income achieve better in school

H_3 - Higher poverty school districts leads to lower student achievement

H_4 - Higher unemployment rates leads to lower student achievement

Landmark Initiatives Relevant to Student Achievement in the United States

Elementary and Secondary Education Act (ESEA) of 1965:

- Aimed to shorten the achievement gaps between students by providing each child with fair and equal opportunities to achieve an exceptional education. Reauthorized in 2001 as the No Child Left Behind (NCLB) Act .

Coleman Report (1966) " Equality of Educational Opportunity":

- The report concluded that school quality and level of school funding had little or no impact after home and peer factors were taken into account.

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 (1983):

- The report surveyed various studies which pointed to academic underachievement of students on national and international scales.

Initiatives Relevant to 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 Education Spending and Achievement

Economist Hanuseck (1986, 1996, and 1998)

- There appears to be no strong or systematic relationship between school expenditures and student achievement.

Meta-analysts Hedges, Laine and Greenwald (1996)

- The relationship between school expenditures and student achievement are consistently positive and large enough to be educationally important.

Wenglinksy (1997)

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

Methodology

Research Design:

- The study consists of a quantitative cross-sectional research design
- The sample population consisted of 139-151 (due to missing data) 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 for the characteristics and values of variables of the sample population of the data
- Bivariate correlation and Multiple linear regression to test the proposed hypotheses

Key Results

Table 2. Bivariate Correlations Between Economic Determinants and Student Achievement 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	-.555**	-.263**	.249**

**p<0.01

Key Results

Table 3. Standard Multiple Regression of Economic Determinants on Student Achievement Indicators

Variables	Composite ACT Score	Graduation Rate	Dropout Rate
Per-pupil Expenditure	-.259**	-.099	.092
Median Household Income	-.144	.145	-.054
Poverty School District	-.611**	-.257**	.292**
Unemployment Rate	.000	.022	-.005

**P<0.01 (Composite ACT Score, R^2 =.58; Graduation Rate, R^2 =.164; Dropout Rate,R^2 =.139)

Discussion and Conclusion

The purpose of this study was to determine the best predictor for explaining the differences in student performance as an educational outcome.

- The relationship between each of the predictor and explained variables for bivariate correlations were highly statistically significant; but weak to moderate in magnitude.

- The multiple regression model was less effective than the simple regression in explaining the relationship of the dependent variables. Further only two of the four predictors (Poverty School District and Per-pupil Expenditure) were found to be statistical significant in the multiple regression model which were also weak to moderate in size.

Discussion and Conclusion

When analyzing the data to answer the question "Are economic factors limiting school performances in Mississippi public schools?" While using the third hypothesis which states: higher poverty school districts leads to lower student achievement.

- The results showed that poverty school districts were found to be highly statistically significant and the best predictor across all three indicators in relation to student achievement, which indicated that higher poverty school districts leads to lower composite ACT scores, a decrease in high school graduation rates, and an increase in dropout rates.

In essences, these findings are not surprising since numerous research studies have shown that poverty causes an assortment of societal ills and living in a school district that has majority low-income families and a low property tax-base only strengthens the argument in the literature in this regard.

Delimitations of the Study

- Public school districts were not categorized by individual schools or school districts according to regions in the state.
- The student achievement indicator as measured by American College Testing (ACT), was not broken down by subject.
- The study did not include all public education expenditures and was limited to per-pupil expenditures, which were not broken down according to funding sources.
- Race and ethnicity were not utilized as statistical controls in the multiple regression model

For Future Studies

- Include race and ethnicity in the multiple regression model in an attempt to strengthen the relationship between the predictor and explained variables.

- Categorize public school districts by regions throughout the state in an attempt to pinpoint which areas are most affected by the results in this study; providing the results remain the same in explaining the differences in student performance as an educational outcome, in order for policymakers to begin the discussion on how residents living in high poverty school districts can increase their property tax-base.