APPENDIX A: THE 2010 MSA-READING STRATIFIED RANDOM SAMPLING

Since reporting deadlines made it difficult to use the Maryland school population as calibration and equating data set, Pearson used to use equating samples instead of the population. For this year, however, Pearson was able to use 99% of the whole population for grades 6 and 7 equating. Therefore, stratified random sampling was conducted for only grades, 3, 4, 5, and 8.

Pearson chose Local Education Agency (LEA) as one of the most important variables for stratification. Based on the population percentage of each LEA, Pearson randomly selected about 3,000 students for those grades from first-waved documents (i.e., 50% of the statewide population) which were randomly distributed and completely scored. It should be noted that this method has been applied since the 2006 assessment.

To verify that the sample was representative of the statewide examinee population in terms of gender and ethnicity, the distributions of gender and ethnicity of the 2010 samples were compared with the 2010 population. The results are shown in this Appendix. The percentages of students from the LEAs were all within 3 percentage points of the target values across all grades. The percentages of students from the five major ethnic groups were all within 7 percentage points of the target values across all grades. The percentages of male and female students were within 1 percentage points of the target values across all grades. Consequently, we concluded that the 2010 equating samples were representative of the 2010 statewide examinee population in terms of LEA, gender, and ethnicity.

Table A.1 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 3 LEA

LEA	Operational Form A				Operational Form B			
	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.
1	1.08%	30	1.06%	0.02	1.08%	20	0.71%	0.37
2	9.21%	276	9.77%	-0.56	9.21%	276	9.81%	-0.60
3	12.27%	368	13.01%	-0.74	12.27%	368	13.07%	-0.80
4	2.01%	0	0.00%	2.01	2.01%	0	0.00%	2.01
5	0.69%	0	0.00%	0.69	0.69%	0	0.00%	0.69
6	3.33%	100	3.54%	-0.20	3.33%	100	3.55%	-0.22
7	1.88%	0	0.00%	1.88	1.88%	0	0.00%	1.88
8	2.89%	87	3.07%	-0.18	2.89%	87	3.08%	-0.19
9	0.57%	7	0.25%	0.33	0.57%	7	0.25%	0.32
10	4.77%	143	5.06%	-0.29	4.77%	143	5.08%	-0.31
11	0.48%	14	0.51%	-0.03	0.48%	14	0.51%	-0.03
12	4.49%	131	4.63%	-0.14	4.49%	130	4.62%	-0.12
13	5.91%	177	6.27%	-0.36	5.91%	177	6.29%	-0.38
14	0.23%	0	0.00%	0.23	0.23%	0	0.00%	0.23
15	16.60%	498	17.61%	-1.01	16.60%	498	17.69%	-1.08
16	14.15%	425	15.01%	-0.86	14.15%	425	15.08%	-0.92
17	0.88%	26	0.93%	-0.05	0.88%	26	0.94%	-0.06
18	2.03%	61	2.16%	-0.12	2.03%	61	2.17%	-0.13
19	0.35%	0	0.00%	0.35	0.35%	0	0.00%	0.35
20	0.51%	15	0.54%	-0.03	0.51%	15	0.54%	-0.03
21	2.72%	82	2.88%	-0.16	2.72%	82	2.90%	-0.18
22	1.95%	58	2.07%	-0.12	1.95%	58	2.07%	-0.13
23	0.84%	25	0.89%	-0.05	0.84%	25	0.90%	-0.05
24	0.13%	4	0.14%	-0.01	0.13%	3	0.11%	0.03
30	9.99%	300	10.60%	-0.61	9.99%	300	10.64%	-0.65
Total	100.00%	2827	100.00%	0.00	100.00%	2815	100.00%	0.00

Note. 1. Allegany; 2. Anne Arundel; 3. Baltimore; 4. Calvert; 5. Caroline; 6. Carroll; 7. Cecil; 8. Charles; 9. Dorchester; 10. Frederick; 11. Garrett; 12. Harford; 13. Howard; 14. Kent; 15. Montgomery; 16. Prince George's; 17. Queen Anne's; 18. St. Mary's; 19. Somerset; 20. Talbot; 21. Washington; 22. Wicomico; 23. Worcester; 24. LEA 24; 30. Baltimore City.

