

Year 2001 Update:
Accuracy of API Index and School Base Report Elements

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December 2002
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This reports supplements the main report "Accuracy of API Index and School Base Report Elements" with results and selected displays for the Year 2001 API data. This year 2001 report repeats the format of the year 2000 update report:

- Part A "Standard Errors of School API"
- Part B "Hit Rate for Statewide Decile Ranks"

Versions of Figures 1, 3 and 4 and Tables 1 and 3 from the year 1999 report are presented using the year 2001 data. The year 2001 Base API differs from the API index in years 2000 and 1999 by the inclusion of a California Standards TEST (ELA) with associated changes in the weighting of the Stanford 9 components. The CDE website contains a number of documents describing the construction of the year 2001 Base API. The presentation here presumes the reader is familiar with the discussion and presentation in the precursor "Accuracy of API Index and School Base Report Elements". As in the precursor reports the motivation for studying the statistical properties of the quantities in the School Report is to address the question: How seriously can we regard these numerical values without (over)interpreting these numbers beyond the accuracy they can support?

Part A. Standard Errors of School API, Year 2001 Data

Descriptive statistics for the standard error of the API--s.e.(API)-- are shown in Table 1, first for each school type and below that the median standard error for each state decile. Further display of s.e.(API) is provided by the plots for Elementary, Middle and High Schools in Figure 1. Regardless of school type, schools have a wide range of values for s.e.(API). Magnitudes of s.e.(API) are slightly smaller than those seen for schools in the 1999 and 2000 data; the patterns of s.e.(API) are quite similar to the prior years, and the full discussion is not repeated here. A major feature of s.e.(API) is the dependence on the number of students (denote by n) contributing to the school's API index. Although the dependence of s.e.(API), on the number of students is strong, the plots in Figure 1 also show some sizable differences for schools of the same size, mainly as a result of the additional dependence of s.e.(API) on the school's API score.

INSERT TABLE 1

INSERT FIGURE 1

Table 1: Standard Error of School API, Year 2001

Descriptive Statistics: s.e.(API)

	N	Median	Q1	Q3	Minimum	Maximum
Elem	4895	11.044	9.317	12.950	3.046	24.073
Mid	1153	7.702	6.575	9.193	3.285	21.804
High	857	6.280	5.362	8.017	1.888	22.909

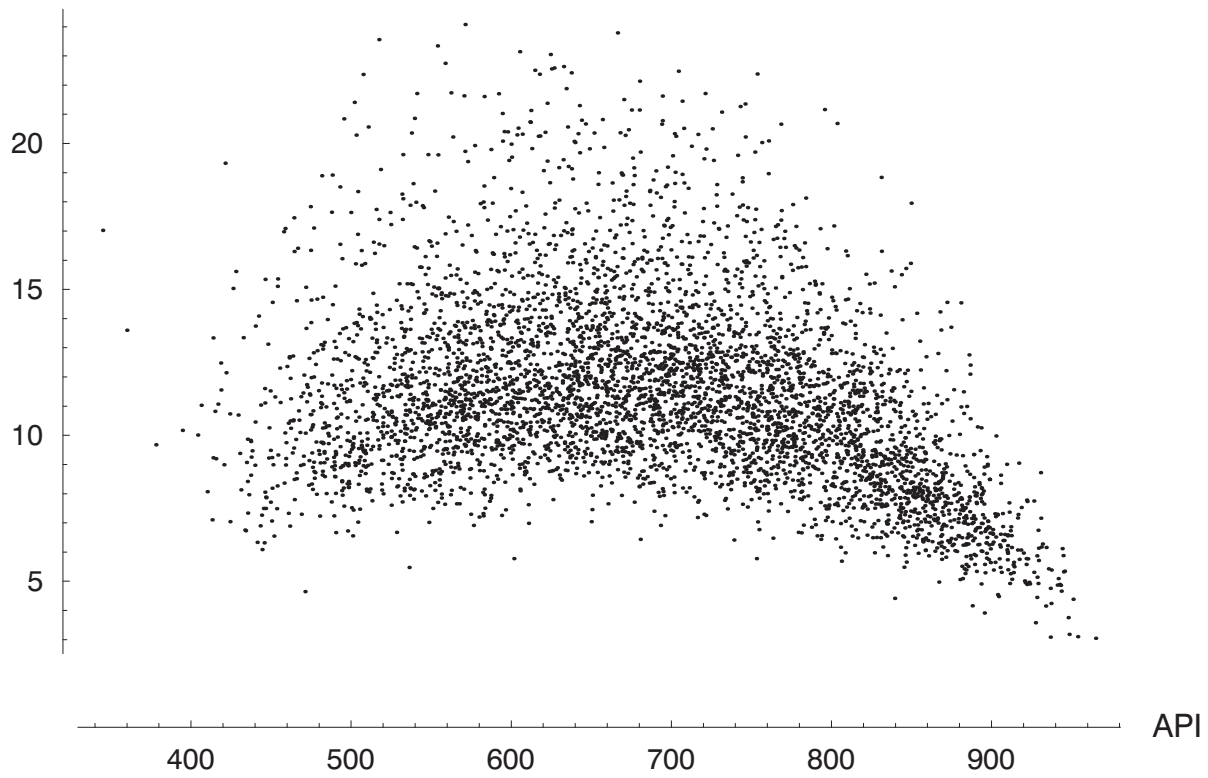
Median s.e.(API) by CARank (state decile)

CARank	Elem		Middle		High	
	N	Median	N	Median	N	Median
1	486	10.495	114	7.448	83	5.722
2	488	11.297	115	7.699	87	6.430
3	489	11.897	116	8.168	86	6.623
4	491	12.033	115	8.618	86	6.236
5	482	12.113	116	8.340	85	6.407
6	488	12.210	116	8.430	84	6.535
7	494	11.387	116	7.767	85	6.772
8	493	10.824	111	7.628	89	6.284
9	484	9.394	118	7.009	84	6.178
10	500	7.376	116	5.545	88	5.282

