

Appendix C

**Item Parameters
for IRT Analyses of
TIMSS Advanced 2008 Data**

Exhibit C.1 IRT Parameters for the TIMSS Advanced 1995 Re-scaling of Advanced Mathematics

Item	Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})	Step 3 (d_{j3})	
MA13001	I01	1.30 (0.05)	-0.10 (0.02)	0.10 (0.01)			
MA13002	I02	1.44 (0.06)	0.01 (0.03)	0.18 (0.01)			
MA13003	I03	0.42 (0.02)	-0.51 (0.11)	0.07 (0.03)			
MA13004	I04	1.24 (0.06)	0.20 (0.03)	0.27 (0.02)			
MA13006	I06	0.90 (0.04)	0.12 (0.03)	0.07 (0.01)			
MA13007	I07	0.80 (0.04)	0.15 (0.05)	0.20 (0.02)			
MA13008	I08	0.69 (0.04)	-0.95 (0.09)	0.19 (0.03)			
MA13009	I09	0.61 (0.03)	-0.39 (0.06)	0.09 (0.02)			
MA13011	J01	1.18 (0.09)	0.02 (0.05)	0.15 (0.03)			
MA13012	J02	1.39 (0.17)	0.88 (0.05)	0.20 (0.02)			
MA13013	J03	0.98 (0.08)	-0.07 (0.07)	0.15 (0.03)			
MA13015	J05	1.39 (0.10)	0.00 (0.05)	0.19 (0.03)			
MA13016	J06	0.84 (0.11)	1.08 (0.08)	0.15 (0.02)			
MA13017	J07	0.91 (0.08)	0.52 (0.06)	0.12 (0.03)			
MA13018	J08	0.52 (0.08)	0.03 (0.26)	0.32 (0.07)			
MA13019	J09	1.07 (0.17)	1.59 (0.10)	0.15 (0.02)			
MA13020	J10	1.87 (0.24)	1.01 (0.04)	0.26 (0.02)			
MA13021	J11	0.39 (0.04)	-0.83 (0.12)	0.20 (0.00)			
MA13024	J14	1.33 (0.11)	0.27 (0.05)	0.20 (0.03)			
MA13025A	J15A	0.77 (0.04)	0.06 (0.04)				
MA13025B	J15B	0.98 (0.08)	1.96 (0.11)				
MA13026A	J16A	0.49 (0.04)	-0.84 (0.08)				
MA13026B	J16B	0.78 (0.05)	1.21 (0.07)				
MA13027	J17	0.44 (0.02)	0.75 (0.04)		-1.89 (0.11)	1.89 (0.12)	
MA13028	J18	0.99 (0.07)	1.17 (0.06)				
MA13029	J19	0.43 (0.02)	0.17 (0.04)		-1.53 (0.11)	1.53 (0.11)	
MA13064	K01	1.14 (0.09)	-0.98 (0.09)	0.23 (0.04)			
MA13065	K02	0.99 (0.11)	1.17 (0.06)	0.09 (0.02)			
MA13066	K03	1.08 (0.15)	0.50 (0.09)	0.45 (0.03)			
MA13067	K04	1.03 (0.12)	1.10 (0.06)	0.10 (0.02)			
MA13068	K05	2.25 (0.27)	0.87 (0.04)	0.31 (0.02)			
MA13069	K06	1.12 (0.11)	0.32 (0.07)	0.25 (0.03)			
MA13070	K07	0.49 (0.08)	0.43 (0.19)	0.22 (0.05)			
MA13073	K10	1.01 (0.16)	1.66 (0.11)	0.12 (0.02)			
MA13074	K11	0.85 (0.10)	0.56 (0.08)	0.20 (0.03)			
MA13075	K12	0.45 (0.03)	-0.01 (0.06)				
MA13076	K13	0.49 (0.04)	1.42 (0.12)				
MA13077	K14	1.03 (0.08)	1.58 (0.09)				
MA13078	K15	0.66 (0.03)	1.05 (0.04)		-1.66 (0.10)	1.66 (0.11)	
MA13079	K16	0.30 (0.01)	-0.16 (0.04)		-1.09 (0.15)	1.07 (0.15)	0.02 (0.12)
MA13080	K17	0.56 (0.02)	0.57 (0.02)		-1.93 (0.11)	0.11 (0.15)	1.82 (0.12)

