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COMPUTERIZED SCHOOL FINANCE ANALYSIS
IN HOUSE RESEARCH DEPARTMENT

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STATE OF MINNESOTA

(18) HOUSE OF REPRESENTATIVES

RESEARCH DEPARTMENT

17 STATE CAPITOL

ST. PAUL, MINNESOTA 55155

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Computerized School Finance Analysis
in House Research Department

During the interim between the 1978 and 1979 legislative sessions, the House Research Department installed a computer software package (i.e., a computer program) for the purpose of projecting effects and costs of changes in the school aid formula. The system is now working. The purpose of this memorandum is to describe the system and outline its capabilities and limitations.

General Description

The program is called the "School Finance Equalization Management System", or "SFEMS". SFEMS was developed by the Education Testing Service in Princeton, New Jersey, with financial backing coming from the Ford Foundation. House Research purchased the rights to use the program, as well as user manuals and training, and adapted it for use in Minnesota.

We have installed the SFEMS program on the University of Minnesota's Control Data Corporation Cyber 74 computer at the University of Minnesota computer center. Legislative staff utilizing the system communicate with the computer via remote teletype terminals that are connected to the Cyber by telephone lines. The Department of Education has provided the data required by the SFEMS program, in large part from data that already existed in computerized form.

SFEMS is a highly flexible system that can be manipulated to meet the research needs of the researcher. The researcher need not know computer programming in order to operate the system, but instead must learn the special command syntax that drives the system. This command syntax is logical and fairly simple to learn,

especially as compared to the technical knowledge one would have to acquire in order to write computer programs to do comparable levels of analysis. However, the researcher does need to know school finance formulae and related terminology, as well as the special language used to operate the Cyber 74 computer. Legislators desiring information on school finance in Minnesota can contact House Research for that information; the legislator need not learn how to use the system himself/herself.

General Capabilities of SFEMS

SFEMS can be used to simulate and compare a variety of school aid formulae that are currently in use in the United States, including the foundation formula used in Minnesota. SFEMS is very well-adapted for use in simulating the basic aid formula, but can be used to some extent in simulating categorical aid programs, such as Minnesota's transportation aid program. SFEMS can produce reports for each district, for groups of districts, and for the whole state.

The choices available to the user in simulating a given formula include the following:

- . varying definitions of wealth and local tax effort requirements
- . varying pupil weighting schemes
- . aid minimums and maximums
- . save harmless (or grandfather) provisions
- . proportionate reduction of aid when formulae are not fully funded
- . projections to future years, based upon current data
- . iteration routine, i.e. reducing or raising the mill rate or other parameters in order to target the school aids appropriation at a specific level.

- . multiple layouts of results
- . benchmark studies, showing dollar and percentage changes in aid between two proposals
- . counts of districts receiving aid under minimums, equalization, save-harmless, or categorical programs
- . percentile, frequency distributions, sequenced listings, summary statistics, and measures of equity
- . histograms, means graphs, and Lorenz curve graphs

Specific Capabilities

Some examples of the potential use of SFEMS in the Minnesota Legislature may help illustrate the capabilities of the system. One of the chief advantages, of course, is that the system is simple for the trained person to use and results can be obtained relatively quickly.

Examples of proposals that could be easily simulated:

1. Change foundation aid formula allowance.
2. Change pupil weightings (e.g. change 1.4 secondary weight to 1.3, 1.5, or some other number, and adjust formula allowance accordingly so that total foundation aid appropriation is unchanged).
3. Change required mill rate for basic maintenance.
4. Alter method of determining support aid (declining enrollment pupil units), e.g., change from 3.25-year to four-year average.
5. Calculate sparsity aid for districts meeting specified size and density criteria.

Data

Before SFEMS could be used to simulate the Minnesota Foundation formula, the appropriate data elements had to be entered into the system. With 438 school districts in the state and a number of data items required for each district, this is a sizeable task. Moreover, it is a never-ending one, as data needs may change over time; also, data must be updated periodically.

For the most part, the data needed to operate SFEMS already existed in computerized form. The Department of Education recompiled this data for House Research in the format required by SFEMS. At this time, the data items needed to simulate the foundation aid formula have been entered and can be used in calculations. Some transportation data is also available.

Other data items can be added as needs become apparent. However, it should be emphasized that adding new data items is a time-consuming process and can be expensive, especially if the data does not already exist in computerized form.

Limitations

While SFEMS is a powerful tool, it does have limitations. We, in House Research, are excited about the possibilities for school aids analysis that SFEMS presents, but we would be remiss if we failed to note SFEMS' limitations.

It is important to note that SFEMS is a research tool. It is not a full-blown management information system. It does not supplant the need for a comprehensive, computerized management information system in the Department of Education; SFEMS merely enhances that capability.

Secondly, SFEMS is best suited for analysis of general school aid formulae. It was not designed to simulate categorical aid formulae, which generally require larger, more detailed, and more expensive data bases. Nor is it well suited to detailed statistical analysis of the components of the general aid formula; such as enrollment projections, cost analysis, or tax base analysis. Other computer software is better suited for such analysis.

Third, SFEMS' capability is limited to analysis of the data it contains. If the data has not been entered into the system, of course, it cannot be analyzed. Further, the SFEMS data base is limited in size, and some data items would simply consume too much space to be used by SFEMS. For example, while the Department of Education collects data on teacher salaries, SFEMS simply is not capable of holding all of this data.

Finally, SFEMS capabilities are limited by the time and knowledge of its users. It is a powerful, flexible tool, which we, in House Research, are only beginning to learn to use. It will be quite some time before we fully appreciate its capabilities and limitations.

Information

Legislators desiring further information about SFEMS may contact Alan Hopeman at 296-7434.

MINNESOTA HOUSE OF REPRESENTATIVES

RESEARCH DEPARTMENT

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