

Matching Market with Heterogeneous Information Frictions

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1. Introduction

Matching theory has been successfully applied to design markets such as school choice systems. While standard theory assumes known preferences, in practice, students must engage in costly search to learn their match values. Recent literature has incorporated costly information acquisition into matching models (e.g., Maxey, 2024). However, these studies typically assume search costs are uniform across schools. This paper departs from this assumption by explicitly modeling **heterogeneity in school-specific search costs**. In real-world markets, some schools are “high-visibility” (easy to search) due to media exposure or location, while others are “low-visibility” (hard to search). We analyze how this heterogeneity distorts student search behavior and equilibrium outcomes.

2. Model

We consider a centralized school choice market with a continuum of students and a finite number of schools. Schools are categorized into two types: **Type E (high-visibility)** with low search cost c_E , and **Type H (low-visibility)** with high search cost c_H ($c_E < c_H$). Students simultaneously choose a subset of schools to search to learn their idiosyncratic utilities. Schools prioritize students based on a common priority index. The matching outcome is determined by the student-proposing Deferred Acceptance (DA) algorithm.

3. Equilibrium and Market Segmentation

We characterize a symmetric Nash equilibrium where students resolve indifferences uniformly at random (UTB-equilibrium). Our analysis reveals that, **in equilibrium**, search cost heterogeneity leads to **market segmentation based on students’ priority indices**.

- **High-Priority Group:** Students with high priority indices prioritize searching low-cost Type E schools. They enjoy a larger feasible set and higher expected utility.
- **Low-Priority Group:** Students with low priority are crowded out of Type E schools due to high admission cutoffs. They are effectively constrained to search only high-cost Type H schools.

4. Main Results: The Paradox of Accessibility

We analyze the welfare implications of policies intended to improve school accessibility. Our findings reveal a counterintuitive “**paradox of accessibility**”, where improving access to popular schools reduces aggregate welfare. However, the mechanisms differ between supply expansion and cost reduction:

- **Theorem 1 (Supply Expansion):** Increasing the supply of high-visibility (Type E) schools while fixing the total capacity harms low-priority students. Since Type E schools replace Type H schools, this **crowds out the safety-net options** that low-priority students exclusively rely on, thereby reducing their welfare.
- **Theorem 2 (Search Cost Reduction):** Reducing search costs for Type E schools (c_E) incentivizes high-priority students to search them more aggressively. This **intensifies competition** and raises admission cutoffs, displacing marginal students into the low-priority group where they suffer a discrete utility loss.
- **Theorem 3 (Pareto Improvement):** In contrast, reducing search costs for low-visibility (Type H) schools unambiguously leads to a **Pareto improvement**. Facilitating the discovery of less visible schools encourages high-priority students to explore these options, relieving congestion at popular schools and expanding the safety net.

5. Conclusion

These findings suggest that policymakers should look beyond simply “increasing transparency” in general. Policies that further lower search barriers for already popular schools may inadvertently exacerbate inequality. Instead, resources should be directed toward **facilitating the discovery of the less visible sector** to improve overall market efficiency and equity.