Exhibit C.1 IRT Parameters for the TIMSS Advanced 1995 Re-scaling of Advanced Mathematics (Continued)

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})	Step 3 (d_{j3})
MA13081	K18	0.38 (0.02)	0.19 (0.05)		-1.28 (0.11)	1.28 (0.11)	
MA13082	L01	1.06 (0.11)	-0.14 (0.10)	0.37 (0.04)			
MA13083	L02	1.10 (0.09)	0.03 (0.07)	0.22 (0.03)			
MA13084	L03	1.15 (0.10)	0.59 (0.05)	0.14 (0.02)			
MA13085	L04	0.80 (0.09)	0.56 (0.08)	0.18 (0.03)			
MA13086	L05	1.29 (0.08)	0.32 (0.04)	0.06 (0.02)			
MA13087	L06	1.04 (0.09)	0.86 (0.05)	0.08 (0.02)			
MA13088	L07	0.81 (0.10)	1.17 (0.08)	0.14 (0.03)			
MA13089	L08	0.76 (0.07)	0.43 (0.08)	0.14 (0.03)			
MA13090	L09	0.69 (0.08)	0.41 (0.12)	0.23 (0.04)			
MA13093	L12	0.53 (0.07)	-0.13 (0.22)	0.26 (0.06)			
MA13094	L13	0.92 (0.05)	0.89 (0.05)				
MA13095	L14	0.68 (0.04)	0.04 (0.04)				
MA13097	L16	0.45 (0.02)	0.41 (0.03)		-0.50 (0.09)	-0.19 (0.11)	0.69 (0.10)
MA13098	L17	0.73 (0.03)	0.95 (0.03)		-1.39 (0.09)	1.39 (0.09)	
MA13099	L18	0.60 (0.04)	-0.25 (0.06)				

Exhibit C.2 IRT Parameters for the TIMSS Advanced 1995 Re-scaling of Physics

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
PA13001	E01	0.35 (0.04)	-0.81 (0.47)	0.36 (0.08)		
PA13002	E02	0.91 (0.06)	0.47 (0.05)	0.33 (0.02)		
PA13003	E03	0.81 (0.04)	-0.43 (0.07)	0.18 (0.03)		
PA13004	E04	0.62 (0.04)	-1.63 (0.19)	0.25 (0.07)		
PA13005	E05	0.46 (0.04)	-1.28 (0.28)	0.28 (0.08)		
PA13006	E06	1.42 (0.14)	1.67 (0.04)	0.30 (0.01)		
PA13009	E09	1.01 (0.07)	1.26 (0.04)	0.21 (0.01)		
PA13011	F01	0.75 (0.17)	1.54 (0.14)	0.39 (0.03)		
PA13012	F02	1.60 (0.18)	1.46 (0.05)	0.09 (0.01)		
PA13013	F03	0.96 (0.12)	1.13 (0.07)	0.22 (0.02)		
PA13014	F04	1.23 (0.11)	0.40 (0.05)	0.20 (0.02)		
PA13015	F05	0.59 (0.05)	-0.08 (0.06)	0.25 (0.00)		
PA13016	F06	1.05 (0.10)	1.05 (0.05)	0.10 (0.02)		
PA13017	F07	0.27 (0.06)	0.74 (0.51)	0.23 (0.09)		
PA13018	F08	0.65 (0.12)	1.25 (0.13)	0.28 (0.04)		
PA13019	F09	0.81 (0.17)	2.03 (0.16)	0.19 (0.02)		
PA13021	F11	1.08 (0.11)	0.85 (0.06)	0.16 (0.02)		
PA13022	F12	0.55 (0.02)	1.44 (0.05)		-1.10 (0.09)	1.10 (0.11)
PA13023	F13	0.40 (0.03)	-0.43 (0.08)			
PA13024	F14	0.62 (0.03)	1.03 (0.04)		-0.51 (0.07)	0.51 (0.08)
PA13025	F15	0.78 (0.03)	1.17 (0.04)		-0.74 (0.07)	0.74 (0.08)
PA13026	F16	0.91 (0.07)	1.72 (0.08)			
PA13027A	F17A	0.58 (0.04)	0.62 (0.06)			
PA13049	G01	1.05 (0.15)	1.31 (0.08)	0.28 (0.02)		
PA13050	G02	0.99 (0.08)	-0.10 (0.09)	0.20 (0.04)		
PA13051	G03	1.75 (0.38)	1.75 (0.09)	0.38 (0.01)		
PA13053	G05	0.70 (0.12)	1.38 (0.11)	0.21 (0.03)		
PA13054	G06	0.90 (0.11)	0.51 (0.10)	0.32 (0.03)		
PA13055	G07	0.90 (0.13)	1.52 (0.09)	0.16 (0.02)		
PA13056	G08	0.98 (0.11)	1.10 (0.07)	0.17 (0.02)		
PA13057	G09	0.91 (0.18)	2.12 (0.16)	0.13 (0.02)		
PA13058	G10	1.32 (0.17)	1.37 (0.06)	0.21 (0.02)		
PA13059	G11	0.41 (0.04)	2.79 (0.27)			
PA13060	G12	0.48 (0.02)	0.35 (0.04)		-1.03 (0.08)	1.03 (0.09)
PA13062	G14	1.19 (0.06)	0.84 (0.03)			
PA13063	G15	1.14 (0.07)	1.32 (0.05)			
PA13064	G16	0.48 (0.03)	-1.14 (0.09)			
PA13065	G17	0.38 (0.03)	1.46 (0.13)			
PA13066	G18	0.52 (0.03)	1.57 (0.07)		-0.42 (0.08)	0.42 (0.11)
PA13067	G19	0.62 (0.02)	1.20 (0.04)		-1.05 (0.08)	1.05 (0.10)
PA13068	H01	0.98 (0.32)	2.32 (0.25)	0.37 (0.02)		