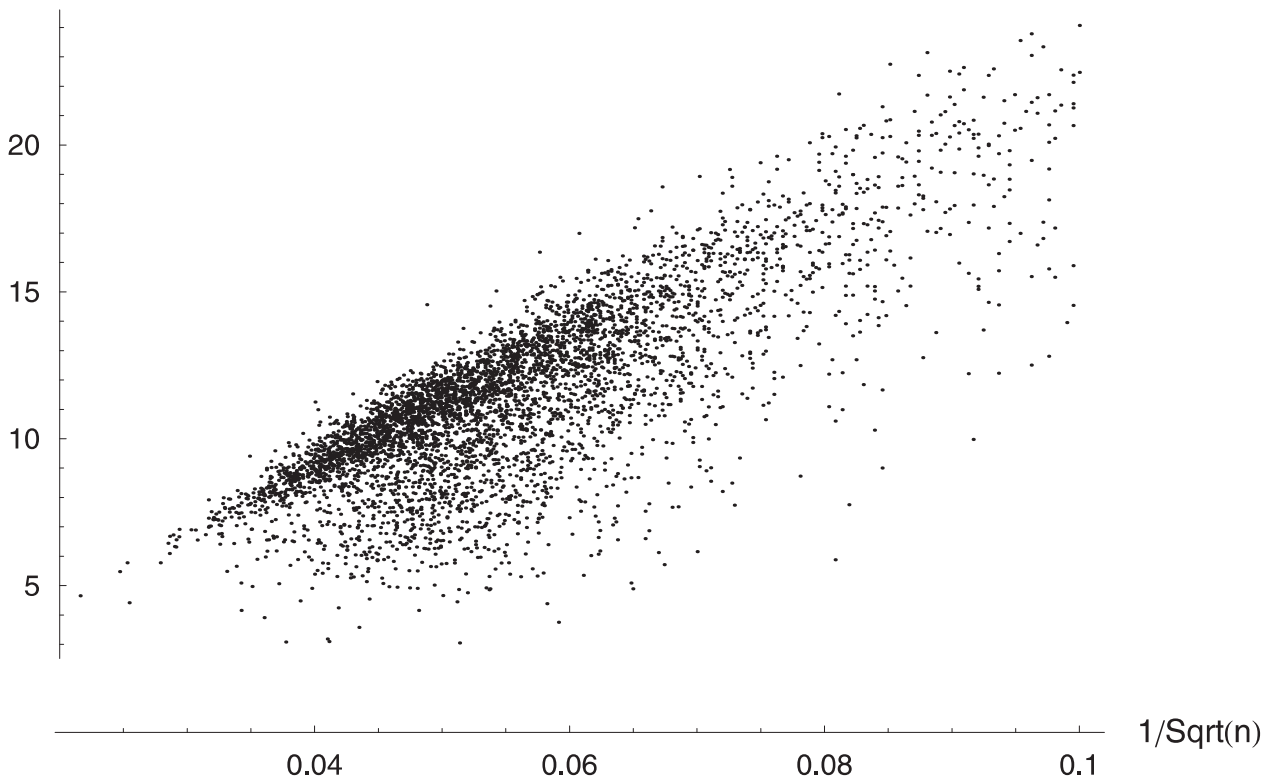
Figure 1 Plots for API Standard Errors

Year 2001 Elementary Schools

