



Getting Started with the International Activities Program Data

Module Objectives

- Introduce users to the data collected across IAP studies (PIRLS, TIMSS, PISA) and the resulting micro-level data files
- Describe the resources available to learn more about the studies, the data, and the data files

PIRLS



Data Files of IAP Studies

- In all IAP studies there are separate data files by data type (e.g., student data files, school data files, etc.)
 - PIRLS and TIMSS
 - Education systems include countries as a whole, as well as subnational entities such as states, provinces, and special administrative regions
 - There are separate data files by education system
 - PISA
 - Education systems include OECD countries, some non-OECD countries, as well as subnational entities such as states and special administrative regions
 - All education systems are in the same file

Data Files of IAP Studies (Continued)

- Two basic types of data files
 - **Background files**, which include
 - Student - includes test scores
 - Teacher (PIRLS and TIMSS)
 - School
 - Home/Parent (PIRLS and PISA, though home questionnaire not administered in the U.S.)
 - Curricular, at the education system level (PIRLS and TIMSS)
 - **Achievement files** (called cognitive files in PISA), which include
 - Student responses (scored or unscored) to assessment items
- For PIRLS and TIMSS, data can be merged using the IEA International Database Analyzer (IDB Analyzer)
- For PISA, analysts will need to merge files **before** using the IDB Analyzer

Student Background Files

- Contain the responses to the student questionnaire regarding students'
 - Attitudes towards the subject assessed
 - Demographic backgrounds
 - School experiences
 - Career and educational goals
 - Beliefs, values, and attitudes
- Also contains achievement data, including students' scale and subscale scores

Teacher Background Files

- Contain the responses to the teacher questionnaire regarding teachers'
 - Background and education
 - Instructional practices
 - Pedagogical beliefs
 - Beliefs about the subject tested
- Teacher background files available for PIRLS and TIMSS
- Teacher background files available for PISA starting with the 2015 administration

School Background Files

- Contain the responses to the school questionnaire that asks school principals or administrators about their schools'
 - Curricula
 - School climate
 - Staffing levels
 - Availability of resources and services

Using Teacher and School Background Files

- The Teaching and Learning International Survey ([TALIS](#)) provides representative data on teachers
- PIRLS, TIMSS and PISA are designed to be nationally representative of students
 - Teacher and school background files provide contextual data for students
 - In PIRLS and TIMSS, teacher data should be analyzed only in conjunction with the Student-Teacher Linkage data files
 - Statements to be made, e.g., about “...percent of students taught by teachers...” rather than “...percent of teachers...”
 - Preferable to analyze school data by linking school data file to student data file

Achievement Test/Cognitive Items Files

Contain student responses to the assessment items administered

- All students are administered a set of multiple-choice and constructed-response items
- Each student is only administered a fraction of the items in the test pool

TIMSS and PIRLS Data Almanacs and PISA Compendia

- Data almanacs and compendia are files that display previously computed, weighted summary statistics, by grade, for each participating education system on each variable included in background questionnaires, as well as in the test booklets
 - Links to these resources are provided within the '[Data Collected Through the International Activities Program Studies](#)' module
- One for each background instrument and subject area (except the curriculum questionnaire)
- Useful for
 - Elaborating upon your hypothesis
 - Checking results of your own computations
 - Searching for variables

Variable Data in the TIMSS and PIRLS Data Almanacs and PISA Compendia

- Categorical variables
 - Sample size
 - Weighted percent of responses by category
 - Percent missing responses
 - Mean achievement
- Continuous variables
 - Sample size
 - Percent missing responses
 - Points in the distribution (i.e., mean, mode, minimum, maximum, and selected percentiles)

Data Almanacs in IAP Studies

Trends in International Mathematics and Science Study - TIMSS 2011 Assessment Results
 Student Background Data Almanac by Mathematics Achievement (Weighted) - 8th Grade

Question : Are you a girl or a boy?
 Location : SQG-01 (B8BG01)

