THE RELATIONSHIP OF SELECTED SOCIOECONOMIC FACTORS TO LOCAL FINANCIAL EFFORT FOR SCHOOLS

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Problem

Wide differences in financial ability to support schools exist among school districts (1-8), but, even when financial ability is held constant, Johns (9) found little research explaining differences in effort. An attempt will be made in this article to show how some of the difference in effort which exists among school districts is explained in terms of variance in certain socioeconomic factors.

Procedures

Variables

Twenty-two socioeconomic factors, which seemed to be logically associated with variance in local financial effort to support schools, were selected from a larger number which were quantified in the 1960 census and in the Biennial Report, Superintendent of Public Instruction, 1960-62. These 22 variables selected for examination are listed below:

- X 1 average daily attendance,
- X 2 per capita net effective buying income,
- X 3 average daily attendance as a per cent of total population,
- X 4 federal revenue receipts per pupil in ADA,
- X 5 state revenue receipts per pupil in ADA,
- X 6 percentage of civilian labor force unemployed,
- X 7 percentage of families with income of $10,000 or more,
- X 8 percentage of population that is non-white,
- X 9 population per square mile,
- X 10 percentage that is rural non-farm,
- X 11 percentage that is rural farm,
- X 12 percentage of 14-17 year-olds in public or private schools,
- X 13 persons 25 years and over--median school years completed,
- X 14 females 14 years and over--percentage in labor force,
- X 15 employed persons--percentage engaged in manufacturing,

X 16 ratio of the number of persons 25 or over who have four or more years of college, to total population,
X 17 median income of families,
X 18 married couples--percentage without own household,
X 19 percentage of persons 65 years and over in total population,
X 20 percentage in ADA public schools K-12 to total population age 6-19,
X 21 population size,
X 22 percentage of population increase over 10-year period (1940-1950, 1950-1960).

Three variables were employed as measures of local financial effort. The first, A, was an average over the three-year period 1959-1961. This average local financial effort for schools was computed for each district in the study by dividing the total local school revenue receipts for the three years by the sum net effective buying income for three years. An average measure of local financial effort was selected to rule out the possibility of an extreme value.

The second dependent variable, E, is the ratio of estimated true market value of property to total local school revenue receipts.

The third criteria is local revenue receipts per pupil in average daily attendance (R1). This measure ignores the relative ability to pay.

Sample

Thirty-two school districts with 1960 census populations of 20,000 or more were selected to keep the sample more or less urban. Any generalizations made from this study must therefore be restricted to these relatively urban school districts. The 32 school districts selected using this population criterion appear in Table 1.

Analysis

The values for the 22 socioeconomic factors were obtained for the 32 school districts, and were then subjected to a multiple regression analysis. Where observations of variances are made between school districts in one year rather than a school district over several years, the analysis is called a cross-section analysis, or a place-to-place analysis.

Table 1

POPULATIONS OF SCHOOL DISTRICTS WITH
20,000 OR MORE IN 1960

	District	Population
1.	Alachua	74,074
2.	Bay	67,131
3.	Brevard	111,435
4.	Broward	333,946
5.	Columbia	20,077
6.	Dade	935,047
7.	Duval	455,411
8.	Escambia	173,829
9.	Gadsden	41,989
10.	Highlands	21,338
11.	Hillsborough	397,788
12.	Indian River	25,309
13.	Jackson	36,208
14.	Lake	57,383
15.	Lee	54,539
16.	Leon	74,225
17.	Manatee	69,168
18.	Marion	51,616
19.	Monroe	47,921
20.	Okaloosa	61,175
21.	Orange	253,540
22.	Palm Beach	228,106
23.	Pasco	36,785
24.	Pinellas	374,665
25.	Polk	195,139
26.	Putnam	32,212
27.	St. Johns	30,034
28.	St. Lucie	39,294
29.	Santa Rosa	29,547
30.	Sarasota	76,895
31.	Seminole	54,947
32.	Volusia	125,319

Results

Criterion One

The regression analysis using criterion one, A, the average effort for each school district based on net effective buying income for 1960, found only one variable (X 19, percentage of 65 years and older in the total population) as being significant at the five per cent level of significance. All other regression coefficients had standard errors too large to be significant. The regression is:

$$A = 1.049 + .048(X19).$$

Since only one independent variable is involved in the equation, variance was obtained by squaring the simple correlation (.561) between average effort and X19. X19 explains about 32 per cent of the fluctuation in average local financial effort. Table 2 shows the simple correlation coefficients between local financial effort in 1960 and each of the original 22 independent variables.

Criterion Two

The second criterion was E, total local school revenue receipts divided by estimated true marketvalue of property. Using this measure of local financial effort as a dependent variable, and the same 22 socioeconomic values as the independent variables, in a multiple regression analysis, one finds only two of the 22 independent variables are significant predictors of variance in local financial effort where the true market value of property is the measure of financial ability. The multiple regression equation is

$$E = .969 - .0027(X5) + .00758(X19).$$

Various statistical measures pertinent to the interpretation of the multiple regression results are presented in Table 3.

X5 and X19 account for 44 per cent of the unadjusted and 42 per cent of the adjusted variance in local school effort based on property valuation. The coefficient of separate determination for X5 (Table 3) showed that almost 30 per cent of the unadjusted variance in effort for the latest year of the study was explained by changes in the amount of money received from the state for each pupil in average daily attendance. The relationship between effort for the latest year of the study and X5 was negative, so as state revenue receipts per pupil decreased, school district effort fluctuated upward.

