

## **Appendix C. Comparison of Equating Methods**

Table C1. Scale Score Summary Statistics by Equating Method and Group: Algebra

Algebra Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi-percentile	HSA <sup>1</sup>	Stocking and Lord	Linear Equi-percentile	HSA <sup>2</sup>
Scale Score	Mean	421.77	426.53	426.25	360.06	367.00	426.60
	SD	35.24	33.91	28.23	49.37	49.43	37.44
	Min	240	240	240	240	240	240
	Max	650	650	522	468	471	650
	N	2,412	2,412	2,412	2,716	2,716	75,843
Proficiency Level Percentages	Basic	32.88	26.16	25.87	90.13	86.34	30.04
	Proficient	50.79	53.81	55.27	9.54	13.29	43.81
	Advanced	16.33	20.02	18.86	0.33	0.37	26.15
Equating Constants	Additive	421.58	426.37				
	Multiplicative	28.09	26.63				

Note 1: Linking sample students' performance on the Algebra HSA.

Note 2: All HSA students' performance on the Algebra HSA.

Table C2. Scale Score Summary Statistics by Equating Method and Group: Biology

Biology Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi- percentile	HSA <sup>1</sup>	Stocking and Lord	Linear Equi- percentile	HSA <sup>2</sup>
Scale Score	Mean	421.25	421.03	420.89	360.23	361.69	418.82
	SD	37.75	36.76	30.30	47.99	47.72	35.28
	Min	240	240	240	240	240	240
	Max	650	650	531	461	459	560
	N	3,055	3,055	3,055	2,007	2,007	60,692
Proficiency Level Percentages	Basic	23.50	22.88	23.14	84.01	83.56	27.95
	Proficient	59.02	60.72	61.37	15.89	16.34	54.44
	Advanced	17.48	16.40	15.48	0.10	0.10	17.61
Equating Constants	Additive	420.95	420.76				
	Multiplicative	30.82	29.67				

Note 1: Linking sample students' performance on the Biology HSA.

Note 2: All HSA students' performance on the Biology HSA.

Table C3. Scale Score Summary Statistics by Equating Method and Group: English

English Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi-percentile	HSA <sup>1</sup>	Stocking and Lord	Linear Equi-percentile	HSA <sup>2</sup>
Scale Score	Mean	408.52	412.82	412.26	353.60	358.47	408.23
	SD	39.19	38.70	31.03	42.19	42.74	34.81
	Min	240	240	240	240	240	240
	Max	650	650	650	440	444	650
	N	1,864	1,864	1,864	2,524	2,524	63,474
Proficiency Level Percentages	Basic	31.76	26.61	27.04	89.50	85.78	33.64
	Proficient	43.72	43.94	46.62	10.30	13.83	40.39
	Advanced	24.52	29.45	26.34	0.20	0.40	25.97
Equating Constants	Additive	408.19	412.55				
	Multiplicative	28.26	27.75				

Note 1: Linking sample students' performance on the English HSA.

Note 2: All HSA students' performance on the English HSA.

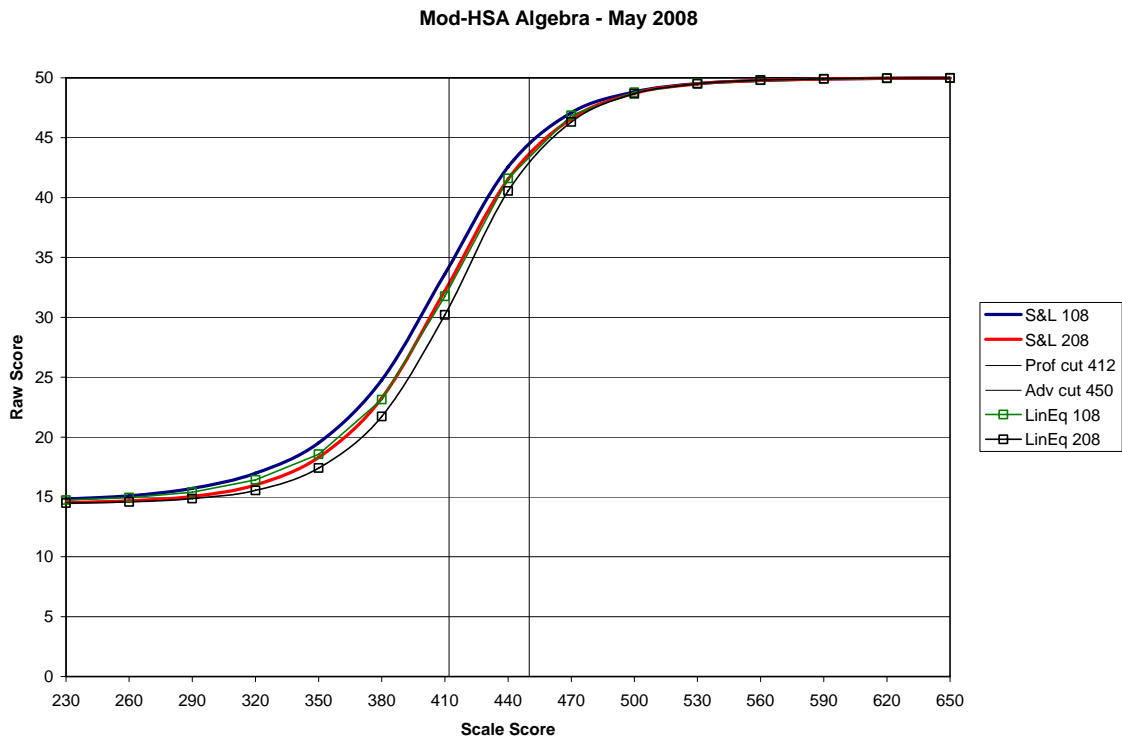
Table C4. Scale Score Summary Statistics by Equating Method and Group: Government

