



Parents for  
*Choice* in Education  
Foundation

**Simplifying Utah's  
Minimum School Program**  
Adding Flexibility and Transparency to Equity

**Appendix II**  
Equity of the Proposed Alternative MSP

Many different methods are available to evaluate equity in funding among school districts. The U.S. Department of Education recently conducted a study to examine variation in funding among school districts in all 50 states for the period 1979-80 through 1993-94.<sup>1</sup> Using instructional expenses per pupil, this study calculated six measures of equity for each state: the coefficient of variation, the Gini coefficient, the Thiel coefficient, the federal range ratio, the Atkinson index and the McLoone index.<sup>2</sup> The proposed alternative MSP was at least as equitable as the current MSP on all six measurements.

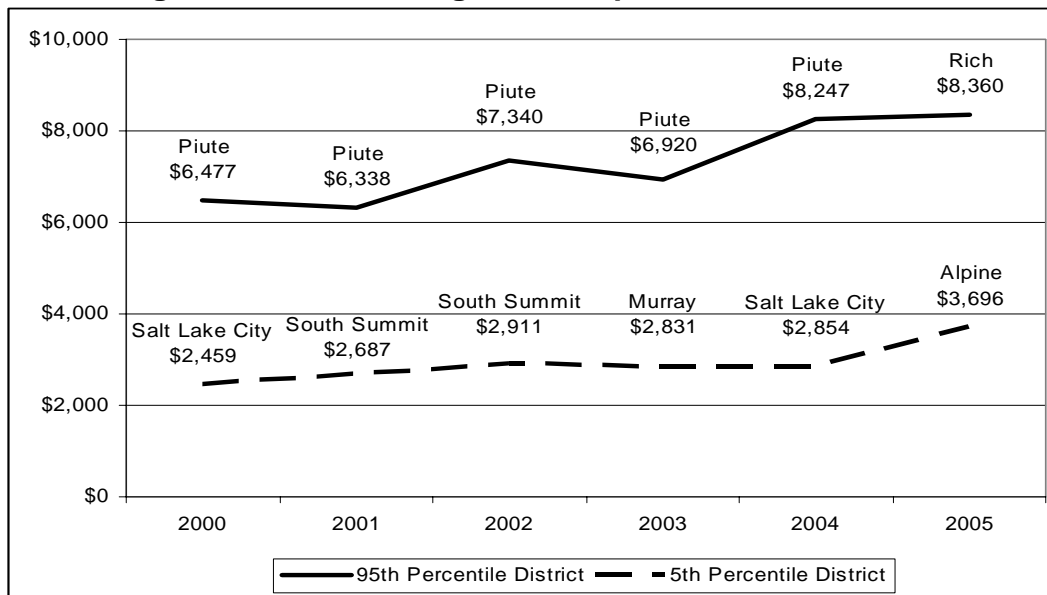
This study adopts the common practice of measuring variation in funding to measure equity. To evaluate the proposed changes to Utah's MSP for their equity, this study presents calculations of the coefficient of variation and the federal range ratio for the current MSP formula for each year in the period FY2000 through FY2005, and then the values for the proposed alternative MSP formula for FY2005. We also performed the same calculations for the other four measurements of equity (the Gini coefficient, the Thiel coefficient, the Atkinson index and the McLoone index). Our results were the same for these four measurements as are the two we are presenting. We chose to present the calculations for the coefficient of variation and the federal range ratio for two reasons: (1) they are more straightforward in calculation and in interpretation, and (2) they are commonly used by the federal government to measure equity. In fact, the federal No Child Left Behind Act requires use of the coefficient of variation to evaluate equity for Title I funding.<sup>3</sup>

### Federal Range Ratio

Range measures usually compute the difference between a number on the high end of a set of numbers and a number on the low end. The federal range ratio uses the school district at the 95th percentile of funding and the district at the 5th percentile. The difference between the funding provided to these two districts is divided into the funding provided to the district at the 5th percentile to produce the ratio of the two numbers to the smaller number.

Because Utah has 40 districts, each district represents 2.5 percent of the total. Consequently, calculation of the federal range ratio involves ordering the districts from the highest amount of state revenue per student to the lowest amount of state revenue per student and subtracting the amount associated with the district that is third from the bottom of the list (the 5th percentile) from that which is third from the top (the 95th percentile). This difference is divided into the amount of state revenue per student for the 5th percentile district.

