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Item Type	article;article
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Download date	2026-06-17 13:07:50
Link to Item	https://hdl.handle.net/20.500.14394/10543

Do Expenditures for Student Support Services Lead to Demonstrable Gains in Student Achievement?

Jacques, C. & Brorsen, B. W. (2002). Relationship between types of school district expenditures and student performance. *Applied Economics Letters*, 9, 997-1002.

It is always useful to know what the return is on a financial investment. In times of limited financial resources for schools it is especially imperative to know the relationship between types of school district expenditures and student performance (the ultimate return on school district spending). In order to make good decisions about allocating scarce resources, superintendents and school boards would like information on the interactions among different types of school expenditures and student outcomes. Researchers have attempted to measure the relationships between school counseling-related expenditures and student achievement.

Charles Jacques and B. Wade Brorsen sought “to determine the influence on student achievement of various types of school expenditures in order to find areas where additional investment in education would give the greatest results” (Jacques & Brorsen, 2002, p. 997-998).

Previous research on school expenditures has yielded mixed findings. For example, Hanushek (1996) found no relationship between school expenditures and student performance while Hedges et. al. (1994) discovered that increasing expenditures improved student test scores. Ferguson & Ladd (1996) determined instructional spending had a large effect on student test scores. In their study, Jacques and Brorsen (2002) extended beyond previous research by investigating how specific categories of district expenditures affect achievement test scores.

Method

Jacques and Brorsen used aggregate achievement scores on standardized tests as the dependent variable. The achievement scores were drawn from the Criterion Referenced Tests (CRT) and the Iowa Test of Basic Skills (ITBS) for the 1994-95 school year. The test scores were available from the Oklahoma Department of Education aggregated by school district and grade. The authors also used educational attainment of parents and free/reduced lunch status as socio-economic control variables.

The authors used 11 expenditure categories classified by the state of Oklahoma accounting procedures. The 11 categories served as the independent variables in this study. Each category is listed below with a brief definition:

1. Instruction - expenditures that deal directly with teacher-student interaction including salaries and benefits for teachers, teacher’s aides, clerks, tutors, etc.
2. Instructional support – expenditures that assist instructional staff with content and provide tools that enhance the learning process.
3. Student support – expenditures on attendance, social work services, guidance services, health services and speech pathology. Included in this category are activities such as individual counseling, identification of problems arising from home school or community, and identification of health problems such as visual or auditory.

4. School administration – expenditures in general supervision of school operations – including staff such as school principals, assistant principals, secretaries and clerks.
5. General administration and business – the superintendent’s office and business operations such as the fiscal and budgeting process for schools at the district level.
6. Student transportation services – expenditures on transportation from home to school and transportation to school activities.
7. Operations, maintenance, child nutrition, and community service operations.
8. Facilities acquisition and construction – expenditures for the acquisition of buildings, remodeling, construction, and site improvement.
9. Other Outlays – debt service, a clearing account, and funds transfer.
10. Scholarships – student aid, staff awards, and scholarships given to students all supported by outside revenue sources.
11. Repayment – the state of Oklahoma classifies this category as repayment.

The authors used maximum likelihood estimation (MLE) to determine the relationship of the expenditure categories to achievement test scores, controlling for school size, educational attainment of parents, percentage of students on free/reduced lunch, student race/ethnicity, and proportion of students in special education. MLE is a method for statistical estimation. Using parameters from the fixed data, MLE estimates the probability of obtaining a particular set of data given a chosen probability model.

Results

Jacques and Brorsen (2002) determined that three of their 11 expenditures categories had a statistically significant ($p < .10$) relationship to student test scores. Instructional expenditures (category 1) had a coefficient of .82 suggesting that “for another \$1,000 per student in instructional expenditures, there should be almost a point increase in student test scores” (Jacques & Brorsen, 2002, p. 1000).