Government Mod-HSA		Linking			Target		May08 HSA Students
		Stocking and Lord	Linear Equi-percentile	HSA <sup>1</sup>	Stocking and Lord	Linear Equi-percentile	HSA <sup>2</sup>
Scale Score	Mean	424.71	433.02	430.17	357.38	361.92	422.67
	SD	49.55	50.46	35.65	49.24	51.71	40.86
	Min	240	240	249	240	240	240
	Max	650	650	566	486	499	650
	N	2,132	2,132	2,132	2,261	2,261	64,376
Proficiency Level Percentages	Fail	20.17	15.81	15.71	82.26	74.83	23.33
	Pass	79.83	84.19	84.29	17.74	25.17	76.67
Equating Constants	Additive	423.06	431.79				
	Multiplicative	31.90	34.16				

Note 1: Linking sample students' performance on the Government HSA.

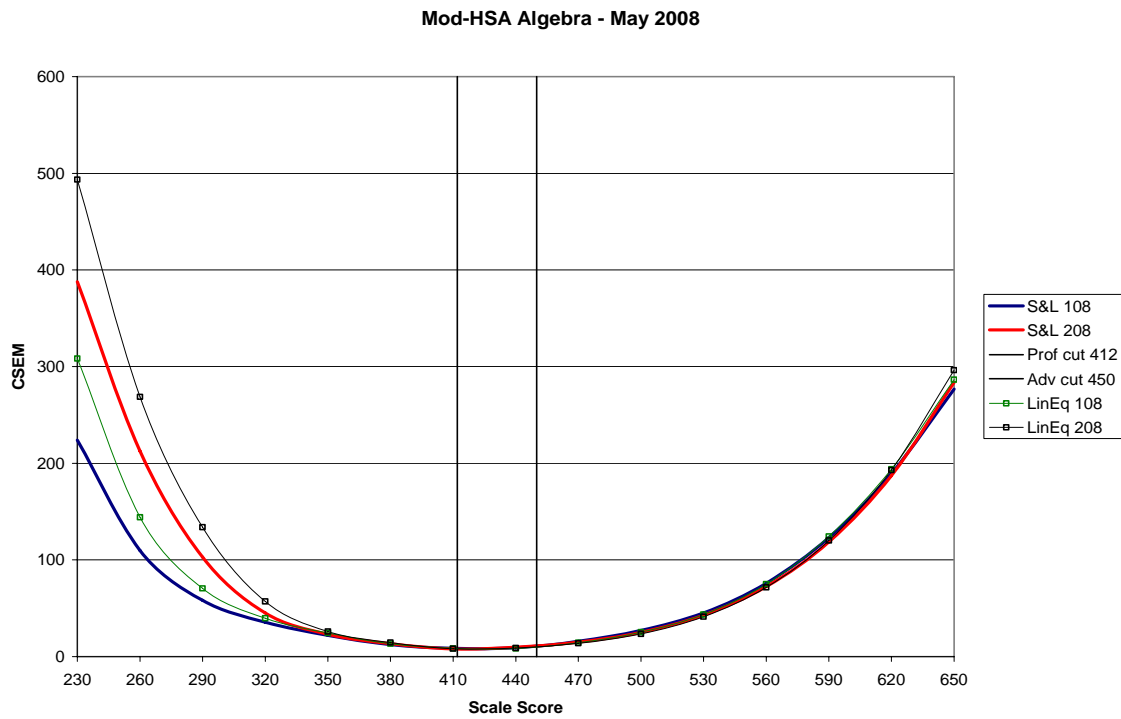
Note 2: All HSA students' performance on the Government HSA.