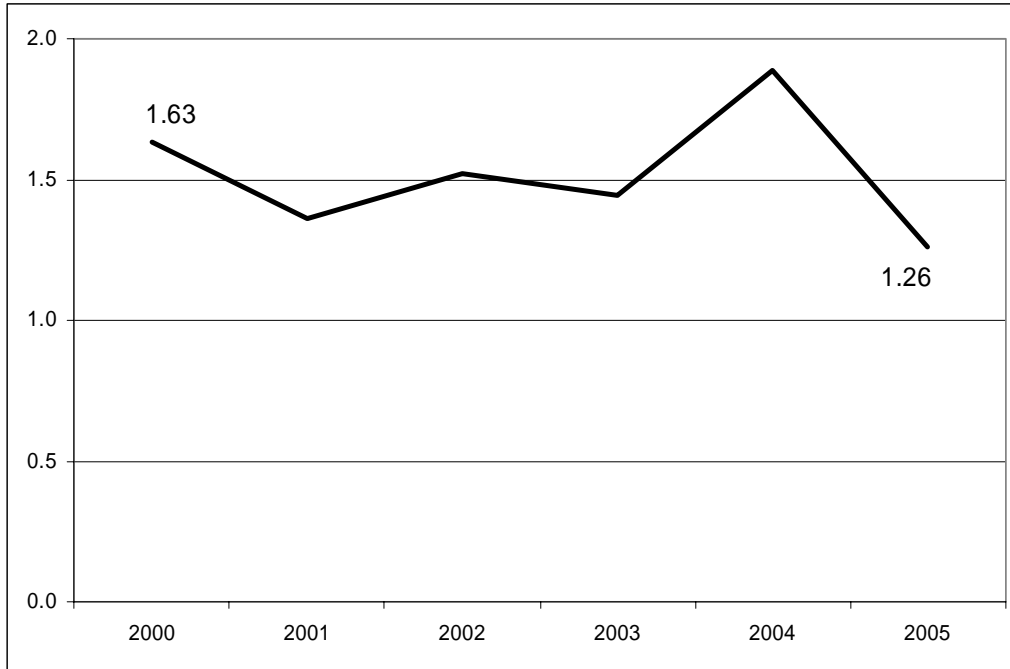
**Figure 1: Federal Range Ratio Inputs for Utah Districts**



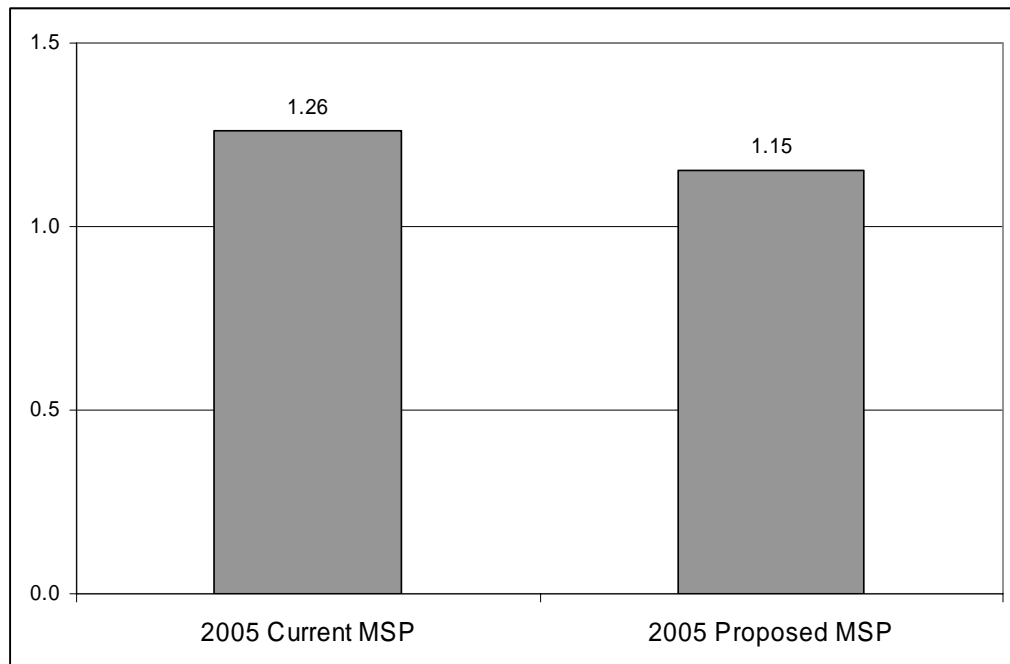
As illustrated in Figure 1, the amount of state revenue per student has been increasing over the past five years. In addition, the difference between the 95<sup>th</sup> and 5<sup>th</sup> percentile districts generally has been on a narrowing trend (see Figure 1). More important, the proposed alternative MSP results in a higher