Exhibit C.2 IRT Parameters for the TIMSS Advanced 1995 Re-scaling of Physics (Continued)

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
PA13069	H02	0.55 (0.10)	0.83 (0.19)	0.28 (0.05)		
PA13070	H03	1.12 (0.13)	1.09 (0.06)	0.21 (0.02)		
PA13071	H04	1.38 (0.16)	1.20 (0.05)	0.19 (0.02)		
PA13072	H05	0.66 (0.10)	1.06 (0.12)	0.24 (0.04)		
PA13073	H06	1.44 (0.28)	1.86 (0.10)	0.26 (0.01)		
PA13074	H07	0.84 (0.09)	0.82 (0.07)	0.13 (0.03)		
PA13075	H08	0.99 (0.10)	1.08 (0.06)	0.11 (0.02)		
PA13076	H09	0.86 (0.09)	1.32 (0.07)	0.08 (0.02)		
PA13077	H10	1.34 (0.12)	1.00 (0.04)	0.12 (0.01)		
PA13079	H12	0.93 (0.05)	1.02 (0.05)			
PA13080	H13	1.22 (0.06)	0.58 (0.03)			
PA13081	H14	0.62 (0.05)	2.11 (0.14)			
PA13083	H16	0.46 (0.02)	1.08 (0.05)		-2.14 (0.13)	2.14 (0.14)
PA13084	H17	0.47 (0.02)	1.38 (0.06)		-2.39 (0.15)	2.39 (0.16)
PA13085	H18	0.40 (0.03)	1.21 (0.07)		0.17 (0.08)	-0.17 (0.11)
PA13086A	H19A	0.57 (0.03)	0.76 (0.04)		-0.02 (0.07)	0.02 (0.08)
PA13086B	H19B	0.50 (0.04)	-0.59 (0.09)			

Exhibit C.3 IRT Parameters for the TIMSS Advanced 1995–2008 Concurrent Scaling of Advanced Mathematics