Figure C.1 TCCs for Each Equating Method and Form – Mod-HSA Algebra



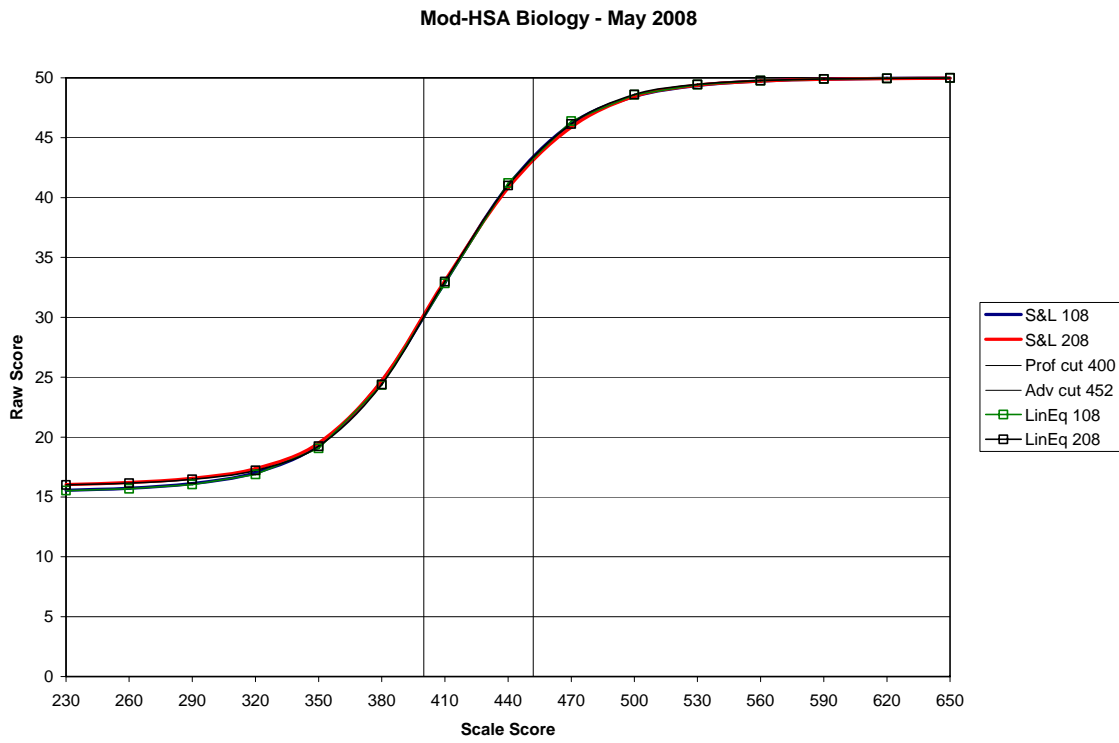
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.2 CSEMs for Each Equating Method and Form – Mod-HSA Algebra