Table A.2 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 3 LEA

	Operational Form A				Operational Form B			
Race	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	0.78	19	0.67	0.11	0.83	18	0.64	0.19
2	7.82	168	5.94	1.88	8.01	187	6.64	1.36
3	38.27	1036	36.65	1.62	38.79	1056	37.51	1.27
4	29.98	1049	37.11	-7.13	29.73	1019	36.20	-6.47
5	23.02	553	19.56	3.46	22.51	530	18.83	3.68
Miss	0.14	2	0.07	0.06	0.14	5	0.18	-0.03
Total	100.0	2827	100.0	0.00	100.0	2815	100.0	0.00

Note. 1. American Indian; 2 Asian American; 3. African American; 4. White; 5. Hispanic' Miss: Missing

Table A.3 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 3 LEA

	Operational Form A				Operational Form B			
Gender	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	50.63	1421	50.27	0.36	50.53	1422	50.52	0.02
2	49.24	1404	49.66	-0.43	49.34	1388	49.31	0.04
Miss	0.14	2	0.07	0.06	0.12	5	0.18	-0.06
Total	100.0	2827	100.0	0.00	100.0	2815	100.0	0.00

Note. 1. Male; 2. Female; Miss: Missing

Table A.4 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 4 LEA

LEA	Operational Form A				Operational Form B			
	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.
1	1.10%	33	1.19%	-0.08	1.10%	33	1.19%	-0.08
2	9.19%	276	9.89%	-0.69	9.19%	276	9.88%	-0.69
3	12.29%	369	13.22%	-0.93	12.29%	369	13.21%	-0.92
4	1.98%	0	0.00%	1.98	1.98%	0	0.00%	1.98
5	0.70%	21	0.75%	-0.05	0.70%	21	0.75%	-0.05
6	3.33%	100	3.58%	-0.25	3.33%	100	3.58%	-0.25
7	1.90%	57	2.05%	-0.14	1.90%	57	2.05%	-0.14
8	3.07%	92	3.30%	-0.23	3.07%	92	3.30%	-0.23
9	0.53%	0	0.00%	0.53	0.53%	0	0.00%	0.53
10	4.77%	143	5.13%	-0.36	4.77%	143	5.13%	-0.36
11	0.53%	16	0.57%	-0.04	0.53%	16	0.57%	-0.04
12	4.82%	53	1.90%	2.92	4.82%	54	1.94%	2.88
13	6.00%	180	6.46%	-0.45	6.00%	180	6.46%	-0.45
14	0.28%	0	0.00%	0.28	0.28%	0	0.00%	0.28
15	16.68%	500	17.94%	-1.26	16.68%	500	17.94%	-1.25
16	14.03%	421	15.09%	-1.06	14.03%	421	15.09%	-1.06
17	0.90%	27	0.97%	-0.07	0.90%	27	0.97%	-0.07
18	1.98%	59	2.13%	-0.15	1.98%	59	2.13%	-0.15
19	0.34%	10	0.36%	-0.03	0.34%	10	0.36%	-0.03
20	0.51%	10	0.36%	0.16	0.51%	9	0.32%	0.19
21	2.74%	52	1.86%	0.88	2.74%	53	1.90%	0.84
22	1.92%	58	2.06%	-0.14	1.92%	58	2.06%	-0.14
23	0.72%	22	0.77%	-0.05	0.72%	22	0.77%	-0.05
24	0.17%	5	0.18%	-0.01	0.17%	5	0.18%	-0.01
30	9.51%	285	10.23%	-0.72	9.51%	285	10.23%	-0.72
Total	100.00%	2789	100.00%	0.00	100.00%	2790	100.00%	0.00

Note. 1. Allegany; 2. Anne Arundel; 3. Baltimore; 4. Calvert; 5. Caroline; 6. Carroll; 7. Cecil; 8. Charles; 9. Dorchester; 10. Frederick; 11. Garrett; 12. Harford; 13. Howard; 14. Kent; 15. Montgomery; 16. Prince George's; 17. Queen Anne's; 18. St. Mary's; 19. Somerset; 20. Talbot; 21. Washington; 22. Wicomico; 23. Worcester; 24. LEA 24; 30. Baltimore City.

Table A.5 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 4 LEA

	Operational Form A				Operational Form B			
Race	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	0.72	19	0.68	0.03	0.85	15	0.54	0.31
2	7.89	176	6.31	1.58	7.76	190	6.81	0.95
3	37.74	1042	37.36	0.38	37.71	1058	37.92	-0.21
4	30.63	1024	36.72	-6.08	30.76	1023	36.67	-5.91
5	22.92	525	18.82	4.10	22.84	503	18.03	4.81
Miss	0.09	3	0.11	-0.02	0.09	1	0.04	0.05
Total	100.0	2789	100.0	0.00	100.0	2790	100.0	0.00

Note. 1. American Indian; 2 Asian American; 3. African American; 4. White; 5. Hispanic; Miss: Missing

