

Exhibit 11.1: Example International Item Statistics for a TIMSS 2015 Multiple-Choice Item

Trends in International Mathematics and Science Study - TIMSS 2015 Assessment Results - 4th Grade
International Item Review Statistics (Unweighted)

Mathematics: Number / Applying (M08_04 - M061040) Type: MC Key: A
Label: Shaded fraction of a square

Country	Cases	DIFF	DISC	P_A	P_B	P_C	P_D	P_OM	P_NR	PB_A	PB_B	Point Biserials				RDIFF	Flags
												PB_C	PB_D	PB_OM	PB_NR		
Australia	856	47.8	0.52	47.8	24.0	10.4	15.6	2.2	0.7	0.52	-0.24	-0.16	-0.27	-0.06	-0.09	0.04	
Bahrain	600	21.0	0.34	51.0	26.4	11.5	38.6	2.4	1.3	0.34	-0.93	-0.00	-0.25	-0.04	-0.01	0.81	
Belgium (Flemish)	768	50.3	0.53	20.3	25.5	11.0	12.0	1.3	0.7	0.53	-0.30	-0.18	-0.23	-0.03	-0.03	0.41	C
Bulgaria	616	31.4	0.47	31.4	27.7	13.2	13.7	14.0	0.3	0.47	-0.50	-0.12	-0.16	-0.09	-0.04	1.06	
*Canada	1777	39.1	0.50	39.1	23.6	10.8	23.8	2.7	1.0	0.50	-0.17	-0.11	-0.30	-0.06	-0.04	0.48	
Chile	676	31.9	0.43	31.9	26.0	8.4	33.9	3.5	1.6	0.43	-0.10	-0.10	-0.26	-0.07	-0.02	0.55	E
Chinese Taipei	611	66.3	0.56	66.3	11.0	8.5	13.9	0.3	0.0	0.56	-0.32	-0.24	-0.28	-0.01	-0.02	0.44	E
Croatia	570	25.2	0.28	25.2	25.9	18.8	17.1	13.0	1.2	0.28	-0.16	0.00	-0.13	-0.02	-0.10	1.13	
*Cyprus	594	54.1	0.56	54.1	15.3	11.9	16.1	2.7	0.7	0.56	-0.24	-0.24	-0.30	-0.03	-0.11	-0.12	
*Czech Republic	741	37.7	0.47	37.7	26.7	10.6	19.1	6.0	0.4	0.47	-0.20	-0.08	-0.22	-0.11	0.03	0.93	
Denmark	534	52.6	0.55	52.6	15.3	12.0	15.3	4.8	2.1	0.55	-0.27	-0.13	-0.29	-0.14	0.03	0.36	
England	569	44.0	0.56	44.0	22.2	17.4	14.1	2.3	0.2	0.56	-0.26	-0.12	-0.31	-0.11	0.00	0.57	
Finland	708	53.5	0.45	53.5	17.2	12.5	13.0	3.8	0.4	0.45	-0.19	-0.07	-0.25	-0.05	-0.07	0.54	
France	688	30.4	0.49	30.4	23.8	14.8	24.9	6.1	2.5	0.49	-0.19	0.05	-0.16	-0.09	-0.08	0.72	C
Georgia	564	23.9	0.35	23.9	22.8	14.5	26.7	12.1	3.5	0.35	-0.19	0.05	-0.16	-0.09	-0.08	0.72	
Germany	561	32.6	0.31	32.6	23.4	20.8	14.5	8.8	0.4	0.31	-0.19	-0.04	-0.10	-0.05	-0.04	1.23	
*Hong Kong SAR	516	70.5	0.48	70.5	18.1	6.6	4.5	0.4	0.0	0.48	-0.30	-0.27	-0.21	-0.02	-0.02	-0.07	E
