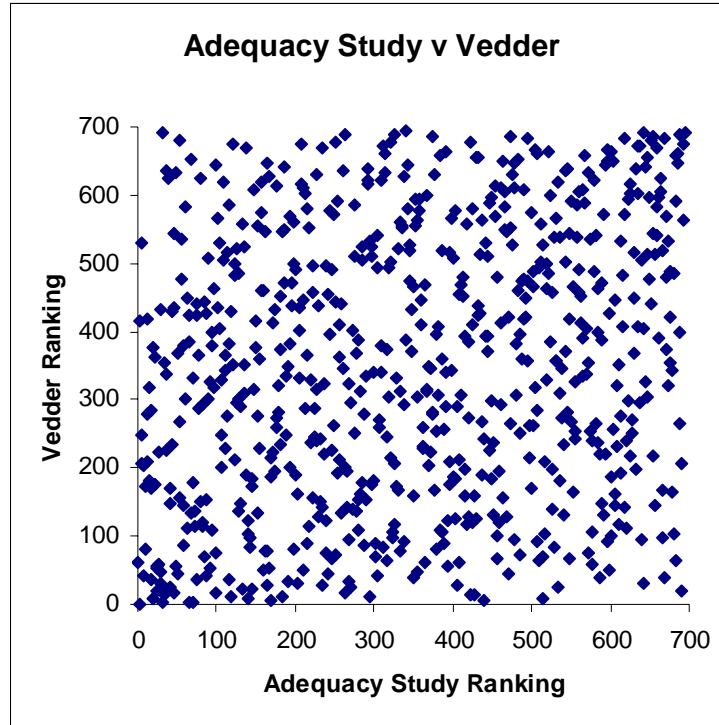


Technical Explanation

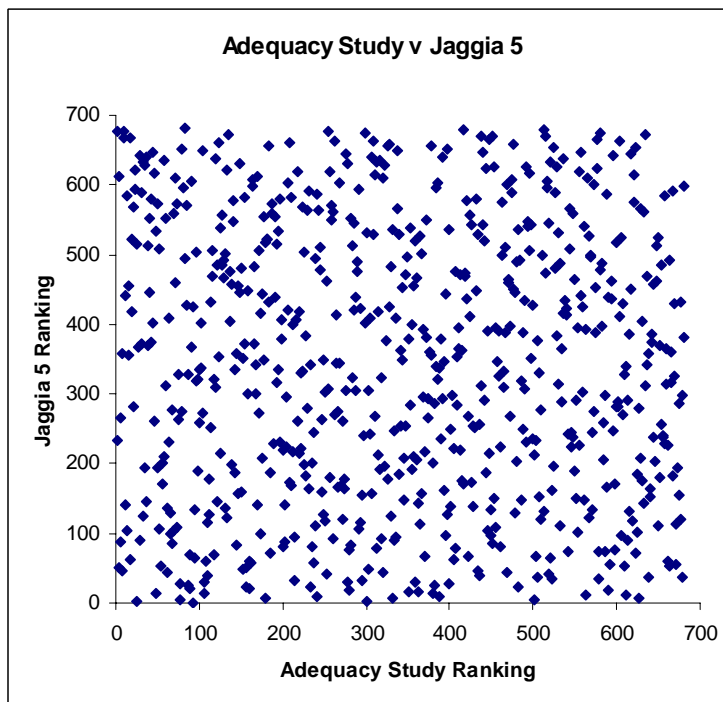
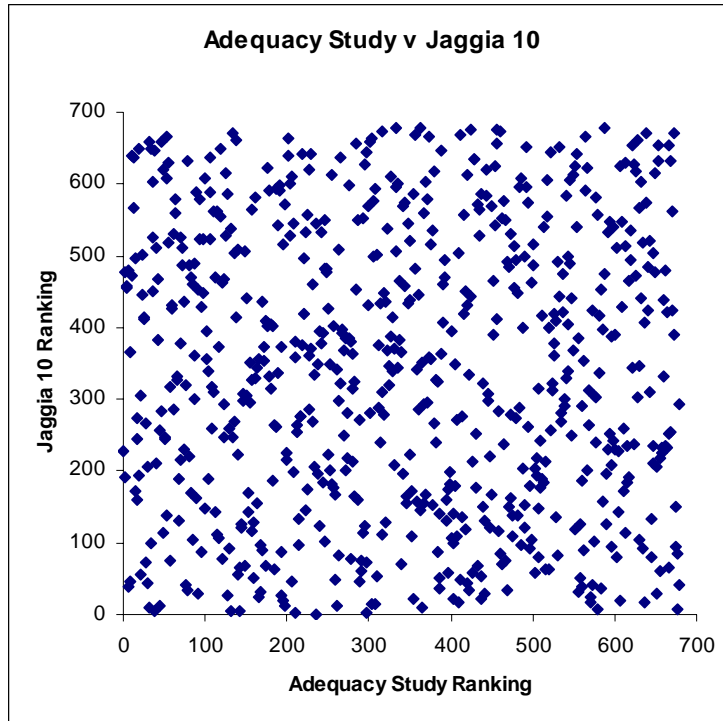
Here, additional detail is given regarding the comparisons of the various rankings discussed in *The Adequacy Study's School District Ranking: Does It Add To What We Already Know?*

