

Presentation Abstract

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A major public policy issue confronting many states is the increasing costs of providing elementary and secondary education. We have experienced a large increase in expenditures per pupil over the last few decades. Due to a tighter fiscal environment and empirical evidence that student performance has not improved, there has been a move in various states to focus on school accountability and performance. In this presentation, I will discuss current research being undertaken with two undergraduate research assistants, Shae Brennan and Erik Butt. Using Pennsylvania school data, we apply statistical and mathematical models to estimate educational costs, school efficiency, environmental costs and adequacy. The models will allow us to decompose observed expenditures according to these categories and to measure potential improvements in resource allocation by eliminating wasteful spending. This has important policy implications given the large amount of aid that is provided to schools.

We build on multiple disciplines for this research. Using economic theory as a foundation, we develop a mathematical model of school costs. Standard microeconomic production theory suggests that schools need additional resources to produce better student outcomes. Equivalently, it costs schools more to provide better results. Additionally, the local public finance literature identifies several other cost factors: input prices (*e.g.* teacher and administrative salaries) and socio-economic variables (*e.g.* the percent of students in poverty, the percent of students with limited English proficiency, the education levels of the parents, etc.). In order to provide a given level of student outcomes, schools that pay higher resources prices and/or have harsher environmental conditions must spend more, reflecting differential costs. Economics provides a useful mathematical framework for analyzing these costs.

The models that will be used to estimate and decompose costs of service provision appear in multiple academic disciplines including (but not limited to) Mathematics, Economics, Operations Research, Industrial Engineering and Public Administration. The application of these models to education has been a focus in economics and education. The primary purpose of this presentation will not be on the technical details. Instead, I will focus on policy implications and the link to the various academic disciplines.