Hungary	719	51.8	0.56	51.8	18.0	11.2	16.8	2.2	0.4	0.56	-0.31	-0.15	-0.27	-0.06	-0.04	0.29	
Indonesia	577	27.8	0.25	27.8	28.9	17.4	24.5	1.4	0.3	0.25	-0.10	0.00	-0.16	0.00	-0.05	-0.21	
*Iran, Islamic Rep. of	546	40.7	0.48	40.7	25.9	10.6	18.7	4.1	1.1	0.48	-0.22	-0.12	-0.24	-0.06	-0.01	-0.44	
Ireland	625	52.7	0.49	52.7	26.4	10.7	9.0	1.1	0.2	0.49	-0.27	-0.20	-0.19	-0.08	-0.05	0.26	E
*Italy	627	33.1	0.42	33.1	28.1	8.9	25.0	5.0	1.1	0.42	-0.16	-0.07	-0.22	-0.05	-0.02	0.75	E
*Japan	631	75.1	0.51	75.1	7.9	9.4	7.0	0.6	0.0	0.51	-0.19	-0.29	-0.31	-0.05	-0.05	0.10	E
Kazakhstan	673	57.0	0.51	57.0	17.0	7.7	17.3	1.0	0.1	0.51	-0.28	-0.13	-0.28	-0.09	-0.10	0.01	E
Korea, Rep. of	662	76.1	0.47	76.1	6.9	7.1	9.7	0.2	0.0	0.47	-0.20	-0.21	-0.34	0.02	0.02	0.14	E
Kuwait	503	17.1	0.27	17.1	32.3	13.4	29.2	8.0	3.4	0.27	-0.20	-0.04	0.03	0.03	0.13	C, A	
Lithuania	662	34.5	0.53	34.5	21.3	18.7	22.3	3.2	0.6	0.53	-0.13	-0.16	-0.31	-0.06	-0.09	1.17	
Morocco	719	22.8	0.30	22.8	31.8	18.5	22.9	4.0	2.4	0.30	-0.12	-0.13	-0.03	-0.06	-0.04	-0.17	C
*Netherlands	641	51.9	0.43	51.9	17.4	13.5	15.0	2.2	0.5	0.43	-0.17	-0.15	-0.24	-0.07	-0.03	0.24	
*New Zealand	915	44.8	0.55	44.8	25.4	14.5	14.4	1.5	0.4	0.55	-0.27	-0.16	-0.29	-0.03	-0.06	-0.15	
Northern Ireland	433	56.8	0.51	56.8	17.6	14.5	10.9	0.2	0.0	0.51	-0.26	-0.20	-0.26	-0.05	0.35		
*Norway (S)	612	51.4	0.56	51.4	19.3	9.7	18.0	1.6	0.5	0.56	-0.31	-0.13	-0.33	-0.11	-0.02	0.58	E
Oman	1300	30.7	0.43	30.7	24.0	16.4	26.8	2.1	0.5	0.43	-0.18	-0.12	-0.16	-0.08	0.02	-0.09	
Poland	666	54.5	0.57	54.5	20.1	10.1	13.6	1.6	0.6	0.57	-0.28	-0.25	-0.26	-0.06	0.04	-0.01	
*Portugal	568	40.3	0.58	40.3	31.4	10.3	16.2	1.8	1.2	0.58	-0.22	-0.10	-0.39	-0.05	-0.02	0.64	
Qatar	750	24.8	0.49	24.8	24.3	15.0	32.9	3.0	1.6	0.49	-0.13	-0.06	-0.27	-0.04	-0.07	0.50	
Russian Federation	698	53.5	0.52	53.5	18.6	12.1	14.0	1.9	0.4	0.52	-0.27	-0.16	-0.25	-0.13	-0.10	0.78	
Saudi Arabia	618	24.5	0.31	24.5	26.2	19.3	25.9	4.1	1.1	0.31	-0.18	-0.03	-0.06	-0.08	-0.03	-0.10	C
Serbia	573	40.9	0.56	40.9	25.7	10.4	16.8	6.2	1.4	0.56	-0.27	-0.16	-0.23	-0.09	-0.08	0.73	
*Singapore	936	70.5	0.46	70.5	10.3	9.8	9.1	0.3	0.0	0.46	-0.15	-0.26	-0.30	-0.01	-0.05	0.25	E
