

Public Education Finances in United States

1.Introduction

In the year of 2012, the United States spent over \$550 billion on public education. Public elementary-secondary education took the largest expense of state and local governments. Analyzing this financial activity can let people obtain more insight of the state's fundamental education system. Where do these school systems receive funds and how they spend them can be very interesting.

From the datasets we have, we find that spending differs among states and it varies every year. All three levels of government – federal, state, and local - contribute to education funding. Much of the funding provided by the federal government is discretionary, meaning it is set annually by Congress through the appropriations process, while state and local government rely primarily on income and sales taxes to fund public education. The share of education funding coming from these three governments changes every year. In this project, we intend to cover the annual variation of total amount of public education finances, the difference among state and district, and the impact of public education finances in the society. By using the information visualization techniques we learned in class, we aim to present the information in an interactive way and allow readers to further explore these information.

2.Story

Public elementary-secondary education systems as a single financial activity spends the largest amount of money from both state and local governments. This phenomenon is very interesting as the state is famous for the private schools, and it leaves a image that the public fundamental education systems are fading out for many people including us. Although we do not know if this image is prevalent, yet it draws our attention to mine deep about the real story about such kind of education systems. We consider that the most effective start point is their financial situation. We would like to use several information visualization technologies to illustrate different aspects of it. We care about:

- Components of fundings
- Where do they spend the money
- Ranking of fundings and expense among states
- Difference of the proportions of spending between federal and local governments
- Spending per pupil among states

3.Key point

In this project, we would like to focus on several points as follows:

- 1) Insight of Public Elementary-Secondary School System Revenue
- 2) Locational difference of pupil expenditure
- 3) Locational difference of revenue sources (Federal, State and Local)
- 4) Relationship between educational spending and residential incomes

4.Datasets

Mainly, we plan to use two datasets provided by the Census Bureau's Census of Governments as below:

- State-level Tables
- Individual Unit Tables

These two tables provides reasonable scale for our analyze. The State-level tables contain revenue, expenditure, debt, and asset (cash and securities) data. This dataset contain all necessary information which can be used to compare differences, and find patterns in state level. Moreover, the individual unit tables contain the same items but is in inner state level, which provide much closer view of such education systems. Furthermore, those tables are available from 1992 to 2012. This time span is an advantage to analyze changes along years.

5.Design of Visualizations

To make our visualization more understable, we concern about spatial metaphors and semantic patterns, and use it in our graphic design. We intend to use objects having the same shape, color, or texture to represent similar concepts and related information. Moreover, the size and height of graphical objects will be used to represent the magnitude and importance. Beside that, by nesting and partitioning regions, we demonstrate the concept in a hierarchical way.

6.Sketch of Visualizations

We would like to show the expenditure in both state level and city level. We will rank the spending and show the differences among states and cities in corresponding state.

7.Repository

Since we intend to put our project online, we decided to choose GitHub as our repository.

8.Sources of Information

- [1] M. Dixon, "Public education finances: 2012," U.S. Census Bureau, May. 2014.
[2] (June 17, 2014). Public Elementary–Secondary Education Finance Data. Available: <http://www.census.gov/govs/school/>.