

Identification of School Admission Effects Using Propensity Scores Based on a Matching Market Structure*†‡

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Abstract

A large literature estimates various school admission and graduation effects by employing variation in student admission scores around schools' admission cutoffs, assuming (quasi-) random school assignment close to the cutoffs. In this paper, I present evidence suggesting that the samples corresponding to typical applications of the regression discontinuity design (RDD) fail to satisfy these assumptions. I distinguish ex-post randomization (as in admission lotteries applicable to those at the margin of admission) from ex-ante randomization, reflecting uncertainty about the market structure of applicants, which can be naturally quantified by resampling from the applicant population. Using data from the Croatian centralized collegeadmission system, I show that these ex-ante admission probabilities differ dramatically between treated and non-treated students within typical RDD bandwidths. Such unbalanced admission probability distributions suggest that bandwidths (and sample sizes) should be drastically reduced to avoid selection bias. I also show that a sizeable fraction of quasi-randomized assignments occur outside of the typical RDD bandwidths, suggesting that these are also inefficient. As an alternative, I propose a new estimator, the Propensity Score Discontinuity Design (PSDD), based on all observations with random assignments, which compares outcomes of applicants matched on ex-ante admission probabilities, conditional on admission scores.

Keywords: RDD, PSDD, school admission effects, lottery

JEL codes: C01, C51

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