Matching pupils to secondary schools in Amsterdam: An empirical evaluation using administrative and survey data

(Monique de Haan, Pieter Gautier, Hessel Oosterbeek and Bas van der Klaauw)

Abstract

Different mechanisms to assign students to schools exist and they generate different distributions of allocations. Important mechanisms include, Priority Matching (PM) (or Boston), Deferred Acceptance (DA), Random Serial Dictatorship (RSD) and Top Trading Cycles (TTC). The theoretical properties of these mechanisms are well-known in terms of strategy proofness, Pareto efficiency and stability. Less is known about how the actual outcomes of different mechanisms compare.

We collected data using a questionnaire distributed among pupils, who were in the process of applying for a secondary school in Amsterdam. Our data contain both the school that was named under the current system (PM) and the true stated preferences (where we normalized the preferences of a pupil's favorite school to 100, so the other schools get a fraction of 100). The setup of the questionnaire was such that it allows to compare the behavior and allocation generated under different matching mechanisms.

We find evidence that a substantial number of pupils behaved strategically under the current (PM) system. Our simulations show that RSD dominates the current system. TTC has some unpleasant side effects that are specific for the Amsterdam case. We find that the expected number of points per student is only slightly higher under RSD than under DA but the latter substantially reduces the probability that a pupil is not placed in her top-3 of secondary schools. Finally, we consider the possibility to augment DA and RSD to take the intensity of preferences into account by naming one priority school (Choice augmented DA or RSD). This improves welfare but is strategically substantially more complex.