amount of funding for the 5th percentile district (Murray, as calculated by the proposed alternative MSP) than the funding that goes to the 5th percentile district under the current MSP (Alpine), meaning that the federal range ratio actually is lower under the proposed alternative than it is under the current MSP (see Figure 2).

**Figure 2: Federal Range Ratio for Current Utah MSP**



**Figure 3: Federal Range Ratio for Current and Proposed Alternative MSP**



## Federal Range Ratio Inputs

### Current MSP

95th Percentile District: Rich (\$8,360)

5th Percentile District: Alpine (\$3,696)

### Proposed MSP

95th Percentile District: Rich (\$8,360)

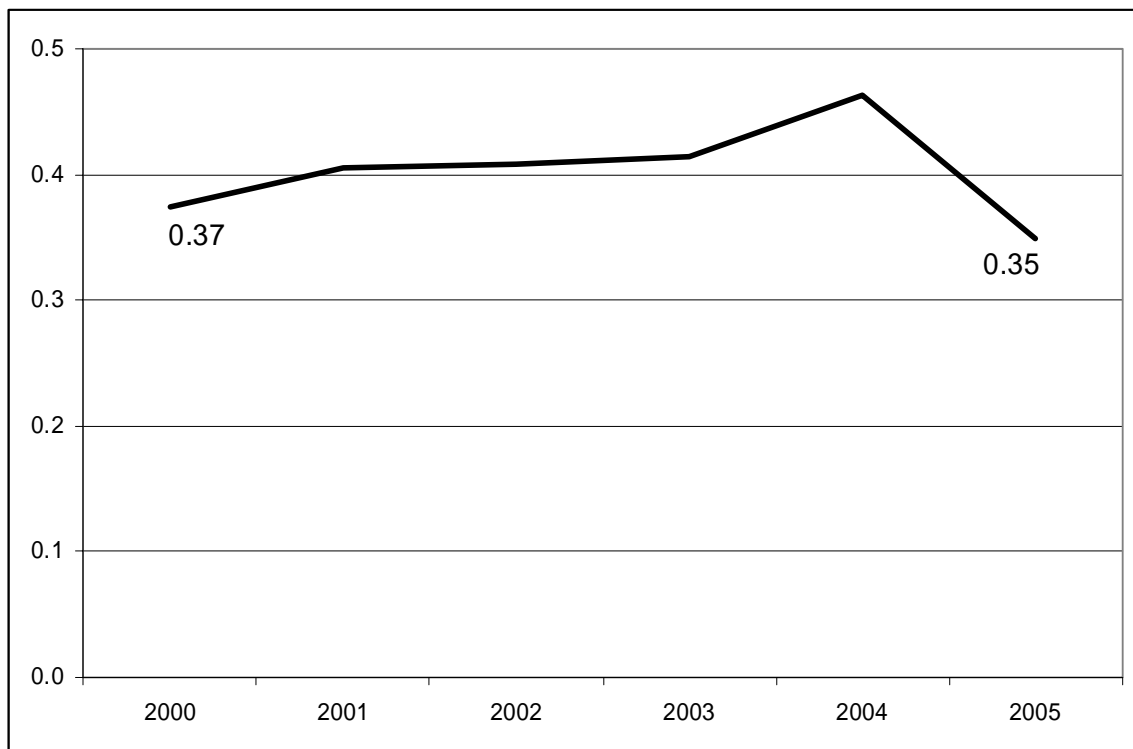
5th Percentile District: Murray (\$3,882)