Item	Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})	Step 3 (d_{j3})
MA13064	K01	1.15 (0.13)	-0.92 (0.13)	0.20 (0.06)		
MA13065	K02	0.98 (0.14)	1.26 (0.08)	0.09 (0.02)		
MA13066	K03	1.05 (0.20)	0.57 (0.12)	0.44 (0.04)		
MA13067	K04	1.01 (0.15)	1.19 (0.07)	0.10 (0.02)		
MA13068	K05	2.20 (0.43)	0.96 (0.05)	0.31 (0.02)		
MA13069	K06	1.10 (0.15)	0.39 (0.09)	0.24 (0.04)		
MA13070	K07	0.49 (0.09)	0.48 (0.23)	0.21 (0.07)		
MA13073	K10	0.99 (0.22)	1.76 (0.15)	0.12 (0.02)		
MA13074	K11	0.84 (0.12)	0.63 (0.10)	0.20 (0.04)		
MA13075	K12	0.47 (0.04)	0.08 (0.06)			
MA13076	K13	0.50 (0.05)	1.49 (0.13)			
MA13077	K14	1.02 (0.10)	1.67 (0.10)			
MA13078	K15	0.65 (0.03)	1.14 (0.04)	-1.69 (0.10)	1.69 (0.11)	
MA13079	K16	0.31 (0.02)	-0.07 (0.05)	-1.06 (0.15)	1.05 (0.15)	0.01 (0.11)
MA13080	K17	0.55 (0.02)	0.65 (0.03)	-1.97 (0.11)	0.12 (0.16)	1.85 (0.12)
MA13081	K18	0.38 (0.02)	0.27 (0.05)	-1.26 (0.11)	1.26 (0.11)	
MA13082	L01	1.01 (0.14)	-0.11 (0.14)	0.35 (0.06)		
MA13083	L02	1.08 (0.13)	0.09 (0.10)	0.21 (0.05)		
MA13084	L03	1.13 (0.14)	0.67 (0.06)	0.14 (0.03)		
MA13085	L04	0.78 (0.11)	0.63 (0.11)	0.17 (0.04)		
MA13086	L05	1.27 (0.11)	0.39 (0.04)	0.06 (0.02)		
MA13087	L06	1.02 (0.12)	0.95 (0.06)	0.08 (0.02)		
MA13088	L07	0.79 (0.13)	1.25 (0.10)	0.14 (0.03)		
MA13089	L08	0.74 (0.09)	0.50 (0.10)	0.13 (0.04)		
MA13090	L09	0.68 (0.10)	0.47 (0.15)	0.22 (0.05)		
MA13093	L12	0.52 (0.08)	-0.11 (0.28)	0.24 (0.08)		
MA13094	L13	0.92 (0.06)	0.98 (0.05)			
MA13095	L14	0.68 (0.05)	0.13 (0.05)			
MA13097	L16	0.45 (0.02)	0.49 (0.03)	-0.51 (0.09)	-0.19 (0.11)	0.69 (0.10)
MA13098	L17	0.71 (0.03)	1.04 (0.04)	-1.42 (0.09)	1.42 (0.10)	
MA13099	L18	0.62 (0.05)	-0.16 (0.06)			
MA13001	M1_01	1.18 (0.05)	-0.10 (0.04)	0.12 (0.02)		
MA13002	M1_02	1.47 (0.07)	0.11 (0.03)	0.21 (0.02)		
MA13003	M1_03	0.44 (0.03)	-0.30 (0.10)	0.07 (0.03)		
MA13004	M1_04	1.16 (0.07)	0.25 (0.04)	0.27 (0.02)		
MA13006	M1_06	0.88 (0.04)	0.21 (0.04)	0.07 (0.02)		
MA13007	M1_07	0.83 (0.05)	0.22 (0.06)	0.18 (0.02)		
MA13008	M1_08	0.79 (0.04)	-0.74 (0.09)	0.16 (0.04)		
MA13009	M1_09	0.63 (0.03)	-0.17 (0.08)	0.09 (0.03)		
MA13011	M2_01	0.96 (0.08)	0.05 (0.07)	0.15 (0.03)		
MA13012	M2_02	1.29 (0.13)	0.94 (0.04)	0.18 (0.02)		

Exhibit C.3 IRT Parameters for the TIMSS Advanced 1995–2008 Concurrent Scaling of Advanced Mathematics (Continued)

