

Exhibit 3.4: Size of TIMSS Advanced 2015 Target Population for Physics, the Age Cohort, and the TIMSS Advanced Coverage Index for Physics

Country	Years of Formal Schooling*	Age Cohort Corresponding to the Final Year of Secondary School	Estimated Size of the Population of Students in the Final Year of Secondary School Taking the Physics Track or Program Targeted by TIMSS Advanced (Derived from TIMSS Advanced Student Sample)	Size of the Age Cohort Corresponding to the TIMSS Advanced Population Based on National Census Figures**	TIMSS Advanced Physics Coverage Index—the Percentage of the Entire Corresponding Age Cohort Covered by the TIMSS Advanced Target Population
France	12	18	172,178	801,889	21.5%
Italy	13	19	104,650	576,506	18.2%
Lebanon	12	18	4,464	113,204	3.9%
Norway	13	19	4,163	63,894	6.5%
Portugal	12	18	5,661	109,984	5.1%
Russian Federation	11	18	66,746	1,365,790	4.9%
Slovenia	13	19	1,491	19,598	7.6%
Sweden	12	19	15,423	108,138	14.3%
United States	12	18	199,944	4,168,000	4.8%

* Represents years of schooling counting from the first year of primary or basic education (first year of ISCED Level 1).

** France: Estimate derived by dividing the population of 15–19-year-olds by 5 for the single year estimate. Data retrieved from INSEE (National Institute of Statistics and Economic Studies), Estimations de Population (résultats provisoires à fin 2015); http://www.insee.fr/fr/themes/detail.asp?reg_id=99&ref_id=estim-pop.

Italy: Value is the total population of 19-year olds in Italy in 2015. Data retrieved from ISTAT (the National Statistics Institute); http://dati.istat.it/Index.aspx?DataSetCode=DCIS_POPRES1.

Lebanon: Value is the total population of 18-year olds in Lebanon in 2015. Data retrieved from <http://databank.worldbank.org/data/reports.aspx?source=health-nutrition-and-population-statistics:-population-estimates-and-projections&Type=TABLE&preview=on>.

Norway: Estimate derived by dividing the population of 15–19-year-olds by 5 for the single year estimate. Data retrieved from https://stats.oecd.org/Index.aspx?DataSetCode=POP_PROJ.

Portugal: Estimate derived by dividing the 2014 population of 15–19-year-olds by 5 for the single year estimate. Data retrieved from INE (Instituto Nacional de Estatística) Annual Estimates of Resident Population; <http://www.pordata.pt/en/Portugal/Resident+population+total+and+by+age+group-10>.

Russian Federation: Estimate derived by dividing the population of 15–19-year-olds by 5 for the single year estimate. Data retrieved from The Demographic Yearbook of Russia, 2015; http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1137674209312.

Slovenia: Value is the total population of 18-year olds in Slovenia as of July 1st 2015. Data retrieved from the Statistical Office of the Republic of Slovenia; <http://pxweb.stat.si>.

Sweden: Value is the total population of 18-year olds as of December 31, 2014 (Born 1996). Data retrieved from Statistics Sweden; http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BE__BE0101__BE0101A/BefolkningR1860/table/tableViewLayout1/?rxid=06695d79-5fa1-41d1-81c1-3ae51dcd09b7.

United States: Value is the total population of 18-year olds as of July 1st 2015. Data retrieved from the US Census Annual Estimates of the Resident Population by Single Year of Age and Sex for the United States: April 1, 2010 to July 1, 2013; <https://www.census.gov/popest/data/national/asrh/2013/>. The post-census estimates are as of July 1 of each year. For the 18 year-olds estimate in 2015, the 2015 population was projected using the year to year changes from 2010 to 2013 and extending it to 2015.

The TIMSS Advanced Physics Coverage Index reflects the differences across countries in the proportion of the age cohort that are enrolled in these advanced courses in the final year of secondary education. In some countries, only a very select group of students was considered eligible for the study, while in others, a much larger group was included.

The TIMSS Advanced Physics Coverage Index (TAMCI) is defined as follows:

$$\text{TAMCI} = \frac{\text{Estimated total number of students in the physics target population in 2015}}{\text{Total national population in the corresponding age cohort in 2015}} \times 100\%$$

The numerator is the total number of students eligible for TIMSS Advanced, estimated from the weighted sample data. These are students in the final year of secondary school taking the physics track or program targeted by TIMSS Advanced, based on the TIMSS Advanced sample. The denominator is the size of the population age cohort corresponding to the average age of the students in the target populations and is based on national census figures.