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Is there a truly satisfactory mechanism to assign students to public schools?

Flip Klijn, researcher at the Institute for Economic Analysis (CSIC) and the Barcelona School of Economics (UAB-participated center), has studied the existence of fair mechanisms for assigning students to public schools, as an alternative to the currently used deferred acceptance (DA) mechanism. Unfortunately, the current study shows that any mechanism that is fairer than DA necessarily fails to satisfy DA's desirable properties.

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Nowadays many cities use centralized procedures to assign students to public schools based on parents' submitted preference lists and school priority rankings. An important part of the assignment procedure is the mechanism (algorithm) that should appropriately take preferences and priorities into account. Policy-makers should select a mechanism that exhibits properties they believe are important. An important property in practice is fairness. For instance, suppose Ada is assigned to a school that Blai prefers to his assigned school. If Blai has higher priority at the school than Ada, then Blai has a reasonable argument to claim that he has been treated unfairly. The literature has established that the so-called "deferred acceptance" (DA) mechanism guarantees fairness. The DA mechanism also satisfies "strategy-proofness": ranking the schools in the order of the true preferences is always optimal. This property simplifies parents' task and levels the playing field because no parents can "outsmart" the others.

Priorities are often determined by two components: a merit-based component (e.g., exam scores) and a normative component of "minimal-access rights" (e.g., living in walking

distance to a school). However, these components are fundamentally different since merit applies to all schools equally while aspects due to easy logistics only apply to some schools. Traditionally, a school's priority ranking over students is such that students who have minimal-access rights are ranked above those who do not have minimal-access rights, and within each of the two groups of students the merit-based ranking applies. However, fairness based on such minimal-access adjusted priorities can be criticized as giving students with minimal-access rights advantages that go beyond the objective of minimal-access rights. For example, a walk-zone student may be admitted to a popular school while another student with higher merit-based priority but without walk-zone right is rejected, even though the former walk-zone student could easily attend another walk-zone school. Such an assignment could result from the DA mechanism and could be considered unjust.

In view of this criticism, we weaken the standard notion of fairness to allow for just assignments whenever possible. We also introduce another desirable property called “minimal-access monotonicity” which says that an expansion of a student’s minimal-access rights should not harm him. Our main result is very informative but perhaps also disappointing: the DA mechanism is the only mechanism that satisfies weakened fairness, minimal-access monotonicity, and strategy-proofness. In other words, it is impossible for a school-choice mechanism to satisfy the three properties while treating minimal-access rights in a differentiated way to avoid criticism.

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References

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