



MONASH
University

MONASH
BUSINESS
SCHOOL

**Department of
Econometrics &
Business Statistics**

☎ (03) 9905 2478
✉ BusEco-Econometrics@monash.edu

ABN: 12 377 614 012

Report of developing Learningtower R package

Shabarish Sai Subramanian
Master of Business Analytics

Guan Ru, Chen
Master of Business Analytics

Report for
Department of Econometrics & Business Statistics Monash University

10 September 2024



1 Abstract

1.1 Introduction

The Organization for Economic Cooperation and Development [OECD](#) is a global organization that aims to create better policies for better lives. Its mission is to create policies that promote prosperity, equality, opportunity, and well-being for all. (Organization for Economic Cooperation and Development [2021a](#)) [PISA](#) is one of OECD's Programme for International Student Assessment. PISA assesses 15-year-old students' potential to apply their knowledge and abilities in reading, mathematics, and science to real-world challenges. OECD launched this in 1997, it was initially administered in 2000, and it currently includes over [80 nations](#). (Organization for Economic Cooperation and Development [2021b](#)) The PISA study, conducted every three years, provides comparative statistics on 15-year-old students' performance in reading, math, and science. This report describes how to utilize the `learningtower` package, which offers OECD PISA datasets from 2000 to 2022 in an easy-to-use format. The datasets comprise information on students' test results and other socioeconomic factors, as well as information on their schools, infrastructure and the countries participating in the program.

1.2 Goals

1.3 Data compilation

We are responsible for the curation of the newest PISA study, year 2022. Data on the participating students and schools were first downloaded from the PISA website, in either SPSS or SAS format. The data were read into an R environment. After some data cleaning and wrangling with the appropriate script, the variables of interest were re-categorised and saved as RDS files. One major challenge faced by the us was to ensure the consistency of variables over the years. However, several variables may be missing due to the reconstruction of questionnaires. For instance, a question regarding student's possession of desk is not recorded in 2022, but it was included in previous questionnaires, hence these variables were manually curated as an character variable in the output data. Another important issue we faced is a missing variable `WEALTH`, this variable used to be a good measurement of a student's socioeconomic status. But we also discovered a variable called `ESCS` (economic, social and cultural status). These final RDS file for each PISA year were then thoroughly vetted and made available in a separate [GitHub repository](#).

2 Data Introduction

3 Analysis

4 Interpretation

5 Reference

5.1 Git respository of the report

https://github.com/Shabarish161/Learningtower_Rpackage

References

Organization for Economic Cooperation and Development (2021a). *About OECD*. Accessed: 2021-11-03. <https://www.oecd.org/about/>.

Organization for Economic Cooperation and Development (2021b). *About PISA*. Accessed: 2021-11-03. <https://www.oecd.org/pisa/>.