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

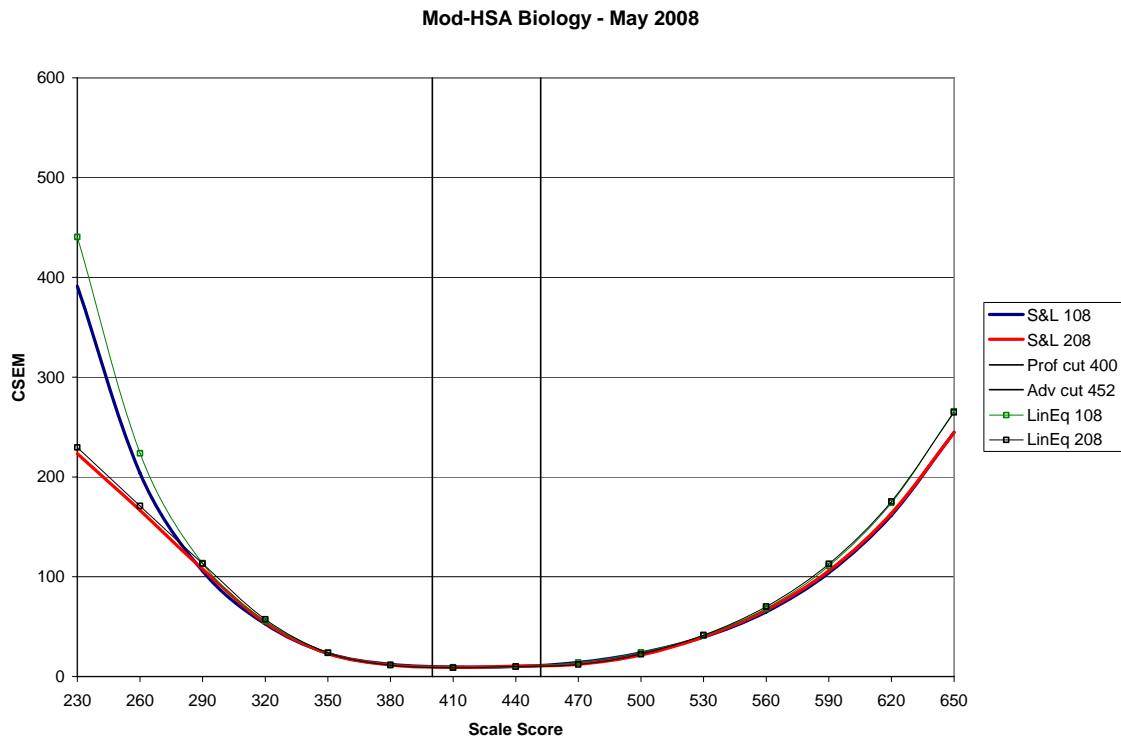
Figure C.3 TCCs for Each Equating Method and Form – Mod-HSA Biology