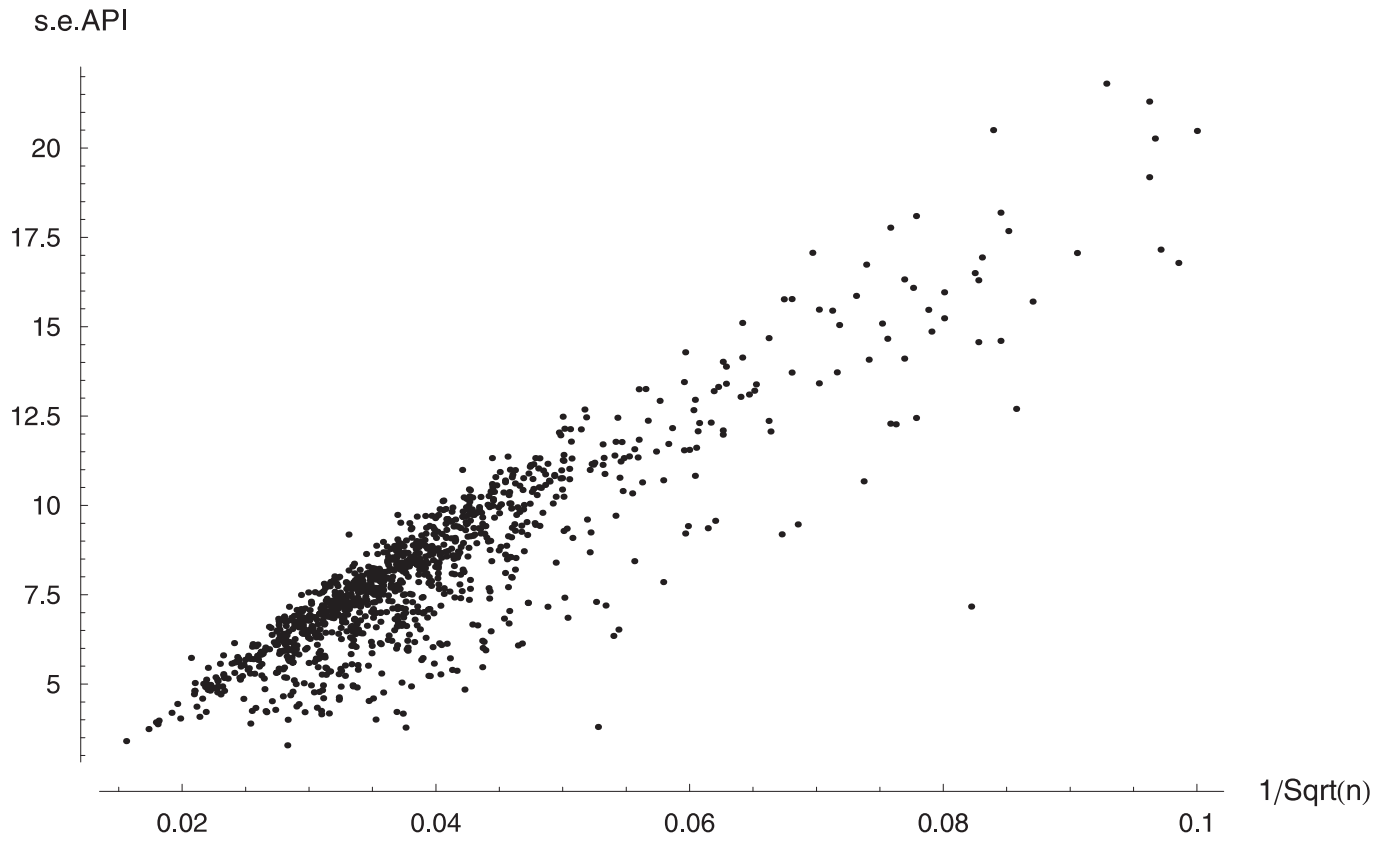
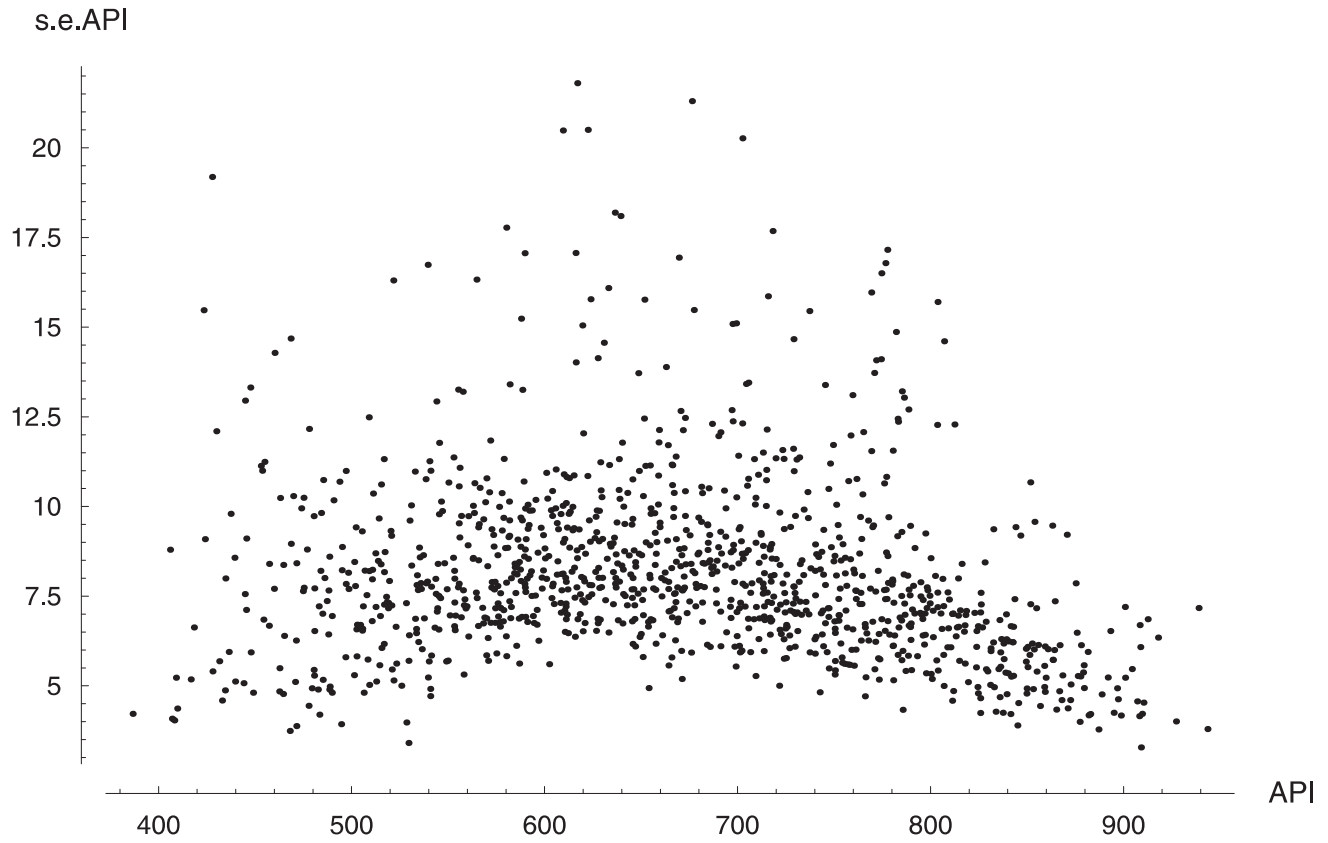
s.e.API