Slovak Republic	815	27.8	0.50	27.8	30.1	13.4	22.4	6.3	0.9	0.50	-0.25	-0.05	-0.18	-0.06	-0.08	1.02	
*Slovenia	650	46.7	0.59	46.7	21.8	11.0	15.6	4.9	0.5	0.59	-0.27	-0.15	-0.30	-0.12	-0.01	0.48	
Spain	1104	33.2	0.43	33.2	29.8	9.4	23.6	4.0	0.8	0.43	-0.14	-0.08	-0.24	-0.03	-0.03	0.75	E
Sweden	581	44.5	0.51	44.5	21.1	13.9	14.4	6.1	0.7	0.51	-0.24	-0.10	-0.22	-0.19	-0.01	0.37	
Turkey	931	53.3	0.49	53.3	15.2	12.5	17.8	1.3	0.2	0.49	-0.25	-0.10	-0.32	-0.01	-0.05	-0.42	
United Arab Emirates	3025	29.7	0.49	29.7	23.0	12.2	32.4	2.7	0.4	0.49	-0.18	-0.08	-0.25	-0.04	-0.01	0.46	
*United States	1439	48.8	0.56	48.8	21.4	9.7	16.4	3.7	1.0	0.56	-0.19	-0.09	-0.35	-0.08	-0.06	0.38	E
*Reference Avg (n=19)	14724	51.9	0.51	51.9	20.1	10.7	14.9	2.4	0.5	0.51	-0.23	-0.17	-0.28	-0.06	-0.04	0.28	
International Avg (n=47)	36268	43.4	0.47	43.4	25.0	12.4	18.5	3.7	0.8	0.47	-0.21	-0.13	-0.24	-0.06	-0.04	0.38	
Buenos Aires, Argentina	443	20.9	0.41	20.9	28.2	8.0	20.7	22.3	3.8	0.41	-0.10	-0.01	-0.12	-0.17	-0.13	0.45	C, E
Ontario, Canada	659	35.0	0.47	35.0	23.9	12.3	21.9	2.9	1.5	0.47	-0.19	-0.06	-0.29	-0.03	-0.06	0.56	
Quebec, Canada	401	46.0	0.50	46.0	20.9	9.3	22.1	1.8	0.7	0.50	-0.10	-0.23	-0.32	-0.06	-0.05	0.65	E
Norway (4)	586	36.4	0.43	36.4	25.9	12.6	21.2	4.0	1.0	0.43	-0.21	-0.11	-0.15	-0.08	0.05	0.48	
Abu Dhabi, UAE	713	24.7	0.43	24.7	25.8	30.9	30.9	3.2	0.1	0.43	-0.19	-0.10	-0.15	-0.01	-0.02	0.34	C
Dubai, UAE	1074	40.5	0.56	40.5	18.4	11.7	27.0	2.3	0.5	0.56	-0.17	-0.13	-0.36	-0.05	0.01	0.44	
Florida, US	282	54.8	0.45	54.8	19.4	13.3	9.3	3.2	1.1	0.45	-0.26	-0.17	-0.19	-0.06	-0.02	0.15	E

Keys: DIFF= Percent correct score; DISC= Item discrimination; P_A...P_D= Percentage choosing each option; P_OM, P_NR= Percentage Omitted, Not Reached;
PB_A...PB_D= Point Biserial for each option; PB_OM, PB_NR= Point Biserial for Omitted, Not Reached; RDIFF= Rasch difficulty.
Flags: A= Attractive distractor; C= Difficulty less than chance; D= Negative/low discrimination; E= Easier than average;
F= Distractor chosen by less than 10%; H= Harder than average; V= Difficulty greater than 95%.