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

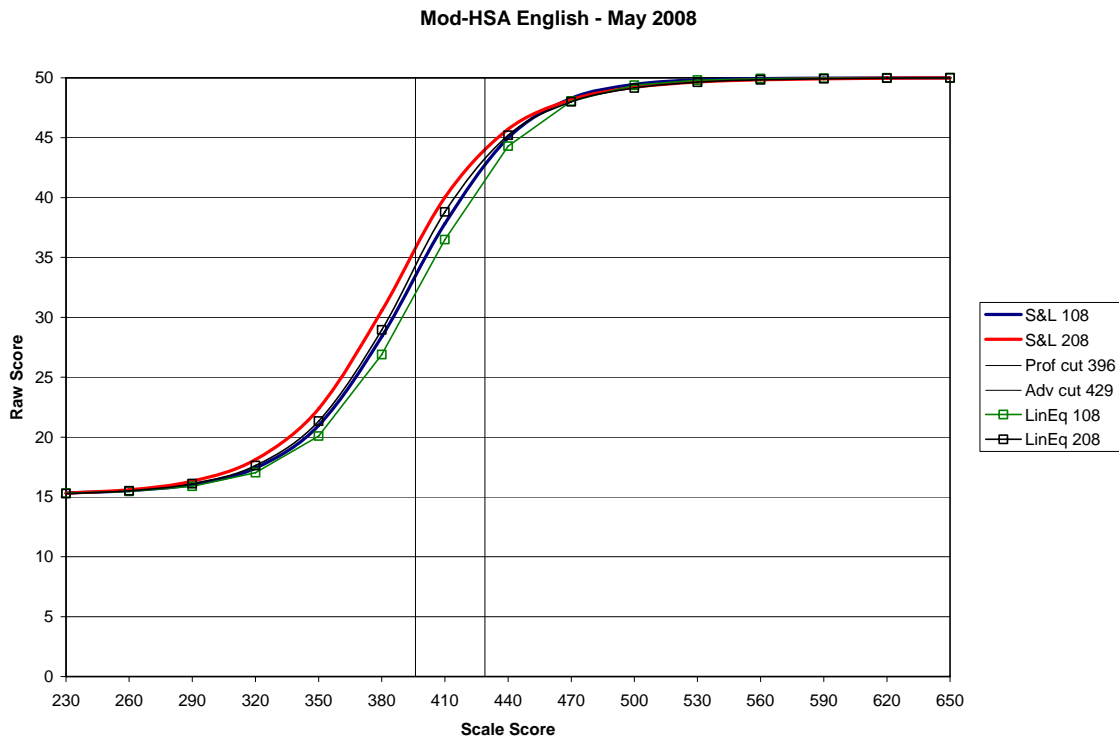


Figure C.4 CSEMs for Each Equating Method and Form – Mod-HSA Biology



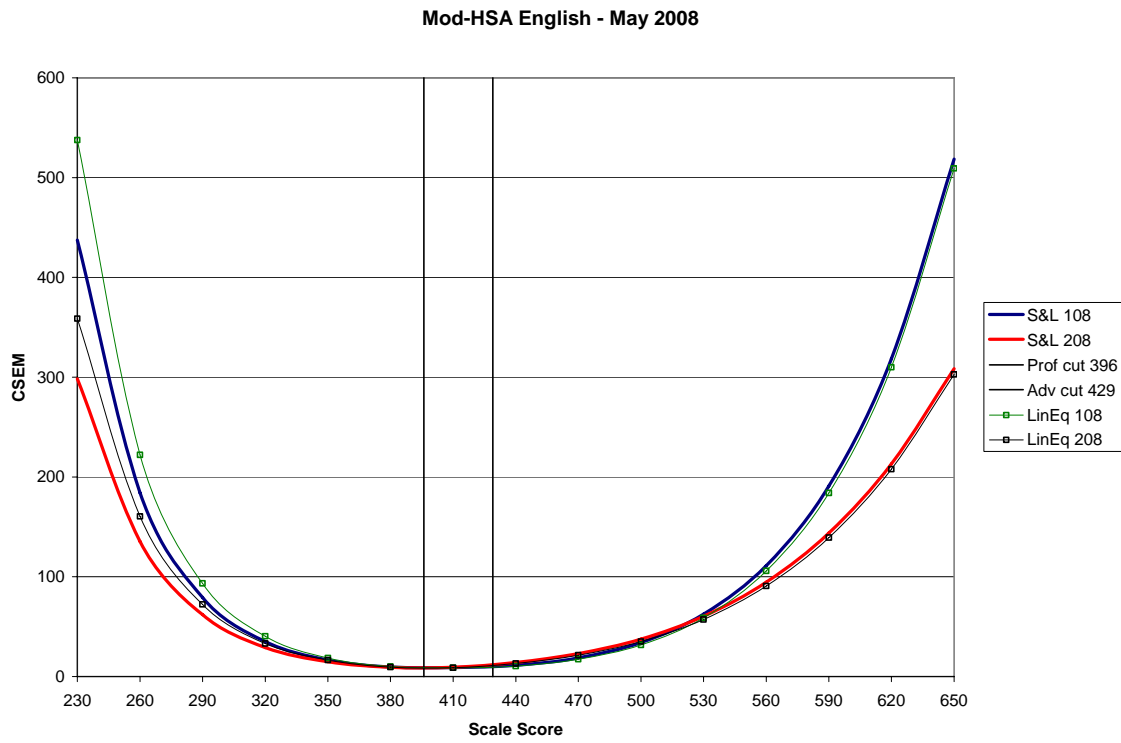
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.5 TCCs for Each Equating Method and Form – Mod-HSA English



