

The Impact of Model Specification Decisions on the Teacher Value-added Effectiveness: Choosing the Correct Predictors

Authors : Ismail Aslantas

Abstract : Value-Added Models (VAMs), the statistical methods for evaluating the effectiveness of teachers and schools based on student achievement growth, has attracted decision-makers' and researchers' attention over the last decades. As a result of this attention, many studies have conducted in recent years to discuss these statistical models from different aspects. This research focused on the importance of conceptual variables in VAM estimations; therefore, this research was undertaken to examine the extent to which value-added effectiveness estimates for teachers can be affected by using context predictions. Using longitudinal data over three years from the international school context, value-added teacher effectiveness was estimated by ordinary least-square value-added models, and the effectiveness of the teachers was examined. The longitudinal dataset in this study consisted of three major sources: students' attainment scores up to three years and their characteristics, teacher background information, and school characteristics. A total of 1,027 teachers and their 35,355 students who were in eighth grade were examined for understanding the impact of model specifications on the value-added teacher effectiveness evaluation. Models were created using selection methods that adding a predictor on each step, then removing it and adding another one on a subsequent step and evaluating changes in model fit was checked by reviewing changes in R^2 values. Cohen's effect size statistics were also employed in order to find out the degree of the relationship between teacher characteristics and their effectiveness. Overall, the results indicated that prior attainment score is the most powerful predictor of the current attainment score. 47.1 percent of the variation in grade 8 math score can be explained by the prior attainment score in grade 7. The research findings raise issues to be considered in VAM implementations for teacher evaluations and make suggestions to researchers and practitioners.

Keywords : model specification, teacher effectiveness, teacher performance evaluation, value-added model

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