Student support expenditures had a coefficient of -1.64 , which the authors interpreted as indicating that expenditures in this category have a negative effect on student performance. However, particular types of students who historically score low on achievement tests (e. g. high needs and/or low SES students) usually require greater student support expenditures and therefore the results for this category may be misleading (see the critique section for further discussion). Transportation had a coefficient of 1.45. The strong results in this category may be the result of regional effects of Western versus Eastern Oklahoma and transportation expenditures per student of school districts with large rural areas.

Implications

So what is the utility of this article for a school counselor? First, a school counselor should be aware that student services expenditures are undergoing intense scrutiny and that the effectiveness of school counseling is being measured in terms of student achievement. With the continued impact of No Child Left Behind, this trend is likely to continue and exacerbate.

Not all policy research is good research. An awareness of the weaknesses and limitations of this study will enable school counselors to prevent falling victim to anyone using this article as evidence that school counseling is an unwarranted district expenditure.

A school counselor should recognize the need to become aware of the evidence in support of the impact school counseling has on academic outcomes (Gysbers, Lapan, & Sun, 1997; Lapan et al., 1997; Lee, 1993; Whiston & Sexton, 1998). Moreover, a school counselor needs to remain aware of the positive impact school counseling interventions have on student outcomes such as attendance (Keat, Metzgar, & Rayovitz, 1985; Lapan, Gysbers & Sun, 1997; Sink & Stroh, 2003; Tobias & Myrick, 1999), educational planning (Peterson, Long, & Billups, 1999), career maturity (Luzzo & Pierce, 1996), career decision making (Hughey, Lapan, & Gysbers, 1993), as well as greater feelings of safety and belonging (Gysbers et al., 1999; Lapan, Gysbers & Sun, 1997; Lapan, Gysbers, & Petroski, 2001). Furthermore, school counselors should be alerted to the importance of local evaluation of the impact of school counseling interventions on student learning and achievement. Studies that demonstrate the positive impact school counseling interventions have on achievement and local evaluation of school counseling programs suggest that expenditures on school counseling may in fact be money well spent.

Critical Perspective

Superintendents and School Board Members who read this research might believe that the results of this study conclusively determine that school districts should eliminate funds for student support services such as guidance services, health services, and attendance services in order to increase investments in instruction. Such a drastic move would be imprudent given the limitations of this study.

Variable Definition

The definition for some of the independent variables may not be inclusive of activities and interventions within that category. For example the expenditure category of student support includes individual counseling but may not incorporate other guidance activities such as group counseling, guidance lessons in the classroom, and parent/teacher/student conferences. Thus the student support expenditure category may only include a limited definition of counselor tasks and certainly maintains no quality measure for best practices in counseling activities.

Similarly, the study did not measure the quality or focus of the school counseling work. Student achievement outcomes are likely to be strongly related to high quality school counseling programs and interventions that are focused on academic achievement. The quality and focus of a program are not reflected in expenditures.

Causality

As noted by the Jacques & Brorsen (2002), the negative relationship between student support expenditures and student performance may be an issue of causality. On the one hand, these findings might be interpreted to mean that increasing student support services has a negative impact on student performance. However, it is equally plausible that 'high needs' schools with more demanding problems may have required greater expenditures in this category. And, of course, those very 'high needs' districts that required additional expenditures would be more likely to also suffer from decreased academic performance. A longitudinal study that relates changes in district expenditures to subsequent changes in student achievement could help resolve this issue.

Missing Variable

The authors assert that expenditures in the Student Support category may have a negative effect on student academic performance because, "Expenditures in this area tend to take students out of the classroom, so a negative effect is reasonable" (Jacques & Brorsen, 2002, p. 1000). This interpretation is based on a very questionable assumption - that in districts with greater expenditures in the student services category the students spend less time in the classroom. The authors did not investigate the amount of instructional time per student for any of the categories. Their explanation is at best conjecture. Given that the Student Support category included expenditures to increase attendance, the authors' assumption that larger expenditures meant less classroom time may not be logical.

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