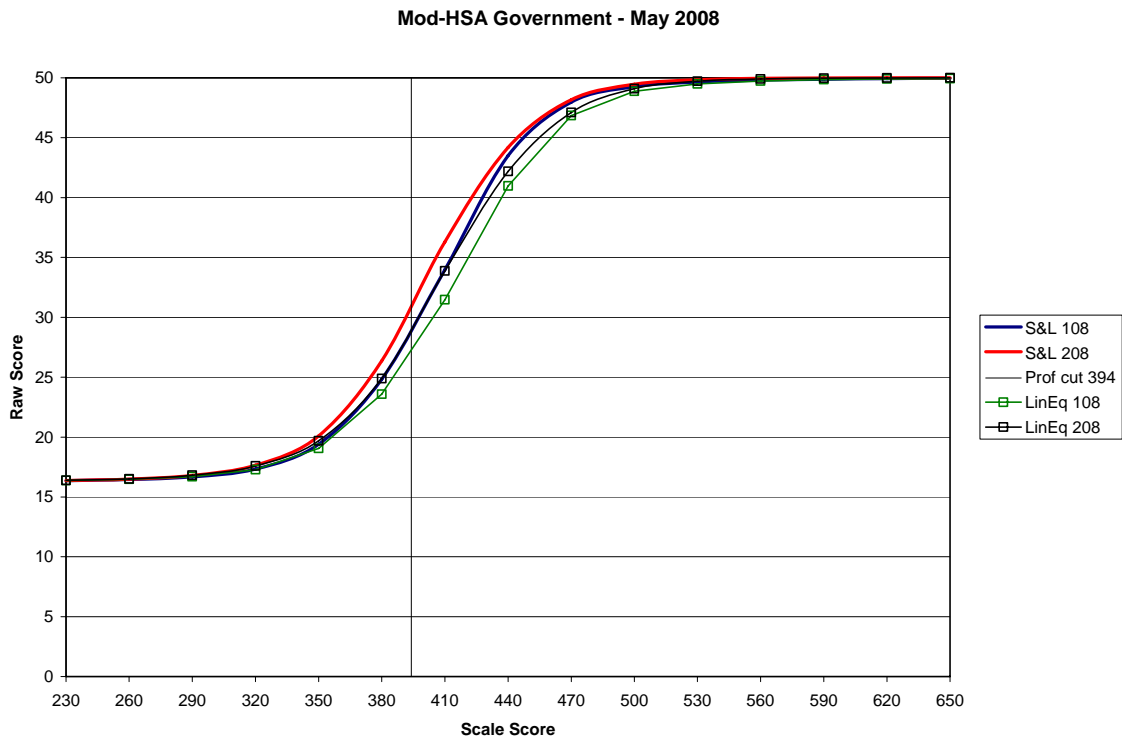
Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.6 CSEMs for Each Equating Method and Form – Mod-HSA English



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

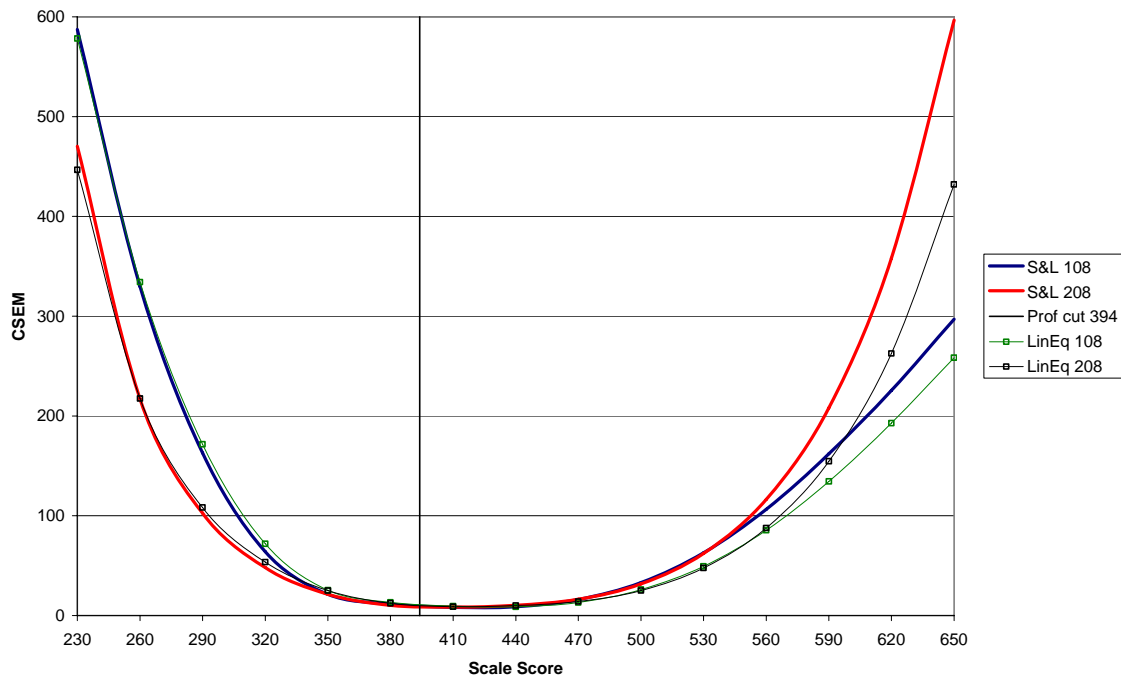
Figure C.7 TCCs for Each Equating Method and Form – Mod-HSA Government



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.

Figure C.8 CSEMs for Each Equating Method and Form – Mod-HSA Government

Mod-HSA Government - May 2008



Note S&L 108 = Stocking and Lord, Form 108; S&L 208 = Stocking and Lord, Form 208; LinEq 108 = Linear equipercentile, Form 108; LinEq 208 = Linear equipercentile, Form 208.