- A study by Richard Vedder and Joshua Hall entitled *Effective, Efficient, Fair: Paying for Education in Texas* ranks 1,037 school districts.
(See <http://www.texaspolicy.com/pdf/2004-02-25-vedderhall-all.pdf> and <http://www.texaspolicy.com/pdf/2004-02-25-TexasDistrictEfficiencyRanking.pdf>)
- A study by Sanjiv Jaggia and Vidisha Vachharajani entitled *Assessing Performance: Spending and Learning in Texas Public Schools* produced a ranking preferred by the researchers of 940 school districts according to 10th grade TAKS performance. Another preferred ranking looks at 5th grade TAKS performance.
(See <http://www.texaspolicy.com/pdf/2004-03-19-BH-Educ.pdf> and <http://www.texaspolicy.com/pdf/2004-03-19-BH-Educ-rankings.pdf>)
- The ranking produced by the Texas Legislature's adequacy study by Timothy Gronberg, Dennis Jansen, Lori Taylor, and Kevin Booker entitled *School Outcomes and School Costs: The Cost Function Approach* ranks 694 school districts according to cost efficiency.
(See <http://www.capitol.state.tx.us/psf/Reports/school%20outcomes%20and%20school%20costs.doc2.pdf> and <http://www.texaspolicy.com/pdf/2004-07-lege-adaq-ranking.pdf>)
- The various rankings all compare districts according to performance and cost – i.e., efficiency.
- Two data sets are compared to determine how well they match up by calculating a *correlation*. A value of 1 indicates that the two sets of data line up exactly, proportionately rising and falling together. A value of -1 indicates the two sets of data line up exactly, proportionately moving in opposite directions, one rising, the other falling. A value of zero indicates a random relationship only happenstance data correspondence. Scatter plots provide graphic portrayals of correlation with strong correlations appearing as clusters of points trending together instead of random dots.

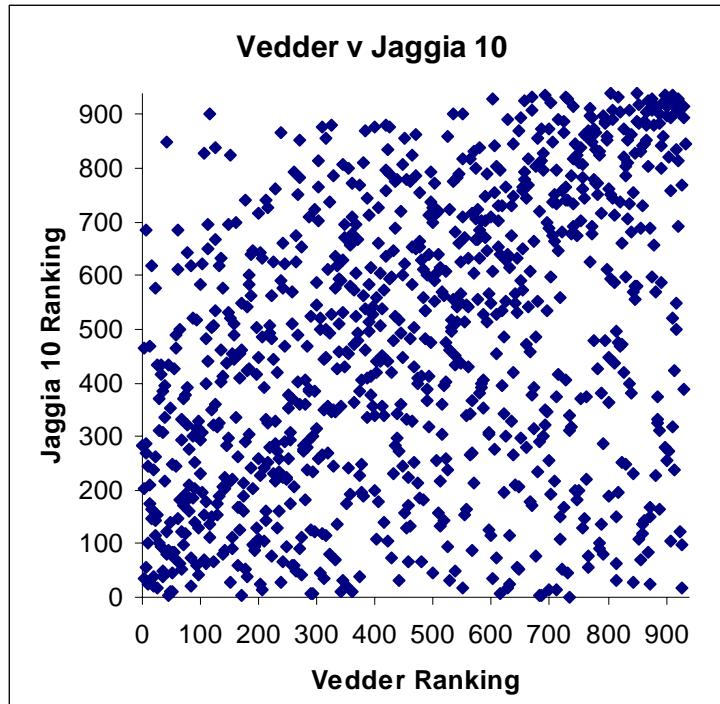
In comparing the Vedder/Hall ranking to the adequacy study ranking, the 694 school districts that both rank are compared in terms of relative ranking. A correlation coefficient between the two ranking sets is calculated at 0.219. See the scatter plot below.



- The preferred 5th grade and 10th grade Jaggia/Vachharajani rankings are compared to the adequacy study ranking. The 10th grade ranking list has 679 districts in common with the adequacy study ranking. The 5th grade ranking list has 681 districts in common with the adequacy study ranking. The correlation coefficient between the 10th grade ranking and the adequacy study ranking is -0.015. The correlation coefficient between the 5th grade ranking and the adequacy study ranking is -0.025. See the scatter plots below.



