AN ESTIMATION OF THE AGGREGATE EDUCATIONAL PRODUCTION FUNCTION FOR PUBLIC SCHOOLS IN LOUISIANA

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Data at the school district level were used to estimate the relationship between basic skills test scores and various school district, family and community educational inputs. The inputs examined in the regression analysis included expenditures per student, student-teacher ratio, years of teacher’s experience, along with other school-related and socio-economic variables. Expenditures per student are significantly related to basic skills test results in a quadratic manner. Variables measuring family and community structure are shown to be significant to test performance. These results are important for policy-makers who are responsible for the allocation of funds in the education process. A greater reliance on economic incentives is suggested as an alternative to the present system.

The recent presidential summit on education serves to underscore the nation’s concern for improving human capital production. This concern is especially significant for Louisiana, which is currently seeking ways to diversify its energy-based economy following the dramatic price declines in the world petroleum market. In order to diversify this economy, a greater emphasis on human resource development is being considered as an alternative to dependence on natural resources. Thus, the performance of the educational system is critical in the long-run push to achieve a diversified economic base. The primary objectives of this article are to identify and analyze the aggregate production relationship for public education in Louisiana.
REVIEW OF SELECTED LITERATURE

Research on educational production functions has provided an improved method for understanding the influence of specific inputs on student performance. The Coleman study\(^1\) which indicated that school-controlled inputs have little effect on achievement independent of family background has had a major impact on public attitudes and policy toward education. Hanushek\(^2\) and others (Perl\(^3\); Summer and Wolf \(^4\)) used micro data to analyze the impact of teacher and school characteristics on performance in an attempt to overcome some of the methodological criticisms of the Coleman analysis. These studies found teacher and school inputs to be important in academic achievement.

Higher performance in the private schools relative to public schools (Murnane) has generated increased interest in the importance of school-controlled inputs in the education process.\(^5\) Coleman and Hoffer suggest that community structure is important in explaining this differential.\(^6\) Greely finds that minority students (blacks and Hispanics) in Roman Catholic high schools perform better than those in public schools because of different family backgrounds, personal characteristics and superior instruction.\(^7\) According to Greely, Catholic schools are most successful with the poor. Datcher-Loury, using data from the ETS-Headstart Longitudinal study on low-income black children finds that differences in family behavior and attitudes have large and important long-term effects on academic performance.\(^8\)

In summary, we find that school, family and community inputs are all significant in previous research as factors in educational performance. This research expands the debate on the educational production function by looking at family, community and school-controlled inputs at three levels in the education process (elementary, junior high and high school) for a region of the nation noted for its weak academic performance. These variables are expected to be significant in explaining educational performance for Louisiana.

THE EMPIRICAL MODEL

The empirical model is formulated on the basis of production theory, previous research and factors unique to this region. Theoretically, the educational production function can be expressed as follows:

\[ Q = f(V, W, X, Y, Z) \]