A college admissions clearinghouse ☆

M. Bumin Yenmez

Boston College, Department of Economics, 140 Commonwealth Ave, Chestnut Hill, MA 02467, USA

Abstract

I propose a centralized clearinghouse for college admissions where students can commit to enroll, as in early-decision programs. Furthermore, students can specify financial aid in their preferences, and they can be matched with multiple colleges simultaneously. This clearinghouse keeps the desirable properties of decentralized college admissions, like commitment and yield management, while getting rid of the undesirable aspects, such as unfairness and unraveling.

To study centralized college admissions, I advance the theory of stability for many-to-many matching markets with contracts. In particular, I show that the student-proposing deferred acceptance algorithm (SPDA) produces a stable matching even when college choice rules do not satisfy path independence (or substitutability) but when they have path-independent *modifications*. In addition, I provide a comparative statics for SPDA and introduce a new monotonicity condition on choice rules when contracts may have different weights to study yield management. My framework opens new avenues for market-design research and raises questions about the standard assumptions made in the literature.
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1. Introduction

There are over 750 American colleges that use a common online application,[1] yet the admission decisions are independently made by colleges without any coordination. This is in contrast with the National Resident Matching Program that assigns medical doctors to residency positions and different school choice programs that match students with schools.[2] In this paper, I propose a centralized clearinghouse for college admissions that elicits student preferences over colleges and college preferences over students and matches students with colleges using the submitted preferences.

A student can be admitted to a college in many different ways. For example, most selective American colleges use early-decision programs. Typically, students can apply to only one early-decision program before the regular admissions cycle begins. Students admitted in the early-decision programs have to enroll in these colleges and withdraw their applications from regular-admissions programs. Even when a student is admitted regularly, she may receive different amounts of financial aid.

To accommodate different admissions terms, I use matching with contracts framework of Hatfield and Milgrom (2005). A contract between a student and a college specifies the terms of admissions. For example, a contract can be early decision or regular, and it may specify additional information such as financial aid, major, etc. If a student is assigned an early-decision contract, then she cannot have any other contracts. However, a student is allowed to have more than one regular-admissions contract. The maximum number of colleges that a student can be admitted to is exogenously limited.

The centralized clearinghouse allows us to keep the desirable properties of decentralized college admissions. For example, students can be matched with multiple colleges simultaneously, giving them more time to visit colleges so that they can make an informed decision. Colleges may also benefit from this setup because it allows students to have sufficient information before committing to a particular college, avoiding mismatches. In addition, students can commit to enroll in a particular college by ranking an early-decision contract. On the other side, colleges can manage their eventual class sizes better, since a student admitted with an early-decision contract has to enroll in that college.

At the same time, the clearinghouse gets rid of the undesirable properties of decentralized college admissions. Most importantly, students can specify the financial-aid amount in contracts. Therefore, the system is fairer to poor students who would otherwise have to commit to early-decision programs without knowing the financial aid they would receive.[3] Another advantage of the clearinghouse is that early-decision or regular admissions can be done simultaneously. As a result, colleges are able to compare students who apply with early-decision contracts with regular ones, so they do not have to use different criteria for different types of admissions. Finally, under the current system, when students are admitted by an early-decision program in December, they have fewer incentives to work hard for the rest of their senior year. But centralized admissions with an early-decision contract is done at the same time as regular admissions, so students will find it in their best interest to work harder for a longer amount of time.

I provide a general model of many-to-many matching market with contracts to study college admissions. My model can also be viewed as a labor market, a buyer-seller market with hetero-

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[1] See https://www.commonapp.org.

[2] For residency matching, see Roth and Peranson (1999); for school choice, see Abdulkadiroğlu and Sönmez (2003).

[3] Indeed, Harvard and Yale eliminated their early-decision programs in 2007 because of this reason.