s.e.API

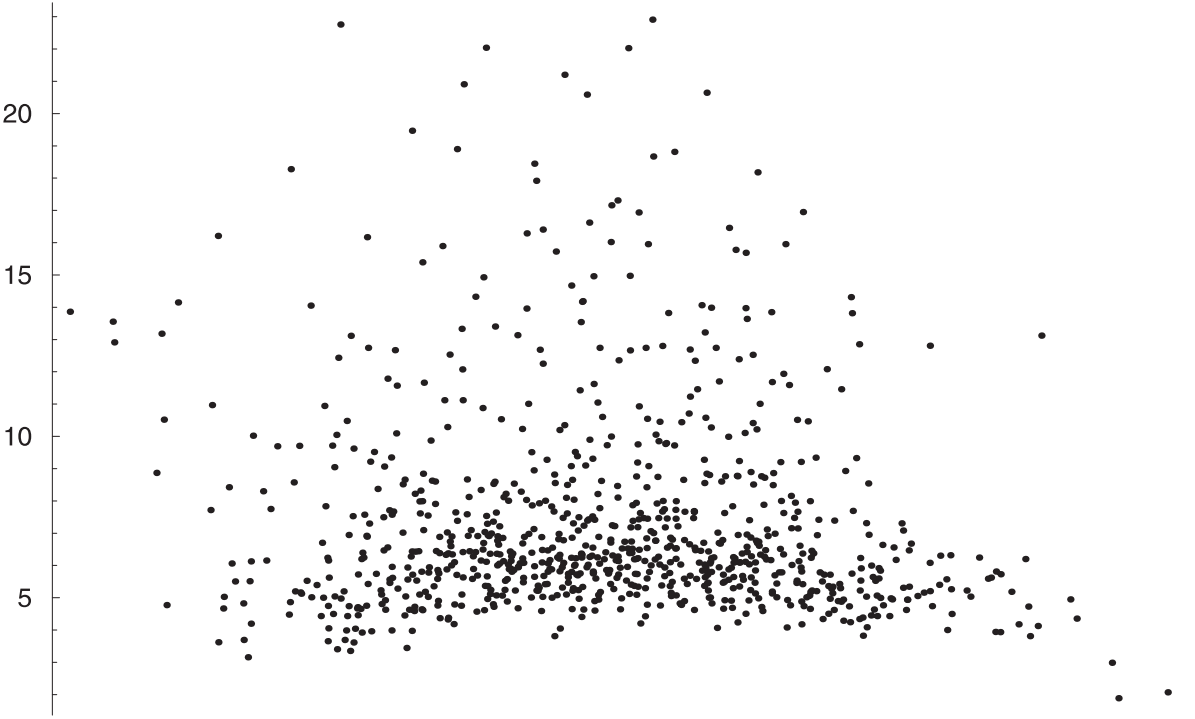


Year 2001 Middle Schools



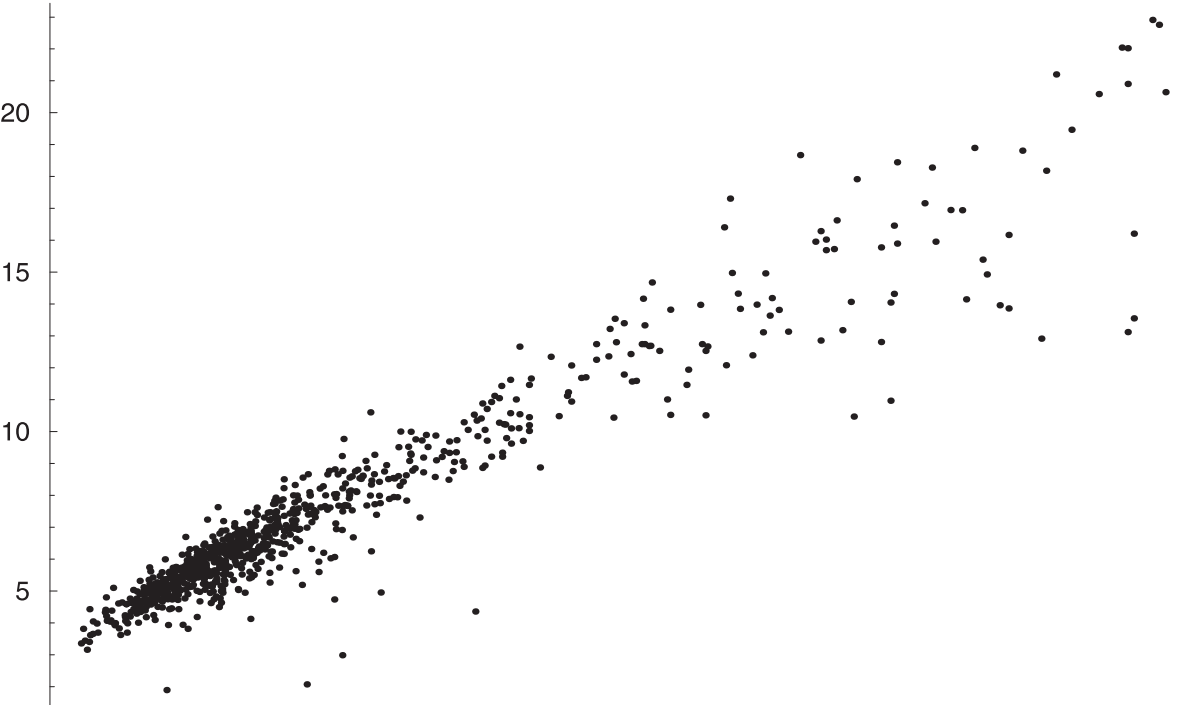
Year 2001 High Schools

s.e.API



API

s.e.API



1/Sqrt(n)

Part B. Hit Rate for Statewide Decile Ranks.

As with the precursor report for the 1999 data, the accuracy of the use of the school API score to determine the reported statewide rank is quantified by the hit-rate:

$$\text{decile accuracy hit-rate} = 1 - \text{Prob}\{\text{sampling variability in API score moves the school out of its assigned decile}\}.$$

The decile accuracy hit-rate quantifies an answer to the question: What is the effect of the statistical variability (wobble) in the school API score on the statewide rank? The median hit-rate for Elementary schools is .81 and for High Schools .9. Quartiles and median values for the hit-rates are broken down by state decile in Table 2. These values are similar in magnitude and pattern to those discussed for the 1999 and 2000 data.

INSERT TABLE 2

As discussed in the precursor report, a school with an API score near a decile boundary will have a much larger probability of statistical variability moving the API score into the adjoining decile. That motivates plotting hit-rate versus position in the decile shown in Figure 2 and Figure 3. Figure 2 shows the hit rate for 2000 schools in statewide deciles 2 through 9; Figure 3 shows separate plots for each state decile. Schools in the middle of a decile have very high hit-rates, except for the smallest schools. (Note: minimum school size for these plots is 100; schools with the "S" designation are not included.) For example, high school deciles 5 and 6 in Figure 3 show some rather low hit-rate values, and these are the smaller high schools (size a little above the 100 minimum).

INSERT FIGURE 2 AND FIGURE 3

Table 2

Decile Accuracy Hit Rates by School type and Decile, Year 2001 Data

decile accuracy hit-rate =

1 - Prob{sampling variability in API score moves the school score out of its assigned decile}.

Elementary Schools

Decile	Median Hit-rate	Lower Quartile	Upper quartile
1	1.	0.924	1.
2	0.805	0.657	0.905
3	0.787	0.661	0.885
4	0.744	0.614	0.842
5	0.709	0.608	0.814
6	0.733	0.625	0.818
7	0.752	0.631	0.852
8	0.811	0.674	0.9
9	0.87	0.718	0.954
10	1.	0.944	1.