Country	Sample	Valid N	1.GIRL %	2.BOY %	Not Administered %	Not Applicable %	Omitted %	1.GIRL Mean	2.BOY Mean	Not Administered Mean	Not Applicable Mean	Omitted Mean
Armenia	5846	5846	48.9	51.1	0.0	0.0	0.0	471.5	461.9	.	.	.
Australia	7556	7440	49.9	50.1	0.9	0.0	0.0	500.8	509.6	460.3	.	.
Bahrain	4640	4630	49.8	50.2	0.2	0.0	0.0	430.9	388.0	351.3	.	.
Chile	5835	5819	53.0	47.0	0.2	0.0	0.0	409.5	423.9	396.9	.	.
Chinese Taipei	5042	5042	48.4	51.6	0.0	0.0	0.0	612.5	606.2	.	.	.

First five countries of student background variable ITSEX from T07_G8_StudentAlmanac_MAT.pdf

Codebooks in IAP Studies

Guides provided with the data file describe the layout of the data in the data file and document the values associated with the answer options provided for each survey question

Example: PISA 2009 Codebook

Variable Name	Variable Label	POSITION	Variable Format	Columns	VALUE	Format value label
					8	Invalid
					9	Miss
ST21Q05	How many rooms bath or shower	63	F1	114-114	1	None
					2	One
					3	Two
					4	Three or more
					7	N/A
					8	Invalid
					9	Miss
ST22Q01	How many books at home	64	F1	115-115	1	0-10 books
					2	11-25 books
					3	26-100 books
					4	101-200books
					5	201-500 books
					6	More than 500 books
					7	N/A
					8	Invalid
					9	Miss

PIRLS and TIMSS Encyclopedias

A written overview of the context in which instruction takes place in each education system, including

- Organization of the education system
- Teacher education requirements
- Examinations and assessments
- Curriculum and instruction
 - Language, literacy, and classroom reading instruction in primary grades (PIRLS)
 - Mathematics and science curricula and instruction in primary and secondary grades (TIMSS)

Resources for IAP Studies on the NCES Website

- NCES reports on findings from PIRLS, TIMSS, and PISA, as well as technical reports and user's manuals (see under "Publications and Products" from each study's home page on NCES website)
- [Bibliography Search Tool](#) to identify journal articles using data from PIRLS, TIMSS, or PISA
- The [International Data Explorer \(IDE\)](#) allows users to easily create statistical tables and charts
- Questionnaires, Released Assessment Items, Countries, and FAQs (see the tabs on the left-hand side on each study's home page on NCES website)
- Check each study's website occasionally

The [IEA IDB Analyzer](#)

A stand-alone software program for analyzing data from all IEA studies, including PIRLS and TIMSS, and OECD studies, such as PISA, that

- Uses SPSS as the computational engine
- Allows easy creation of analysis datasets in SPSS
- Allows analysis of data from a complex sample design with plausible values methodology, including the correct calculation of standard errors

Data and Resources Available on the IEA and OECD Websites

- [IEA: PIRLS/TIMSS](#)
 - Data available in SPSS and SAS
 - Assessment Frameworks, Questionnaires, International Reports, Encyclopedias, Almanacs, Codebooks, User Guides, and Technical Reports or online documentation of Methods and Procedures
- [OECD: PISA](#)
 - Data available in SPSS and SAS
 - Assessment Frameworks, Questionnaires, International Reports, Compendia, Codebooks, Data Analysis Manuals, and Technical Reports

Module Summary and Resources

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Resources

- [The Teaching and Learning International Survey \(TALIS\)](#)
- [PIRLS 2011 Encyclopedia](#)
- [TIMSS 2011 Encyclopedia](#)
- [Resources for IAP studies](#)
- [International Data Explorer \(IDE\)](#)
- [Bibliography Search Tool](#)
- [IDB Analyzer](#)
- [IEA: PIRLS/TIMSS](#)
- [OECD: PISA](#)