Item	Slope (a_i)	Location (b_i)	Guessing (c_i)	Step 1 (d_{j1})	Step 2 (d_{j2})	Step 3 (d_{j3})
MA13013	M2_03	1.03 (0.08)	-0.02 (0.07)	0.18 (0.03)		
MA13015	M2_05	1.02 (0.08)	0.08 (0.07)	0.23 (0.03)		
MA13016	M2_06	0.69 (0.09)	1.26 (0.07)	0.13 (0.02)		
MA13017	M2_07	0.85 (0.07)	0.64 (0.05)	0.11 (0.02)		
MA13018	M2_08	0.44 (0.07)	-0.16 (0.35)	0.29 (0.08)		
MA13019	M2_09	1.09 (0.14)	1.63 (0.08)	0.16 (0.01)		
MA13020	M2_10	1.92 (0.24)	1.13 (0.04)	0.26 (0.01)		
MA13021	M3_01	0.36 (0.03)	-0.67 (0.08)	0.20 (0.00)		
MA13024	M3_04	1.36 (0.12)	0.45 (0.04)	0.25 (0.02)		
MA13025A	M3_05A	0.67 (0.03)	0.10 (0.03)			
MA13025B	M3_05B	0.93 (0.06)	1.91 (0.08)			
MA13026A	M3_06A	0.63 (0.03)	-0.43 (0.04)			
MA13026B	M3_06B	0.87 (0.04)	1.27 (0.05)			
MA13027	M3_07	0.49 (0.01)	0.74 (0.03)		-1.97 (0.08)	1.97 (0.08)
MA13028	M3_08	0.71 (0.04)	1.62 (0.08)			
MA13029	M3_09	0.42 (0.01)	0.34 (0.03)		-1.73 (0.08)	1.73 (0.08)
MA23005	M4_01	0.49 (0.08)	-0.11 (0.29)	0.10 (0.09)		
MA23145	M4_02	0.58 (0.04)	0.57 (0.06)			
MA23187	M4_03	0.32 (0.01)	-0.21 (0.05)		-1.87 (0.12)	1.87 (0.11)
MA23201	M4_04	0.83 (0.05)	0.04 (0.04)			
MA23154	M4_05	0.49 (0.02)	-0.21 (0.03)		-1.16 (0.08)	1.16 (0.08)
MA23206	M4_06	1.44 (0.13)	0.04 (0.05)	0.21 (0.03)		
MA23166	M4_07	1.16 (0.08)	1.43 (0.07)			
MA23043	M4_08	0.66 (0.02)	0.80 (0.04)		-0.95 (0.07)	0.95 (0.07)
MA23076	M4_09	0.81 (0.09)	0.14 (0.10)	0.15 (0.04)		
MA23176	M4_10	0.76 (0.12)	0.41 (0.12)	0.31 (0.04)		
MA23098	M4_11	1.19 (0.19)	0.95 (0.07)	0.30 (0.02)		
MA23144	M5_01	1.05 (0.14)	0.68 (0.06)	0.18 (0.03)		
MA23185	M5_02	0.82 (0.12)	0.59 (0.10)	0.22 (0.04)		
MA23054	M5_03	0.60 (0.02)	0.68 (0.04)		-0.72 (0.06)	0.72 (0.07)
MA23064	M5_04	0.85 (0.14)	1.19 (0.09)	0.17 (0.03)		
MA23131A	M5_05A	1.05 (0.06)	0.34 (0.03)			
MA23131B	M5_05B	1.01 (0.07)	1.18 (0.06)			
MA23157	M5_06	0.73 (0.04)	0.80 (0.04)		0.56 (0.04)	-0.56 (0.06)
MA23045	M5_07	1.12 (0.16)	1.24 (0.07)	0.15 (0.02)		
MA23082	M5_08	0.98 (0.16)	0.41 (0.11)	0.38 (0.04)		
MA23020	M5_09	0.96 (0.16)	0.93 (0.08)	0.29 (0.03)		
MA23094	M5_10	0.48 (0.03)	1.33 (0.07)		-0.44 (0.07)	0.44 (0.10)
MA23069	M6_01	1.02 (0.15)	0.31 (0.08)	0.13 (0.04)		
MA23135	M6_02	0.66 (0.06)	0.01 (0.06)			
MA23208	M6_03	1.04 (0.19)	0.75 (0.09)	0.20 (0.03)		

Exhibit C.3 IRT Parameters for the TIMSS Advanced 1995–2008 Concurrent Scaling of Advanced Mathematics (Continued)