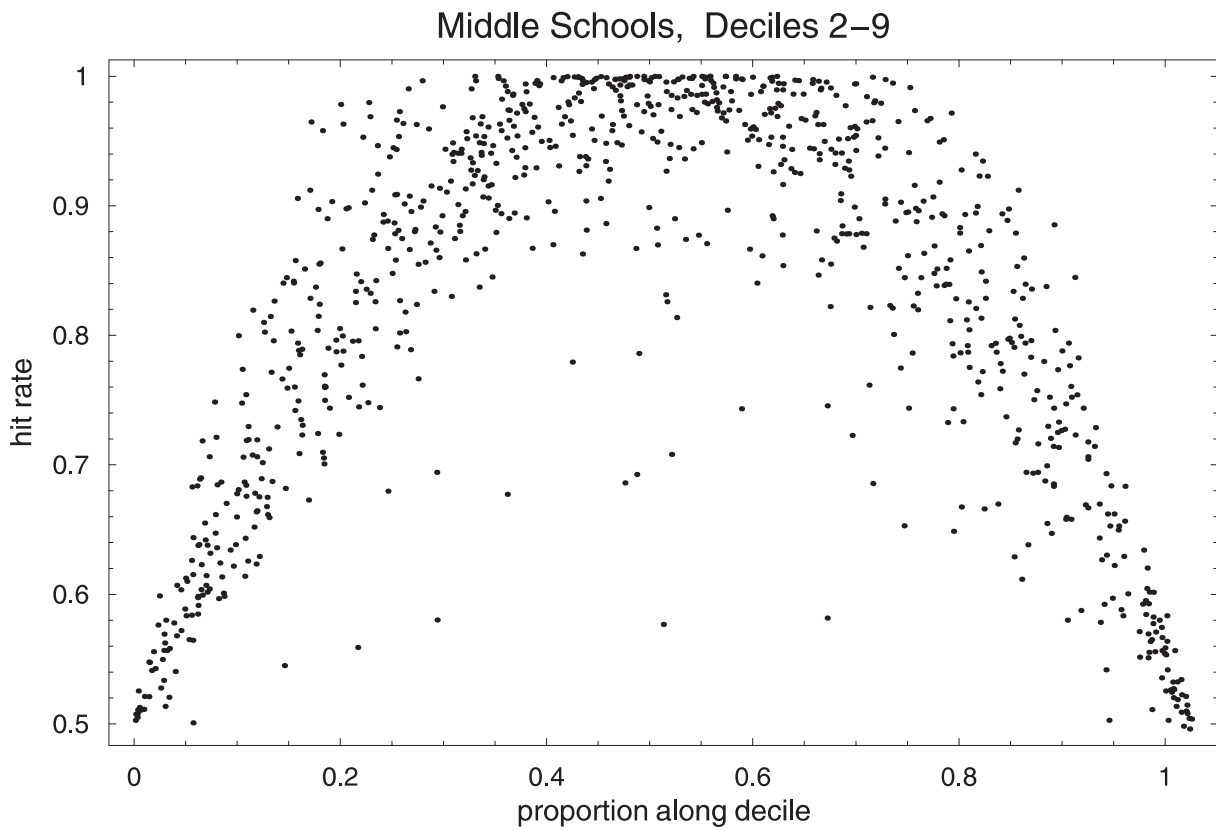
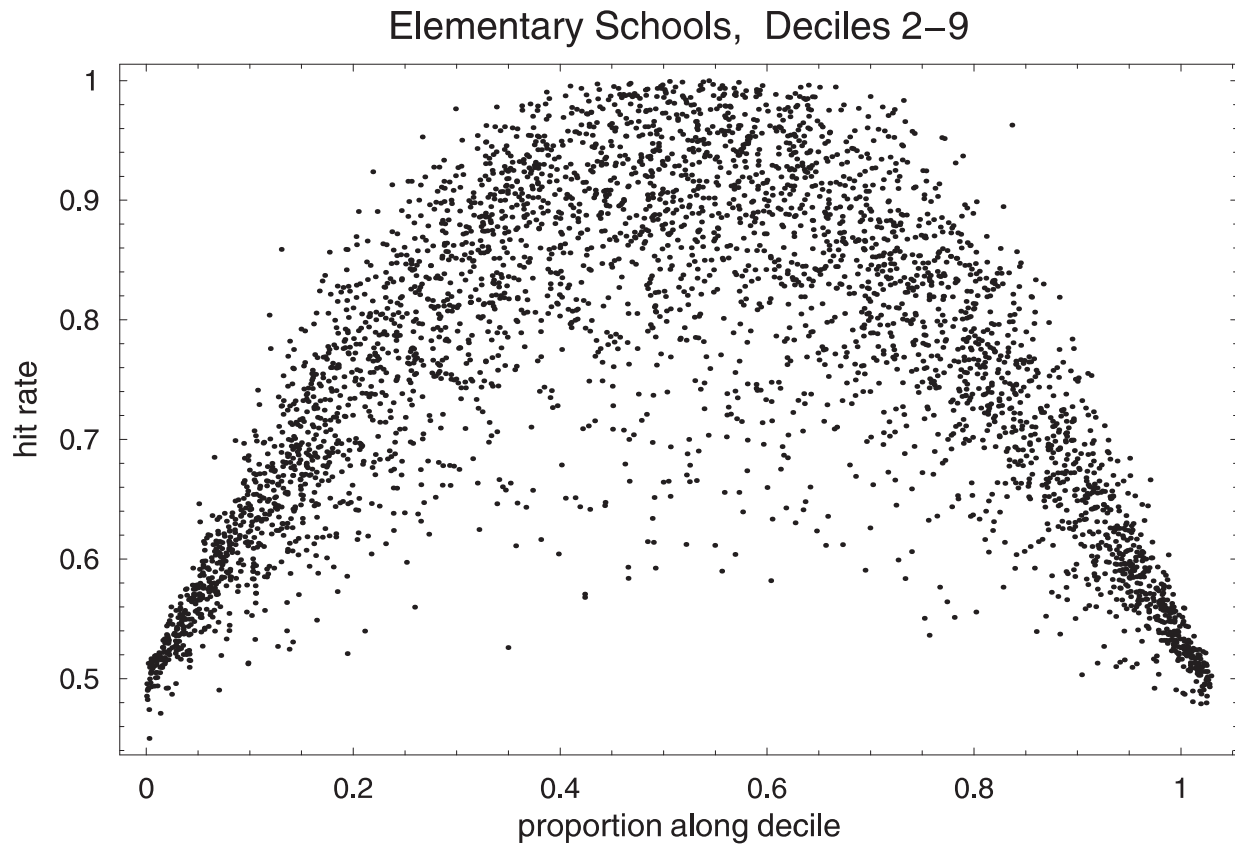
Middle Schools

Decile	Median Hit-rate	Lower Quartile	Upper quartile
1	1.	0.974	1.
2	0.936	0.77	0.996
3	0.877	0.744	0.947
4	0.842	0.701	0.936
5	0.817	0.634	0.924
6	0.809	0.655	0.919
7	0.876	0.745	0.948
8	0.867	0.709	0.953
9	0.949	0.805	0.994
10	1.	0.989	1.

High Schools

Decile	Median Hit-rate	Lower Quartile	Upper quartile
1	1.	0.975	1.
2	0.946	0.748	0.994
3	0.856	0.721	0.959
4	0.834	0.658	0.947
5	0.806	0.671	0.91
6	0.82	0.649	0.94
7	0.789	0.626	0.927
8	0.818	0.632	0.944
9	0.958	0.798	0.996
10	1.	0.991	1.