Table 2

SIMPLE CORRELATION COEFFICIENTS BETWEEN AVERAGE EFFORT FOR EACH SCHOOL DISTRICT FOR 1960 AND ALL INDEPENDENT VARIABLES

Variable	Correlation	Variable	Correlation
X1	.112	X12	.105
X2	.325	X13	.029
X3	-.274	X14	-.034
X4	-.457	X15	-.237
X5	-.387	X16	.235
X6	-.039	X17	-.022
X7	.064	X18	-.083
X8	-.110	X19	.561
X9	.029	X20	.484
X10	-.260	X21	.143
X11	-.327	X22	.299

Table 3

E2* Regression Analysis

		VARIABLES	
	E2*	X19	X5
Regression Coefficient		.0076	-.0027
Standard Error of Regression Coefficient	.103	.0036	.0008
Standard Deviation	.131	5.319	24.156
Beta Coefficient		.307	-.496
Simple Correlation Coefficient with E2*		.477	-.601
Coefficient of Separate Determination		.146	.298
Multiple Correlation Coefficient	.667		
Multiple Correlation Coefficient Squared	.444		
Adjusted Multiple Correlation Coefficient Squared	.423		

* E2 = Effort for latest year of study

Almost 15 per cent of the unadjusted variance in effort for the year 1962-1963 was associated with fluctuations in the percentage of persons 65 and older in the total population. As the per cent of oldsters increased, the local school effort increased.

Table 4 shows the simple correlation coefficients between effort for the year 1962-1963 and each of the 22 independent variables. Local financial effort based on 100 per cent valuation of property and local financial effort based on net effective buying income, when considered as dependent variables in two separate multiple regression equations, showed a common 1960 socioeconomic factor, X19, the percentage of people 65 years and over.

Criterion Three

The third dependent variable, R1, is local revenue receipts per pupil in average daily attendance.

It seems logical to predict that a school which spent more for each pupil would have more income. This prediction was found to be quite true as per capita net effective buying income accounted for 50 per cent of the variance among the school districts. The recurrent importance of 65-year-olds was found again with this socioeconomic variable accounting for 22 per cent of the variation among the districts. The multiple regression equation is

$$(R1) = 140.216 + .115(X2) + 4.683(X19).$$

Seventy-two per cent of the fluctuation in total local school revenue receipts per pupil in average daily attendance can be accounted for by these two independent variables.

Table 5 presents the significant results.

The low correlation between the percentage of 65-year-olds and older in the total population and per capita net effective buying income (.12) suggests that the percentage of 65-year-olds is not significantly higher in districts where the per capita income is higher. So whether one believes that 65-year-olds cause more money to be spent for each pupil, or whether one believes that 65-year-olds just happen to be located where money is being spent per pupil, the fact remains that this factor accounts for 22 per cent of the variance.

Table 4

SIMPLE CORRELATION COEFFICIENTS BETWEEN EFFORT FOR 1962-1963 AND ALL INDEPENDENT VARIABLES

Variable	Correlation	Variable	Correlation
X1	.163	X12	-.129
X2	.502	X13	.267
X3	-.562	X14	-.075
X4	-.154	X15	-.246
X5	-.601	X16	.292
X6	-.113	X17	.217
X7	.232	X18	-.078
X8	-.220	X19	.477
X9	.263	X20	.236
X10	-.430	X21	.204
X11	-.559	X22	.407

Table 5

R1* Regression Analysis

	VARIABLES		
	R1*	X19	X2
Regression Coefficient		4.683	.145
Standard Error of Regression Coefficient	32.181	1.078	.021
Standard Deviation	58.313	5.319	276.599
Beta Coefficient		.427	.686
Simple Correlation Coefficient with R1		.511	.738
Coefficient of Separate Determination		.218	.506
Multiple Correlation Coefficient	.851		
Multiple Correlation Coefficient Squared	.724		

*R1 = Total local school revenue receipts per pupil in ADA for each district for 1960.

Discussion

Open for conjecture are the reasons for the percentage of 65-year-olds being all-important in explaining variations in local financial effort based on net effective buying income; and significantly important in helping to explain variations in local financial effort based on 100 per cent valuation of property. In this study the presence of 65-year-olds is thought to be incidental to increases in local financial effort, local financial effort based on net effective buying income, and local financial effort based on 100 per cent valuation of property, and is only associated with the true causes.

The evidence presented in this article on the relationship of socioeconomic variables to local school effort is quite inconclusive. Socioeconomic variables leave a large part of the variation in local effort unexplained. Furthermore, in another study the writer found that in the same state at different points in time, there were different socioeconomic predictors of effort.

Other factors undoubtedly operate to affect the decision-making on local school fiscal policy. Some of these factors that might be examined are: the leadership of the superintendent; the anatomy of the informal power structure of the community; the value system of the informal power structure and of the general public; political organization for making decisions, and similar factors.

In fact, these "other factors" are currently being researched under the Office of Education Research Project #2842, directed by University of Florida professors R. L. Johns and Ralph Kimbrough. The results of their preliminary findings should appear soon in the form of doctoral dissertations.

This particular article results from data accumulated and examined in more detail in the writers' dissertation entitled: "Socioeconomic Factors Associated with Patterns of School Fiscal Policy in Florida."

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