## The Coefficient of Variation

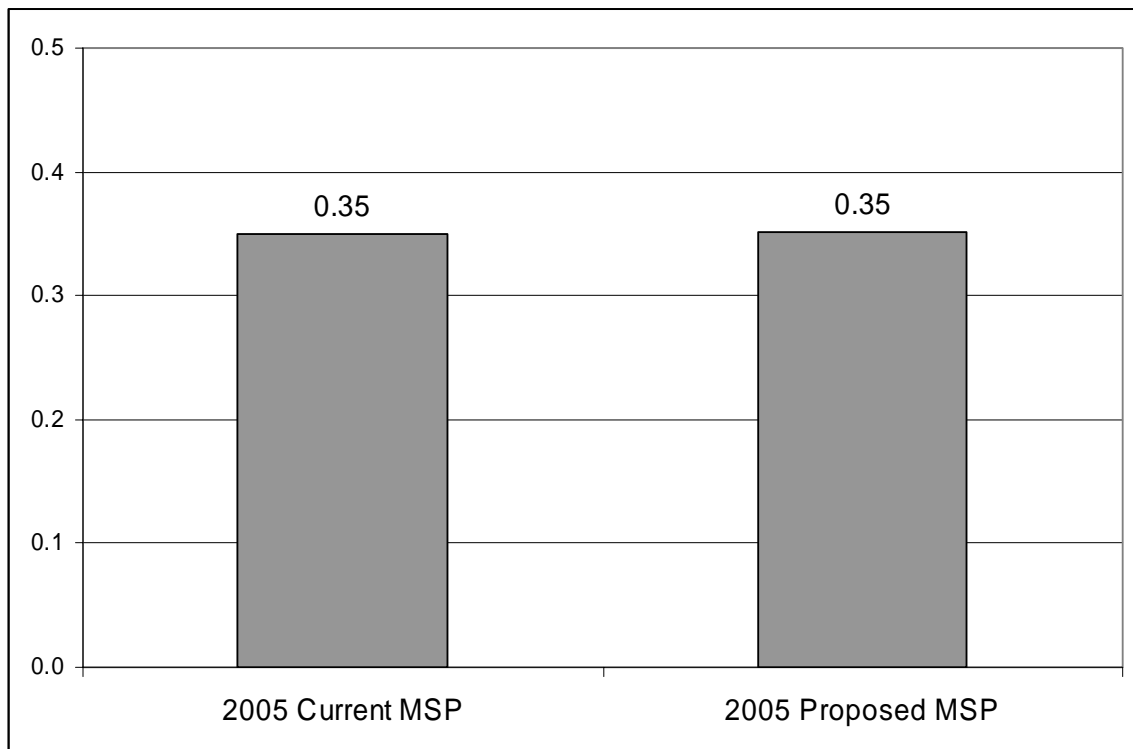
The second measurement, the coefficient of variation, calculates the standard deviation of a set of numbers and then expresses it as a percentage of the set's mean. This standardization allows us to compare the coefficient of variation across sets of numbers with different underlying units of measure, which is one reason the coefficient of variation is widely used. It also has the advantage of requiring only two common statistical calculations – the standard deviation and the mean.

Unlike the federal range ratio, the coefficient of variation increased slightly from FY2000 to FY2004. However, the situation seems to have improved significantly in FY2005 (see Figure 4). As measured by the coefficient of variation, the proposed alternative MSP is just as equitable as the current MSP (see Figure 5).

**Figure 4: Coefficient of Variation for Utah MSP**



**Figure 5: Coefficient of Variation for Current and Proposed Alternative MSP**



The proposed alternative MSP does not have an adverse effect on interdistrict equity in Utah. All six measurements of equity show the proposed alternative is at least as equitable as the current MSP, and some show it is more equitable.

<sup>1</sup> William Hussar and William Sonnenburg, "Trends in Disparities in School District Level Per Pupil Expenditures," *Education Statistics Quarterly*, vol. 2, issue 1 (May 26, 2000).

<sup>2</sup> Ibid, p. iii.

<sup>3</sup> Hussar and Sonnenburg, "Trends in Disparities," p. 13.