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})	Step 3 (d_{j3})
MA23165	M6_04	0.58 (0.05)	0.34 (0.08)				
MA23039	M6_05	0.68 (0.10)	-0.56 (0.22)	0.02 (0.09)			
MA23159	M6_06	0.71 (0.06)	-0.39 (0.06)				
MA23198	M6_07	1.37 (0.11)	0.60 (0.04)				
MA23042	M6_08	1.21 (0.24)	0.53 (0.09)	0.35 (0.03)			
MA23055	M6_09	0.93 (0.13)	0.35 (0.09)	0.10 (0.04)			
MA23080	M6_10	1.24 (0.15)	0.19 (0.07)	0.12 (0.03)			
MA23021	M6_11	2.09 (0.43)	1.06 (0.06)	0.16 (0.02)			
MA23004	M7_01	0.86 (0.21)	0.71 (0.15)	0.29 (0.05)			
MA23063	M7_02	1.32 (0.26)	1.26 (0.09)	0.14 (0.02)			
MA23141	M7_03	1.13 (0.10)	0.80 (0.05)				
MA23133	M7_04	0.91 (0.17)	1.00 (0.09)	0.08 (0.03)			
MA23158	M7_05	1.51 (0.26)	1.11 (0.07)	0.11 (0.02)			
MA23151	M7_06	0.89 (0.18)	0.61 (0.13)	0.23 (0.05)			
MA23035A	M7_07A	1.14 (0.09)	0.34 (0.04)				
MA23035B	M7_07B	1.03 (0.10)	1.06 (0.07)				
MA23050	M7_08	1.13 (0.29)	1.28 (0.12)	0.23 (0.03)			
MA23041	M7_09	0.96 (0.21)	0.89 (0.11)	0.20 (0.04)			
MA23182	M7_10	1.27 (0.22)	0.50 (0.08)	0.20 (0.04)			
MA23170	M7_11	0.98 (0.08)	0.66 (0.06)				

Exhibit C.4 IRT Parameters for the TIMSS Advanced 1995–2008 Concurrent Scaling of Physics

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
PA13049	G01	1.02 (0.21)	1.30 (0.10)	0.27 (0.03)		
PA13050	G02	0.99 (0.11)	-0.12 (0.12)	0.18 (0.06)		
PA13051	G03	1.70 (0.59)	1.76 (0.12)	0.38 (0.02)		
PA13053	G05	0.70 (0.16)	1.37 (0.13)	0.21 (0.04)		
PA13054	G06	0.88 (0.15)	0.47 (0.15)	0.30 (0.05)		
PA13055	G07	0.89 (0.17)	1.53 (0.10)	0.16 (0.03)		
PA13056	G08	0.96 (0.15)	1.09 (0.08)	0.16 (0.03)		
PA13057	G09	0.90 (0.23)	2.13 (0.20)	0.13 (0.02)		
PA13058	G10	1.30 (0.25)	1.37 (0.08)	0.21 (0.02)		
PA13059	G11	0.42 (0.05)	2.72 (0.29)			
PA13060	G12	0.50 (0.02)	0.36 (0.04)		-1.00 (0.08)	1.00 (0.08)
PA13062	G14	1.21 (0.08)	0.84 (0.04)			
PA13063	G15	1.15 (0.09)	1.32 (0.06)			
PA13064	G16	0.50 (0.05)	-1.05 (0.11)			
PA13065	G17	0.39 (0.04)	1.42 (0.15)			
PA13066	G18	0.52 (0.03)	1.57 (0.08)		-0.42 (0.08)	0.42 (0.11)
PA13067	G19	0.63 (0.03)	1.20 (0.05)		-1.04 (0.08)	1.04 (0.10)
PA13068	H01	0.91 (0.40)	2.38 (0.35)	0.36 (0.02)		
PA13069	H02	0.54 (0.12)	0.78 (0.26)	0.27 (0.07)		
PA13070	H03	1.11 (0.19)	1.08 (0.08)	0.21 (0.03)		
PA13071	H04	1.36 (0.22)	1.20 (0.07)	0.19 (0.02)		
PA13072	H05	0.64 (0.13)	1.03 (0.17)	0.23 (0.05)		
PA13073	H06	1.42 (0.40)	1.88 (0.13)	0.26 (0.02)		
PA13074	H07	0.84 (0.12)	0.81 (0.09)	0.13 (0.04)		
PA13075	H08	0.98 (0.14)	1.07 (0.07)	0.10 (0.03)		
PA13076	H09	0.86 (0.13)	1.32 (0.08)	0.08 (0.02)		
PA13077	H10	1.32 (0.18)	1.00 (0.06)	0.12 (0.02)		
PA13079	H12	0.95 (0.06)	1.02 (0.06)			
PA13080	H13	1.24 (0.08)	0.58 (0.04)			
PA13081	H14	0.63 (0.06)	2.09 (0.17)			
PA13083	H16	0.47 (0.02)	1.08 (0.05)		-2.10 (0.13)	2.10 (0.14)
PA13084	H17	0.47 (0.02)	1.38 (0.06)		-2.36 (0.14)	2.36 (0.16)
PA13085	H18	0.41 (0.03)	1.20 (0.08)		0.16 (0.08)	-0.16 (0.11)
PA13086A	H19A	0.59 (0.04)	0.76 (0.05)		-0.02 (0.07)	0.02 (0.08)
PA13086B	H19B	0.52 (0.05)	-0.53 (0.09)			
PA13001	P1_01	0.38 (0.04)	-0.75 (0.42)	0.29 (0.09)		
PA13002	P1_02	0.90 (0.07)	0.39 (0.07)	0.31 (0.03)		
PA13003	P1_03	0.86 (0.06)	-0.31 (0.10)	0.22 (0.04)		
PA13004	P1_04	0.59 (0.04)	-1.64 (0.21)	0.20 (0.08)		
PA13005	P1_05	0.53 (0.05)	-0.94 (0.31)	0.33 (0.08)		
PA13006	P1_06	1.23 (0.16)	1.68 (0.06)	0.30 (0.01)		

