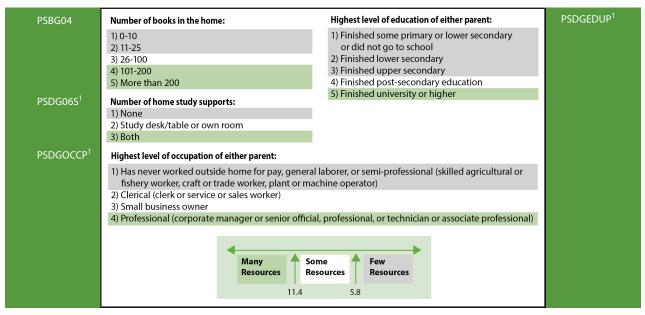


# Appendix 15B: TIMSS Advanced 2015 Context Questionnaire Scales, Physics

### Home Educational Resources Scale, Physics

The Home Educational Resources (HER) scale was created based on students' responses concerning the availability of four resources described below.

#### Items in the TIMSS Advanced 2015 Home Educational Resources Scale, Physics



<sup>1</sup> Derived variable. For more details, see Supplement 3 of the TIMSS Advanced 2015 User Guide for the International Database.



#### Item Parameters for the TIMSS Advanced 2015 Home Educational Resources Scale, Physics

Item	delta	tau_1	tau_2	tau_3	tau_4	Infit	MSS 2015
PSBG04	0.64929	-0.89914	-0.53587	0.86039	0.57462	1.09	_ =
PSDG06S	-0.90816	-0.25972	0.25972			1.11	
PSDGEDUP	-0.11749	-0.59426	-0.48752	0.88533	0.19645	1.01	nce 5
PSDGOCCP	0.37636	-0.64586	1.24705	-0.60119		0.99	Scie —

#### Scale Transformation Constants for the TIMSS Advanced 2015 Home Educational Resources Scale, Physics

Scale Transformation Constants				
A = 7.525439	Transformed Scale Score = 7.525439 + 2.234962 • Logit Scale Score			
B = 2.234962	Halistofflied Scale Scole — 7.323439 + 2.234902 • Logit Scale Scole			

## Equivalence Table of the Raw Score and the Transformed Scale Score for the TIMSS Advanced 2015 Home Educational Resources Scale, Physics

Raw Score	Transformed Scale Score	Cutpoint
0	1.31964	
1	3.68097	
2	4.88859	
3	5.77587	5.8
4	6.50614	
5	7.14369	
6	7.71485	
7	8.25370	
8	8.77829	
9	9.31522	
10	9.89707	
11	10.57858	
12	11.48758	11.4
13	13.18946	

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015





#### Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS Advanced 2015 Home Educational Resources Scale, Physics

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Compo	/	, ,	for Each	
France	0.60	47	0.65	0.31	0.84	0.81	
Italy	0.59	46	0.66	0.22	0.84	0.81	
Lebanon	0.51	40	0.60	0.40	0.73	0.75	
Norway	0.51	43	0.67	0.28	0.79	0.75	
Portugal	0.67	51	0.75	0.08	0.87	0.84	
Russian Federation	0.41	38	0.60	0.17	0.78	0.74	
Slovenia	0.55	44	0.67	0.14	0.83	0.77	
Sweden	0.58	46	0.70	0.42	0.76	0.77	
United States	0.52	43	0.73	0.50	0.81	0.51	
International Avg.	0.55	44	0.67	0.28	0.80	0.75	

## Relationship Between the TIMSS Advanced 2015 Home Educational Resources Scale, and TIMSS Advanced 2015 Physics Achievement

	Pearson's Correlation w	Variance in Physics Achievement Accounted for	
Country	(r)	(r²)	by Difference Between Regions of the Scale (η²)
France	0.33	0.11	0.07
Italy	0.14	0.02	0.01
Lebanon	0.19	0.04	0.02
Norway	0.26	0.07	0.05
Portugal	0.31	0.09	0.07
Russian Federation	0.15	0.02	0.01
Slovenia	0.21	0.04	0.04
Sweden	0.36	0.13	0.10
United States	0.32	0.10	0.08
International Median	0.26	0.07	0.05