

MILO international database release notes (18 January 2022)

The accurate calculation of statistics from a complex sample such as the ones designed for MILO requires three basic types of variables:

Ability estimates, expressed as Plausible Values to estimate measurement variance, to account for measurement error.

Sampling weights, to account for probability of selection and non-response.

Replicate weights, used in a Jackknife procedure to estimate sampling variance, to account for sampling error.

An introduction to these concepts can be found in the PISA data analysis manuals:

<https://www.oecd.org/pisa/pisaproducts/pisadataanalysismanualspssandsassecondedition.htm>

These manuals also contain useful SPSS and SAS macros. ACER also provides an SPSS add-in for replicates, (version 9.3 is available here). Other statistical software that can handle survey design effects and plausible values, such as R, may also be used to analyse the data.

The sections below indicate these variables in the international dataset.

Ability estimates

All five Plausible Values (PV) should be used to accurately account for measurement variance when reporting statistics. However, when exploring the data, one PV can be used.

PV1_MILO_m ... PV5_MILO_m	MILO ability Plausible Value – mathematics (1-5)	Ability estimates, mathematics. Expressed on the logit scale with international mean of -0.7 logits and standard deviation of 1.0, rounded, weighted by SENWGT across 6 countries.
PV1_MILO_r ... PV5_MILO_r	MILO ability Plausible Value – reading (1-5)	Ability estimates, reading. Expressed on the logit scale with international mean of -0.3 logits and standard deviation of 1.2, rounded, weighted by SENWGT across 6 countries.
PL_PV1_MILO_m ... PL_PV5_MILO_m	MILO proficiency level for PV[1-5] - Mathematics	Flag indicates whether ability estimate (PV[1-5]) is above the Minimum Proficiency Level for mathematics.
PL_PV1_MILO_r ... PL_PV5_MILO_r	MILO proficiency level for PV[1-5] - Reading	Flag indicates whether ability estimate (PV[1-5]) is above the Minimum Proficiency Level for reading.

Sample weights

SENWGT	Senate weight	Applied only to international level analyses when comparing across MILO countries. Each MILO country is provided an equal weight, regardless of population size. For each country, the total sum of this weight equals 2000.
FWGT	The final student weight	To be applied in all national level analyses. The total sum of this weight equals the total target national population. This weight provides accurate population estimates of sub-groups (e.g. boys and girls).

Replicate weights

rwgt1 ... rwgtn	Replicate student weight 1- <i>n</i>	Replicate weights to be used with the Jackknife method for appropriate standard error computation including sampling variance taking into account the complex survey sample design.
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Contextual indices

The student and school datasets contain derived indices, scaled using data from multiple items that can be used as a single datapoint as a measure of a latent construct. Scores across constructs are not comparable, but scores within constructs are comparable.

The following indices are included in the **student database**.

S_FAMSUPP	Support provided to student from family	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
S_SCHSUPP	Support provided to student from school	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
S_TCHSUPP	Support received from teachers	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
S_STUDANX	Student anxiety during COVID-19 disruption	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
S_WEALTH	Family wealth	Latent construct derived using Item Response Theory. Expressed on the Logit scale with national mean = 0 and standard deviation = 1.

The following indices are included in the **school database**.

C_TASSLRN	Teachers' assessments of student learning during COVID-19 disruption	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
C_BARRINS	Barriers to school's capacity to deliver remote instruction	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
C_PARINFO	Provision of information to parents	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
C_TCHSUPP	Teacher support services	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.
C_TCHPLRN	Professional learning provided to teachers	Latent construct derived using Item Response Theory. Expressed on a weighted metric mean = 50 and standard deviation = 10.