Exhibit C.4 IRT Parameters for the TIMSS Advanced 1995–2008 Concurrent Scaling of Physics (Continued)

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
PA13009	P1_09	0.95 (0.09)	1.31 (0.05)	0.22 (0.01)		
PA13011	P2_01	0.44 (0.09)	1.11 (0.25)	0.30 (0.06)		
PA13012	P2_02	1.32 (0.14)	1.39 (0.05)	0.09 (0.01)		
PA13013	P2_03	0.88 (0.13)	1.31 (0.07)	0.23 (0.02)		
PA13014	P2_04	0.93 (0.09)	0.41 (0.08)	0.20 (0.03)		
PA13015	P2_05	0.56 (0.04)	-0.35 (0.05)	0.25 (0.00)		
PA13016	P2_06	0.99 (0.11)	1.17 (0.05)	0.12 (0.02)		
PA13017	P2_07	0.26 (0.05)	0.41 (0.48)	0.21 (0.08)		
PA13018	P2_08	0.53 (0.08)	0.98 (0.16)	0.21 (0.05)		
PA13019	P2_09	0.57 (0.11)	1.82 (0.13)	0.19 (0.03)		
PA13021	P3_01	0.92 (0.10)	0.71 (0.07)	0.20 (0.03)		
PA13022	P3_02	0.57 (0.02)	1.28 (0.04)		-1.10 (0.06)	1.10 (0.07)
PA13023	P3_03	0.47 (0.03)	-0.33 (0.05)			
PA13024	P3_04	0.59 (0.02)	1.01 (0.03)		-0.54 (0.05)	0.54 (0.06)
PA13025	P3_05	0.60 (0.02)	1.19 (0.04)		-0.89 (0.06)	0.89 (0.07)
PA13026	P3_06	0.90 (0.06)	1.78 (0.08)			
PA13027A	P3_07A	0.62 (0.04)	0.94 (0.05)			
PA23071	P4_01	0.56 (0.17)	1.41 (0.22)	0.43 (0.05)		
PA23146	P4_02	0.52 (0.04)	-0.36 (0.06)			
PA23029	P4_03	1.05 (0.12)	0.35 (0.07)	0.16 (0.03)		
PA23104	P4_04	0.78 (0.17)	0.87 (0.14)	0.38 (0.04)		
PA23038	P4_05	0.64 (0.09)	0.46 (0.14)	0.14 (0.05)		
PA23041	P4_06	0.40 (0.03)	-1.53 (0.12)			
PA23053	P4_07	0.37 (0.02)	0.28 (0.05)		-0.55 (0.09)	0.55 (0.09)
PA23148	P4_08	0.36 (0.11)	-0.34 (0.95)	0.20 (0.21)		
PA23119	P4_09	0.44 (0.02)	1.42 (0.06)		-2.07 (0.12)	2.07 (0.14)
PA23088	P4_10	0.58 (0.04)	-0.45 (0.06)			
PA23066	P4_11	0.58 (0.04)	0.38 (0.05)			
PA23048	P5_01	0.80 (0.14)	-0.20 (0.24)	0.49 (0.06)		
PA23039	P5_02	0.74 (0.14)	1.16 (0.11)	0.23 (0.04)		
PA23035	P5_03	0.65 (0.04)	-0.30 (0.05)			
PA23042	P5_04	0.74 (0.15)	1.07 (0.13)	0.33 (0.04)		
PA23012	P5_05	0.77 (0.05)	1.27 (0.07)			
PA23131	P5_06	0.91 (0.21)	1.57 (0.12)	0.25 (0.03)		
PA23051	P5_07	0.86 (0.05)	0.34 (0.04)			
PA23085	P5_08	0.91 (0.19)	1.39 (0.11)	0.31 (0.03)		
PA23130	P5_09	0.48 (0.02)	0.94 (0.04)		-1.54 (0.09)	1.54 (0.10)
PA23086	P5_10	0.61 (0.04)	1.10 (0.07)			
PA23064	P5_11	0.80 (0.13)	0.64 (0.12)	0.27 (0.04)		
PA23050	P6_01	0.98 (0.27)	1.08 (0.13)	0.35 (0.04)		
PA23056	P6_02	0.46 (0.18)	0.24 (0.70)	0.40 (0.14)		