Table A.6 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 4 LEA

	Operational Form A				Operational Form B			
Gender	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	50.89	1431	51.31	-0.42	50.36	1409	50.50	-0.14
2	49.02	1355	48.58	0.43	49.56	1380	49.46	0.10
Miss	0.09	3	0.11	-0.02	0.08	1	0.04	0.04
Total	100.0	2789	100.0	0.00	100.0	2790	100.0	0.00

Note. 1. Male; 2. Female; Miss: Missing

Table A.7 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 5 LEA

LEA	Operational Form A				Operational Form B			
	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.
1	1.05%	23	0.82%	0.24	1.05%	21	0.75%	0.31
2	9.25%	278	9.85%	-0.60	9.25%	278	9.86%	-0.61
3	12.63%	379	13.44%	-0.82	12.63%	379	13.45%	-0.83
4	2.07%	0	0.00%	2.07	2.07%	0	0.00%	2.07
5	0.61%	18	0.65%	-0.04	0.61%	18	0.65%	-0.04
6	3.26%	98	3.47%	-0.21	3.26%	98	3.48%	-0.21
7	1.95%	0	0.00%	1.95	1.95%	0	0.00%	1.95
8	2.93%	88	3.11%	-0.19	2.93%	88	3.12%	-0.19
9	0.51%	0	0.00%	0.51	0.51%	0	0.00%	0.51
10	4.69%	141	5.00%	-0.30	4.69%	141	5.00%	-0.31
11	0.53%	16	0.57%	-0.03	0.53%	16	0.57%	-0.03
12	4.68%	140	4.99%	-0.30	4.68%	140	4.99%	-0.31
13	5.91%	177	6.29%	-0.38	5.91%	177	6.30%	-0.39
14	0.26%	0	0.00%	0.26	0.26%	0	0.00%	0.26
15	16.53%	496	17.60%	-1.07	16.53%	496	17.61%	-1.08
16	14.00%	420	14.90%	-0.91	14.00%	420	14.91%	-0.92
17	0.92%	27	0.97%	-0.06	0.92%	27	0.98%	-0.06
18	2.07%	62	2.20%	-0.13	2.07%	62	2.20%	-0.14
19	0.36%	0	0.00%	0.36	0.36%	0	0.00%	0.36
20	0.50%	15	0.53%	-0.03	0.50%	15	0.53%	-0.03
21	2.75%	63	2.24%	0.51	2.75%	63	2.24%	0.51
22	1.94%	58	2.07%	-0.13	1.94%	58	2.07%	-0.13
23	0.77%	23	0.82%	-0.05	0.77%	23	0.82%	-0.05
24	0.27%	8	0.29%	-0.02	0.27%	8	0.29%	-0.02
30	9.56%	287	10.18%	-0.62	9.56%	287	10.19%	-0.63
Total	100.00%	2817	100.00%	0.00	100.00%	2815	100.00%	0.00

Note. 1. Allegany; 2. Anne Arundel; 3. Baltimore; 4. Calvert; 5. Caroline; 6. Carroll; 7. Cecil; 8. Charles; 9. Dorchester; 10. Frederick; 11. Garrett; 12. Harford; 13. Howard; 14. Kent; 15. Montgomery; 16. Prince George's; 17. Queen Anne's; 18. St. Mary's; 19. Somerset; 20. Talbot; 21. Washington; 22. Wicomico; 23. Worcester; 24. LEA 24; 30. Baltimore City.

Table A.8 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 5 LEA

	Operational Form A				Operational Form B			
Race	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	0.65	16	0.57	0.08	0.70	17	0.60	0.10
2	6.18	172	6.11	0.07	6.22	186	6.61	-0.38
3	41.02	1069	37.95	3.07	40.67	1050	37.30	3.37
4	31.65	1045	37.10	-5.45	32.01	1018	36.16	-4.15
5	20.27	509	18.07	2.20	20.11	538	19.11	1.00
Miss	0.24	6	0.21	0.03	0.28	6	0.21	0.07
Total	100.0	2817	100.0	0.00	100.0	2815	100.0	0.00

Note. 1. American Indian; 2 Asian American; 3. African American; 4. White; 5. Hispanic; Miss: Missing

Table A.9 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 5 LEA

	Operational Form A				Operational Form B			
Gender	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	50.44	1436	50.98	-0.53	50.48	1425	50.62	-0.14
2	49.35	1375	48.81	0.54	49.25	1384	49.17	0.09
Miss	0.21	6	0.21	0.00	0.26	6	0.21	0.05
Total	100.0	2817	100.0	0.00	100.0	2815	100.0	0.00

