



Evaluating the Stability of the Value-Added Scores Obtained Through a Longitudinal Multilevel IRT Model

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One of the most important demands of society as a whole and of public educational managers in particular is to use measurement systems that can provide high quality inferences about school quality, thereby producing reliable information about how much schools can contribute to their respective students' learning. The uses of such measures are many, ranging from helping parents to choose schools for their respective children to assisting public managers in devising and implementing high stakes accountability policies. In this sense, the Value-Added Models (VAM) represent a family of statistical models that, when adequately specified, can be used to make inferences about school and teacher efficacy. These models have also acquired some relevance in research works about factors associated to differences among schools and educational systems related to their respective students' levels of proficiency. In this work the effect of VAM stability is analysed according to gains obtained in different school grades by a same student cohort in the GERES longitudinal study. The VAM measures are obtained through multilevel-structured IRT longitudinal models for the ability scores. In this approach, school VAM scores are simultaneously obtained with the student scores and item parameters. The results are then calculated through a traditional method by which VAM scores are computed separately from the student scores and item parameters, checking if the precision gain in the conjoint estimation of the measurements is relevant for the stability of the VAM scores.

Keywords: educational assessment, value-added model, longitudinal multilevel item response model