

penditure plus debt service per pupil in average daily attendance is explainable in terms of these four variables of which salary level, X_4 , is statistically significant. All relationships but one are positive. The significant net regression coefficient 0.000441 can be interpreted in the following manner—during 1900–1958, a \$1,000 increase in average annual teacher salaries was on the average associated with a 44.1-cent increase in daily total current expenditures per pupil in average daily attendance, holding the effect of changes in the other three factors constant. Also, about 98 percent of the variation of the cost of the standardized education unit can be explained in terms of teacher salary level increases, holding the effect of changes in the other three factors constant.

It is somewhat surprising that neither the percentage of high school enrollment, nor urbanization, nor the number of specialists per 1,000 pupils in average daily attendance, which was designed to measure quality of education, had a statistically significant effect on expenditures.

The beta coefficients, i.e., net regression coefficients divided by their respective standard deviations, are, in order of magnitude:

$$\begin{aligned}\beta_{14.236} &= 0.9944, \\ \beta_{13.246} &= -0.0504, \\ \beta_{12.346} &= 0.0273, \text{ and} \\ \beta_{16.234} &= 0.0161.\end{aligned}$$

The simple correlation coefficient matrix, which follows, is of some interest:

	X_{1a}	X_2	X_3	X_4
X_2 -----	0.6892	-----	-----	-----
X_3 -----	0.5707	0.9659	-----	-----
X_4 -----	0.9992	0.7027	0.5881	-----
X_6 -----	0.9484	0.7307	0.6150	0.9487

This matrix reveals exceptionally high intercorrelations; for example, $r_{23}=0.9659$ and $r_{46}=0.9487$. All simple correlation coefficients are high and statistically significant at an α of 0.05.

The second hypothesis, a slight modification of the first one, takes explicit recognition of the fact that expenditures for auxiliary services and the number of principals, superintendents, and consultants per 1,000 pupils in average daily attendance are unlikely to be related. Thus, instead of relating X_2 , X_3 , X_4 , and X_6 to daily total current expenditures, it relies upon a new dependent variable, i.e., X_{1b} —daily total current expenditures plus debt service minus expenditures for auxiliary services for public primary and secondary education per pupil in average daily attendance.

On this basis, the following new multiple regression equation was obtained for 1900–1958:

$$X_{1b} = 0.006929 - \frac{0.000603X_2}{(0.0030)} - \frac{0.000336X_3}{(0.00058)} + \frac{0.000372X_4}{(0.9889)} + \frac{0.013847X_6}{(0.01110)}. \quad (1.2)$$