- The Vedder/Hall ranking is compared to the preferred 10th grade ranking from Jaggia/Vachharajani. The two lists have 932 school districts in common. The correlation coefficient between the two rankings is 0.41. See the scatter plot below. *Note the clustering not present in the plots above.*



- Rankings compare districts in terms of efficiency, sort them from most efficient to least efficient, and then apply a ranking with the most efficient district ranked as number one and so-on.
- Since the different rankings look at different numbers of districts, percentiles are useful. A percentile for a specific district tells what percentage of ranked districts fall below it. This allows easier comparison across ranking methods.
- In the first table below, a sample of districts with 10,000 and more students are compared in terms of their percentile scores from each of the ranking methods discussed, except for the 5th grade Jaggia/Vachharajani ranking.
- Abilene ISD is ranked in the bottom 11 percent of districts by two of the rankings, but in the top 15 percent by one. Two different rankings basically agree on Aldine ISD, ranking it better than 40 percent of districts while one ranks it in the bottom 15 percent. Alief ISD is ranked in the bottom third by the two that ranked Aldine relatively highly while the one that ranked Aldine low ranks Alief highly, above 99 percent of districts.
- While an average percentile from the various rankings is computed and reported, it is clear that it should be interpreted carefully given the differing results. *The often contradictory findings of three sound statistical studies demonstrate the difficulty of establishing scientific relationships between spending and student performance. See the second table for a comparison of the studies with respect to methodologies and limitations.*
- The third table below shows the ten districts most consistently ranked at the top of the three ranking systems as well as the ten districts most consistently ranked at bottom of the three ranking systems. *In these cases, the consistency of the rankings with one another indicates that the top ten districts very likely **are** least inefficient. The bottom ten districts very likely **are** most inefficient.*

- Note that West Orange-Cove ISD is in the bottom 1 percent of all districts ranked by the adequacy study, the bottom 11 percent in the Vedder ranking, and in the bottom 20 percent in the Jaggia 10th grade ranking.

**Sampling of Ranked School Districts
With 10,000 and More Students**

District Name	Vedder Ranking Percentile	Jaggia 10th Grade Ranking Percentile	Adequacy Study Ranking Percentile	Average Percentile
ABILENE ISD	87	11	11	36
ALDINE ISD	49	41	14	35
ALIEF ISD	34	33	99	56
ARLINGTON ISD	81	69	49	67
AUSTIN ISD	41	42	11	32
DALLAS ISD	23	19	49	30
ECTOR COUNTY ISD	67	9	98	58
EL PASO ISD	31	31	21	28
FORT WORTH ISD	42	33	30	35
HOUSTON ISD	23	21	10	18
PORT ARTHUR ISD	24	5	33	21
ROUND ROCK ISD	73	90	36	66
SAN ANTONIO ISD	18	18	31	22

Comparison of Studies Producing School District Rankings

	Adequacy Study	Vedder/Hall	Jaggia/Vachharajani
Designed To	Provide information to reformulate the current school finance system	Evaluate the relationship between school spending and student performance	Evaluate the relationship between school spending and student performance
Methodology	Statistical analysis used to predict costs associated with various student, school and community characteristics and input levels; the most statistically complex methodology	Statistical analysis comparing student performance to levels of funding taking inputs into account; least statistically complex methodology	Statistical analysis comparing student performance to levels of funding taking student characteristics and inputs into account
Tells Us	Current levels of spending associated with various student and community characteristics; relative levels of inefficiency of school districts	Greater school spending is not associated with greater student performance; resources should be reallocated to purposes directly related student instruction	Greater school spending is not associated with greater student performance; resources should be reallocated to purposes directly related student instruction
Does Not Tell Us	How much money is necessary to achieve a certain level of performance	How to cost out a new school funding system	How to cost out a new school funding system
Limitations	Cannot identify a causal relationship between spending and performance; ranks only 70 percent of school districts; easily misapplied	Cannot identify a causal relationship between total spending and performance; does not lower expectations for a "hard-to-educate" students	Cannot identify a causal relationship between spending and performance; ranks about 90 percent of school districts
Usefulness	Does yield information to policymakers to redesign the current school finance system, taking historical spending patterns into account	Ranks all school districts according to a simple efficiency measure; shows how money is spent is more important than how much	Provides a measure of how well schools are meeting state expectations

District Name	Vedder Ranking Percentile	Jaggia 10th Grade Ranking Percentile	Adequacy Study Ranking Percentile	Average Percentile
TOP TEN				
FRIENDSWOOD ISD	99	96	95	97
MOULTON ISD	97	98	94	96
LORENA ISD	98	96	93	96
GREGORY-PORTLAND ISD	95	91	99	95
ALLEN ISD	94	91	96	94
WYLIE ISD	88	93	99	94
COPPELL ISD	93	87	96	92
GATESVILLE ISD	98	83	95	92
BRAZOSPORT ISD	98	84	86	89
ROCKWALL ISD	90	86	92	89
BOTTOM TEN				
CARRIZO SPRINGS CISD	21	12	4	12
WEST ORANGE-COVE CISD	11	20	1	11
MANOR ISD	9	11	8	9
WILMER-HUTCHINS ISD	10	0	13	8
MENARD ISD	12	9	1	8
CRANE ISD	9	6	8	8
LA PRYOR ISD	6	6	4	5
BENAVIDES ISD	3	4	7	5
NORTH FOREST ISD	5	2	6	4
HITCHCOCK ISD	4	2	1	2