

Dissertation Proposal

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“Essays on Matching Markets on School Choice”

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Deferred Acceptance algorithm has been proven to have stable, or fair, assignment in a matching market. However, in a school choice setting, student body diversity concern is in conflict with schools' preference to students. Echenique and Yenmez (2015) have recently provided characterizations of schools' choice rules that are compatible with both diversity considerations and existence of stable matching under the assumption of single-dimensional type space. In my first chapter, I examine such characterization with extended (multiple dimensional) type space. I show that, in general, diversity considerations using quota or reserve may fail the substitutability condition, which is required for the existence of stable matching. If a school considers the diversity attributes of a student lexicographically using reserve, then substitutability condition is satisfied. Furthermore, I prove that the lexicographic reserve rule yields the best student-optimal matching with group strategy proofness for students. This lexicographic reserve rule is being used in modern India. In 2001, seat selection process by Government Order 5550 of the Department of Higher education uses caste and gender as their type spaces to allocate students to more than 200 engineering colleges.

In my second chapter, I empirically investigate data from the New York City high school matching market (the largest high school matching market which uses Deferred Acceptance algorithm). It introduces facets that current empirical literature on this market overlooks; I find evidence suggesting that matching result favors students who reside in higher income neighborhood. I also observe that students truncate length of their preference list. Based on these empirical findings, a dynamic (three-period) discrete choice game of students is developed in attempt to estimate the student's valuation for each school. Estimation result from this model will allow me to investigate efficiency of the current allocation mechanism.