Figure 2 Plots of API State Decile Hit Rates, Year 2001



High Schools, Deciles 2–9

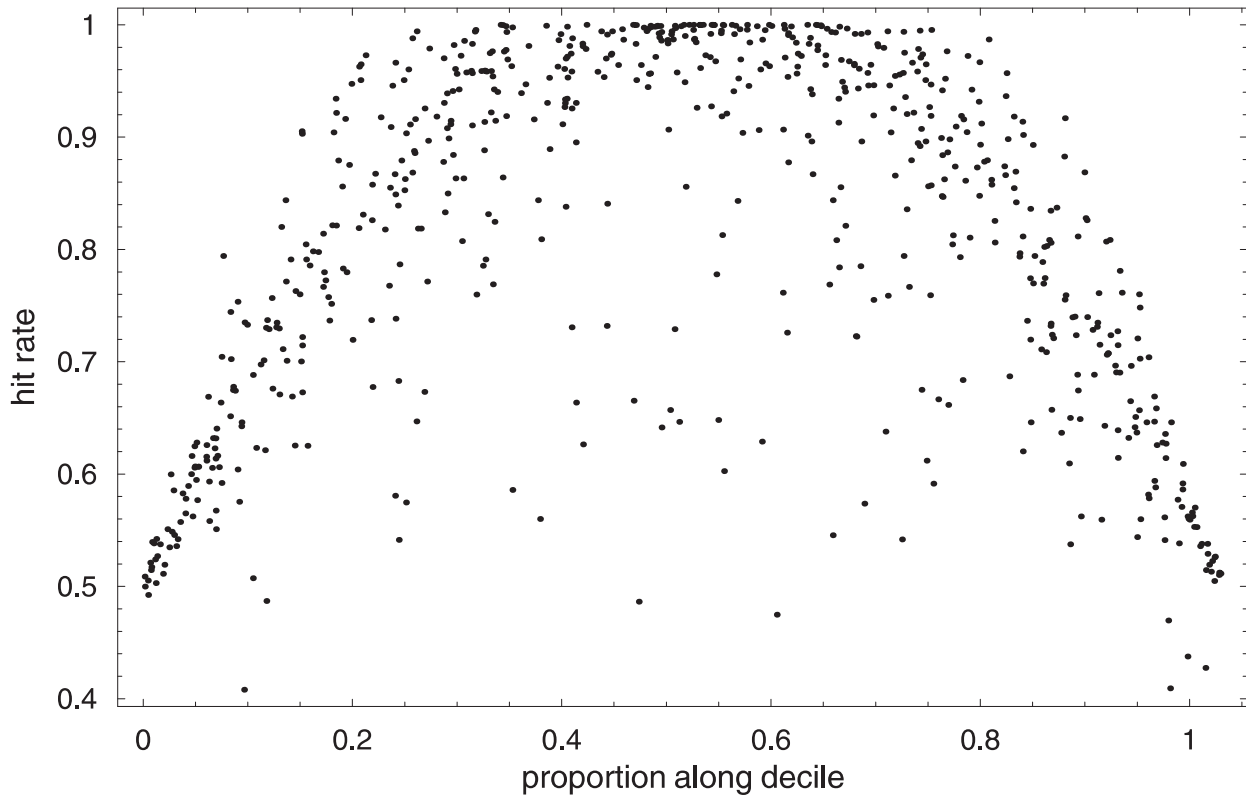
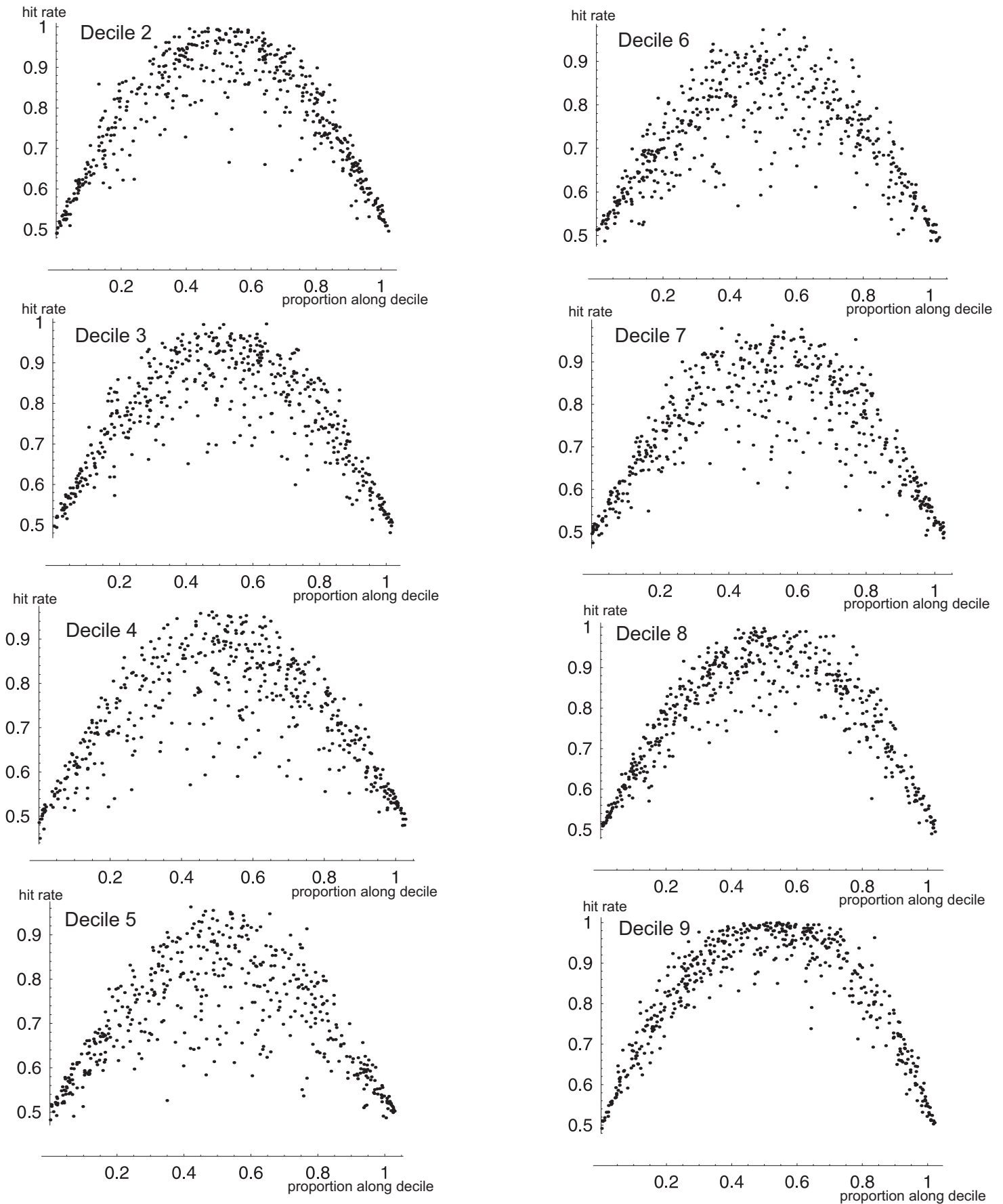
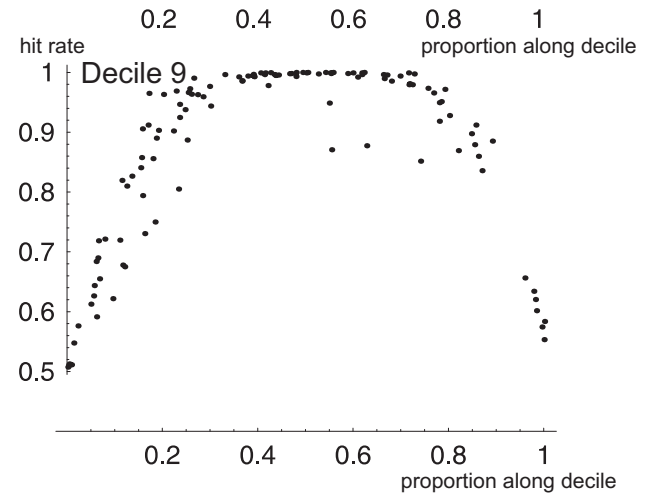
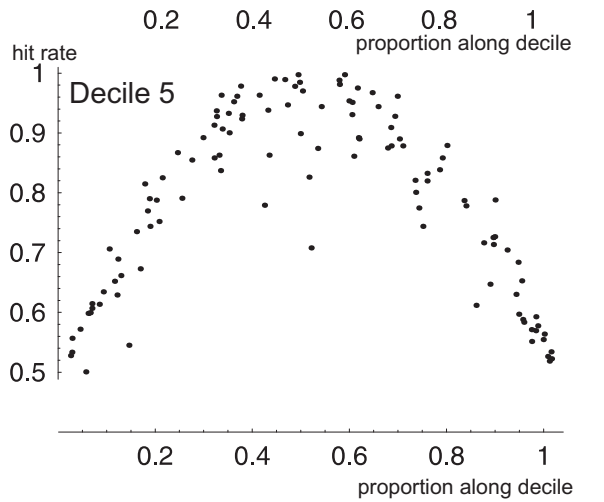
