

A multilevel analysis of large-scale achievement test data

Ricardo Aravena, Guido del Pino, Ernesto San Martín.

Departamento de Estadística, Pontificia Universidad Católica de Chile, Casilla 306, Santiago 22, Chile; raravena@mat.puc.cl

Frank Rijmen

K.U. Leuven, Department of Psychology, Tiensestraat 102 B- 3000 Leuven, Frank.Rijmen@psy.kuleuven.ac.be

Keywords: Achievement tests, multilevel analysis, interactions, contextual effects.

Abstract

The Chilean government administers regularly two large-scale achievement tests, one for Mathematics and one for Language, which are known as the SIMCE tests. They are applied to a sample of approximately 200,000 8th and 10th graders, whose average ages are about 14 and 16 years old approximately. Although the results of the SIMCE tests have considerable impact on public policy matters and generate much discussion, a careful statistical analysis of this data set is not yet available. Since there are variables measured both at the school and the student level, a multilevel model is a natural choice. The large size of the data set opens the possibility to explore the data from many viewpoints and makes it possible to detect complex interactions. Besides communicating the main findings, it is planned to emphasize some problems regarding the choice of a parameterization and the consequences it has for the interpretation.

References

- Goldstein, H. (1995). *Multilevel Statistical Models*. London: Edward Arnold.
- Snijders, T. and Bosker, R. (1999) *An introduction to basic and advanced multilevel models*, Sage Publications.