expenditures. Closing of schools is not much of a problem in most areas, because of rapid population growth.

Next, the relative importance of economies and diseconomies which can be associated with different degrees of integration and scales of operation deserves consideration. On the whole, it appears that conditions which help horizontally integrated manufacturers and marketers benefit from net economies—lower factor costs, larger and more efficient plants, and induced circular and vertical integration—do not exist when local government grows and consolidates. Since schools purchase a highly diversified array of factors, but virtually none in quantity, few large-scale factor purchases and even fewer significant price concessions are likely to result. While pecuniary economies are likely to be minor, the only factor purchased in large quantities, i.e., manpower, tends to unionize and produce pecuniary diseconomies.[2] Also, the nature of public education, particularly the importance of location, tends to keep schools relatively small. This aspect together with legal restrictions on salary levels and permissible debt will tend to allow only small technological economies. At the same time, serious technological diseconomies can accompany large school districts, which tend to lose efficiency because of political patronage and general administrative top heaviness.

On a priori grounds, growing or consolidating school districts can approximate the conditions under which the longrun expenditure function will tend to be horizontal. Since plant and caliber of the school superintendent are virtually fixed, the quasi-longrun function will resemble a U with a flat bottom over a very wide range. To the extent that relatively little overhead exists, the shortrun and longrun functions tend to approximate one another. They coincide in their flat-bottomed portion. Net economies are responsible for a negative slope to the left of this area and net diseconomies for a positive slope to the right of it. The more units are horizontally integrated, the flatter the shortrun function.

The conclusions of this deductive reasoning have been subjected to some empirical verification. With the aid of multiple regression and correlation techniques a working hypothesis was tested in relation to the school districts of the St. Louis area.

First, a few words might be said about the St. Louis City-County area and its 27 school districts which offer both primary and secondary education. The area has a total population of about 1½ million. St. Louis City with a population of about 850,000 has a single school district, while St. Louis County has 29 districts, 26 of which operate both primary and secondary schools, while the other 3 have merely primary schools. The 1954–55 enrollment of the St. Louis City district was 84,000 while the smallest of the 26 county districts with both primary and secondary schools had an enrollment of 600, and the largest had one of 7,000. Total expenditures per pupil in average daily attendance in St. Louis City was $261 and in the county districts it ranged from $121 to $728. Some school districts, including that of the St. Louis City, had hardly grown between 1951 and 1956, while in one school district a 225 percent growth had taken place. There existed great differences in assessed valuation of real property per pupil in average daily attendance; the low was $1,500 and the high $24,000. Finally, much variation in the tax rate levied upon property within these school districts existed. The school district of the city of St. Louis had the lowest rate. In the county school districts it ranged from $1.68 to $3.58 on $100 of assessed valuation.

The State of Missouri has a school aid program, under which relatively small subsidies are paid to a district per pupil in average daily attendance. In addition, the equalization phase of the program is designed to assure each district $110 per pupil in average daily attendance. During the period under discussion, the State of Missouri contributed virtually nothing under its equalization program, i.e., less than $60,000 in 1954–55. The virtual absence of State equalization payments made the St. Louis City-County area useful for the purpose of this case study. It excluded many knotty problems connected with identifying determinants of the progress of State subsidy.

The following working hypothesis was established in order to learn about the presence or absence of economies of scale in the St. Louis schools:

Total current expenditures plus debt service for public primary and secondary education per pupil in average daily attendance is a function of—

X_2—number of pupils in average daily attendance in public primary and secondary schools,

X_3—high school pupils in average daily attendance as a percent of all pupils in average daily attendance,

[2] It is recognized that teachers throughout the country are organized, but in the larger school districts also maintenance workers, etc. ,tend to unionize.