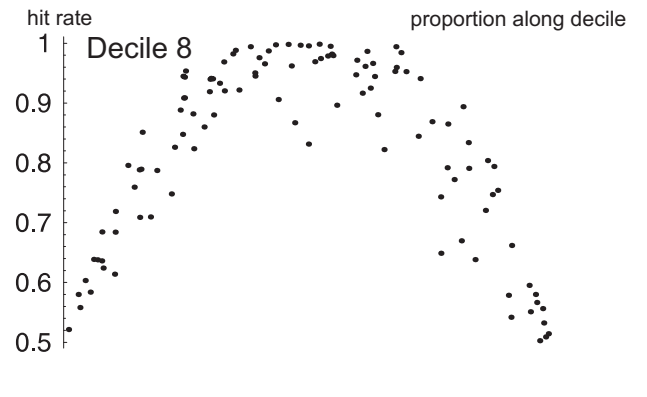
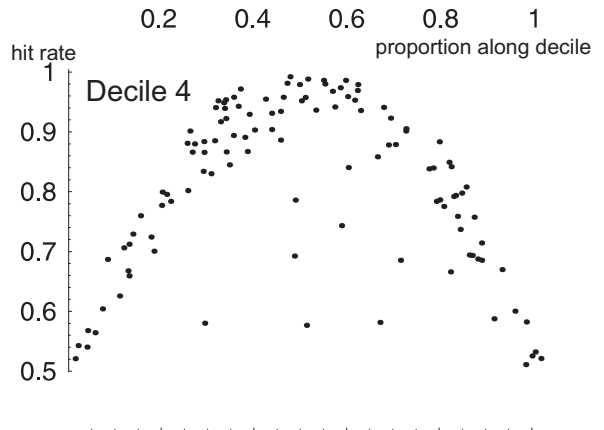
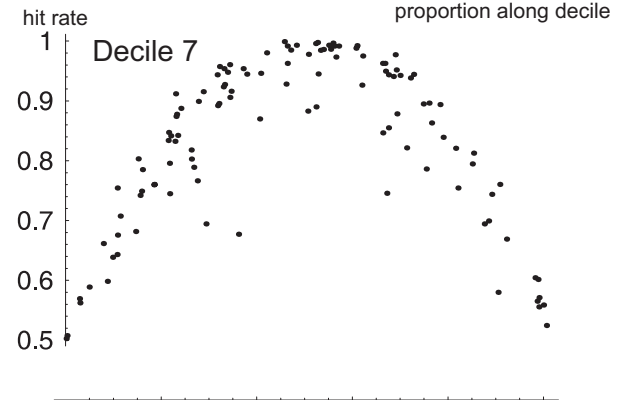
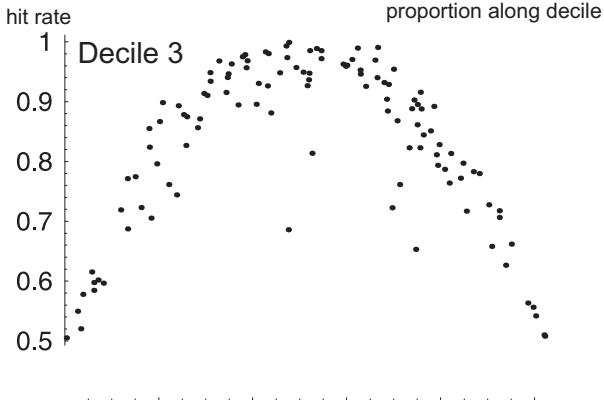
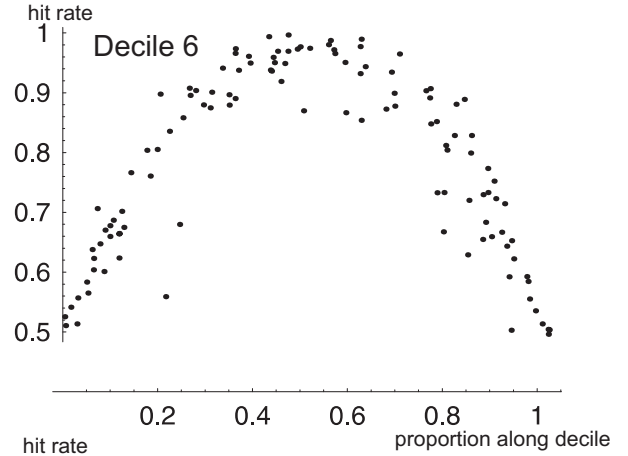
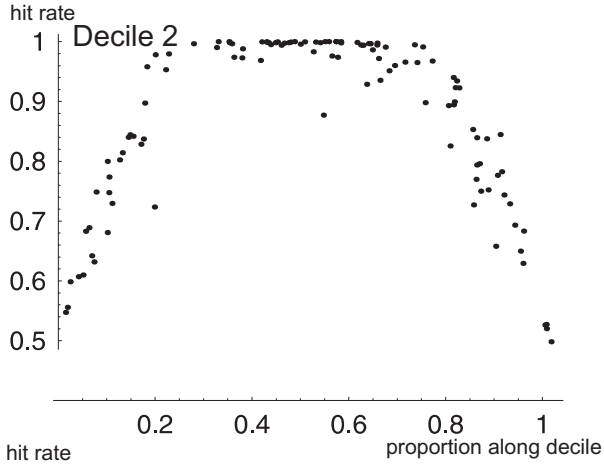