Note. 1. Male; 2. Female; Miss: Missing

Table A.10 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 8 LEA

LEA	Operational Form A				Operational Form B			
	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.	2010 Pop. %	2010 S. R. S.	% of 2010 S. R. S.	% of Differ.
1	1.04%	31	1.08%	-0.04	1.04%	31	1.08%	-0.05
2	8.90%	267	9.26%	-0.36	8.90%	267	9.29%	-0.39
3	12.03%	361	12.52%	-0.49	12.03%	361	12.55%	-0.53
4	2.18%	65	2.26%	-0.09	2.18%	65	2.27%	-0.09
5	0.59%	0	0.00%	0.59	0.59%	0	0.00%	0.59
6	3.57%	107	3.72%	-0.15	3.57%	107	3.73%	-0.16
7	1.96%	0	0.00%	1.96	1.96%	0	0.00%	1.96
8	3.41%	102	3.55%	-0.14	3.41%	102	3.56%	-0.15
9	0.55%	0	0.00%	0.55	0.55%	0	0.00%	0.55
10	4.94%	148	5.14%	-0.20	4.94%	148	5.15%	-0.22
11	0.56%	17	0.58%	-0.02	0.56%	17	0.58%	-0.02
12	4.85%	145	5.04%	-0.20	4.85%	145	5.06%	-0.21
13	6.39%	192	6.65%	-0.26	6.39%	192	6.67%	-0.28
14	0.24%	0	0.00%	0.24	0.24%	0	0.00%	0.24
15	16.94%	508	17.63%	-0.69	16.94%	508	17.68%	-0.74
16	14.37%	431	14.96%	-0.59	14.37%	431	15.00%	-0.63
17	1.02%	31	1.07%	-0.04	1.02%	31	1.07%	-0.04
18	2.03%	61	2.11%	-0.08	2.03%	61	2.12%	-0.09
19	0.33%	10	0.34%	-0.01	0.33%	10	0.34%	-0.01
20	0.53%	0	0.00%	0.53	0.53%	0	0.00%	0.53
21	2.72%	80	2.78%	-0.05	2.72%	72	2.50%	0.22
22	1.50%	45	1.57%	-0.06	1.50%	45	1.57%	-0.07
23	0.75%	23	0.78%	-0.03	0.75%	23	0.79%	-0.03
24	0.43%	13	0.45%	-0.02	0.43%	13	0.45%	-0.02
30	8.18%	245	8.51%	-0.33	8.18%	245	8.53%	-0.36
Total	100.00%	2883	100.00%	0.00	100.00%	2875	100.00%	0.00

Note. 1. Allegany; 2. Anne Arundel; 3. Baltimore; 4. Calvert; 5. Caroline; 6. Carroll; 7. Cecil; 8. Charles; 9. Dorchester; 10. Frederick; 11. Garrett; 12. Harford; 13. Howard; 14. Kent; 15. Montgomery; 16. Prince George's; 17. Queen Anne's; 18. St. Mary's; 19. Somerset; 20. Talbot; 21. Washington; 22. Wicomico; 23. Worcester; 24. LEA 24; 30. Baltimore City.

Table A.11 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 8 LEA

	Operational Form A				Operational Form B			
Race	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	0.58	16	0.56	0.02	0.54	23	0.80	-0.27
2	7.04	184	6.38	0.66	7.09	174	6.05	1.03
3	38.64	999	34.66	3.98	38.89	1013	35.25	3.64
4	33.57	1145	39.73	-6.16	33.21	1151	40.05	-6.84
5	19.82	526	18.25	1.57	20.01	505	17.57	2.43
Miss	0.36	12	0.42	-0.06	0.27	8	0.28	0.00
Total	100.0	2882	100.0	0.00	100.0	2874	100.0	0.00

Note. 1. American Indian; 2 Asian American; 3. African American; 4. White; 5. Hispanic; Miss. Missing

Table A.12 2010 MSA-Reading Population and Stratified Random Sampling (S.R.S): Grade 8 LEA

	Operational Form A				Operational Form B			
Gender	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.	2010 Pop. %	2010 S.R.S.	% of 2010 S.R.S	% of Differ.
1	49.85	1418	49.20	0.65	49.90	1425	49.58	0.32
2	49.79	1452	50.38	-0.59	49.82	1441	50.14	-0.32
Miss	0.36	12	0.42	-0.06	0.27	8	0.28	0.00
Total	100.0	2882	100.0	0.00	100.0	2874	100.0	0.00

Note. 1. Male; 2. Female; Miss: Missing