Exhibit C.4 IRT Parameters for the TIMSS Advanced 1995–2008 Concurrent Scaling of Physics (Continued)

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
PA23142	P6_03	1.10 (0.22)	0.58 (0.11)	0.27 (0.04)		
PA23072	P6_04	0.54 (0.05)	0.09 (0.08)	0.00 (0.00)		
PA23022	P6_05	0.39 (0.03)	1.72 (0.12)		-2.04 (0.18)	2.04 (0.21)
PA23030	P6_06	1.49 (0.33)	1.32 (0.09)	0.11 (0.02)		
PA23078	P6_07	0.26 (0.04)	0.72 (0.18)			
PA23113	P6_08	0.82 (0.23)	1.20 (0.15)	0.30 (0.04)		
PA23128	P6_09	0.36 (0.04)	0.73 (0.13)			
PA23058	P6_10	1.05 (0.22)	0.64 (0.12)	0.28 (0.04)		
PA23115	P6_11	1.16 (0.24)	1.07 (0.09)	0.16 (0.03)		
PA23110	P7_01	0.57 (0.15)	0.78 (0.28)	0.22 (0.09)		
PA23014	P7_02	0.49 (0.05)	0.01 (0.08)			
PA23025	P7_03	0.70 (0.04)	1.28 (0.06)		-0.93 (0.10)	0.93 (0.12)
PA23028	P7_04	0.95 (0.17)	0.52 (0.14)	0.25 (0.05)		
PA23034	P7_05	0.39 (0.05)	1.28 (0.18)			
PA23044	P7_06	0.71 (0.07)	1.29 (0.10)			
PA23082	P7_07	0.63 (0.06)	-0.01 (0.07)			
PA23140	P7_08	0.55 (0.16)	1.20 (0.22)	0.16 (0.08)		
PA23084	P7_09	0.67 (0.04)	1.25 (0.06)		-1.83 (0.15)	1.83 (0.16)
PA23059	P7_10	0.66 (0.21)	-0.25 (0.56)	0.45 (0.14)		
PA23138	P7_11	1.46 (0.29)	0.24 (0.13)	0.47 (0.05)		
PA23137	P7_12	0.51 (0.06)	0.56 (0.09)			