Figure 3 Plots of Decile Hit Rates by Decile, Year 2001

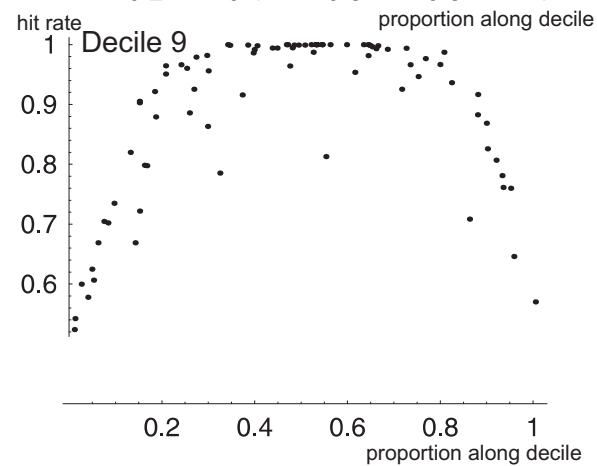
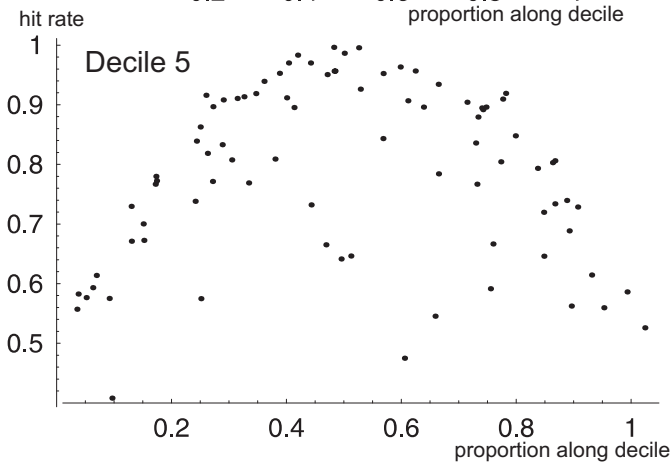
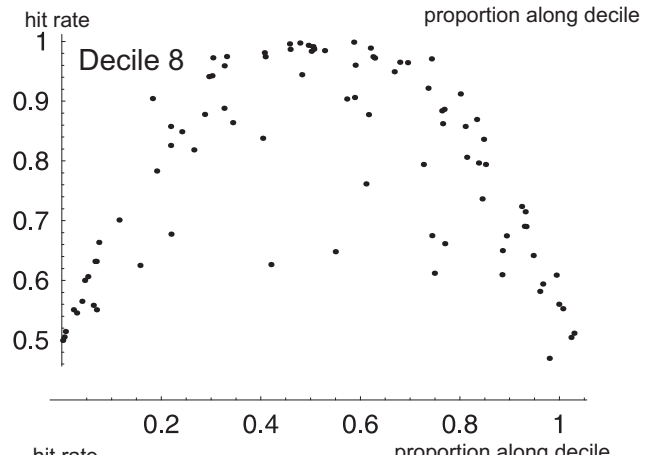
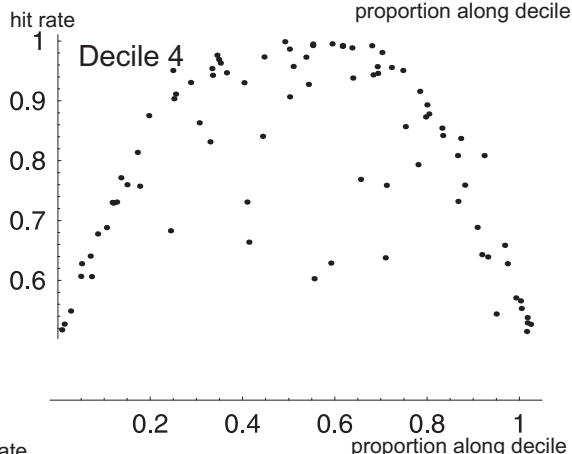
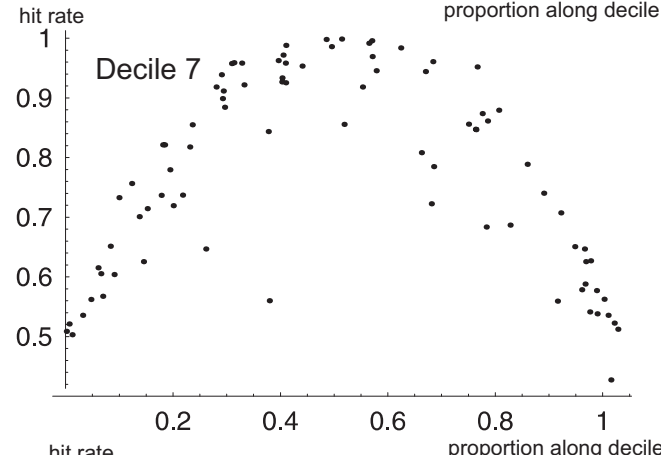
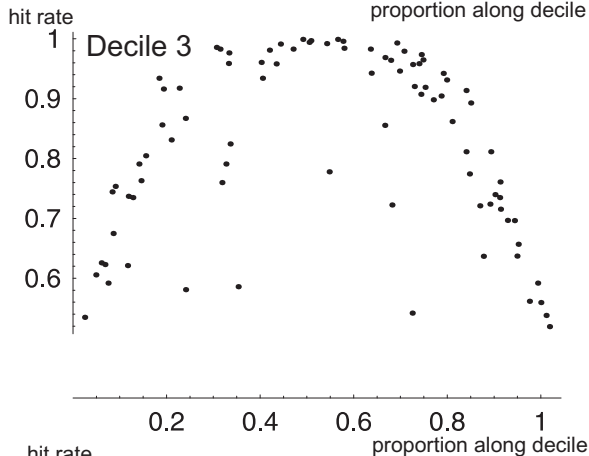
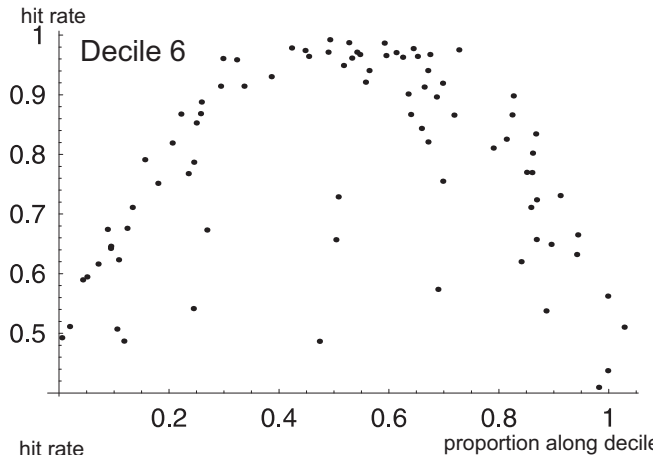
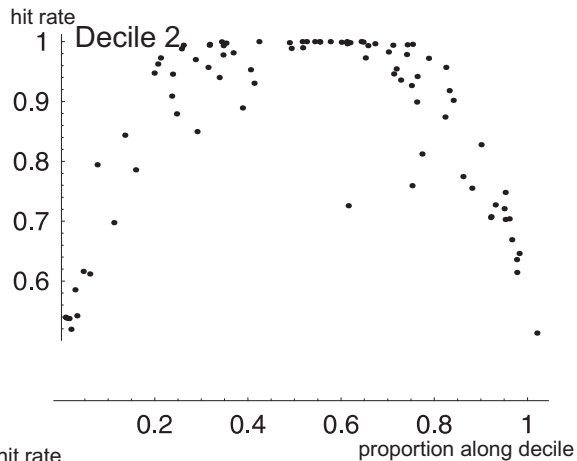
Elementary Schools, Hit Rate for Decile Rank by State Decile



Middle Schools, Hit Rate for Decile Rank by State Decile



High Schools, Hit Rate for Decile Rank by State Decile



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Appendix: Data File Archive

A file in .sasbdat7 format containing the various accuracy quantities from this report along with a readme file for variable definitions can be obtained at

<http://www-stat.stanford.edu/~rag/api/apiacc01.zip>