Capacity design, organizational structure and differential treatment

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Preliminary draft. Please do not circulate.

Abstract

This paper studies the effect of capacities and organizational structure on differential treatment in labor markets and in school choice. Agents have unobservable payoff-relevant types, observable signals and non-payoff-relevant characteristics. A principal assigns the agents within an organizational hierarchy (a firm's hierarchy or a school district) with different tiers and different capacities across tiers, to maximize revenue or efficiency. I first introduce new metrics to quantify how much differential treatment is observed within the organization. I then introduce a taxonomy to compare organizational hierarchies. Finally, I show that flatter, more differentiated, and more "top-heavy" hierarchies induce less differential treatment, under various conditions on the agents' signal distributions. I discuss the implications of the results for the optimal design of firm hierarchies and school districts. These results can also be applied to other vertically differentiated and capacity constrained settings that feature differential treatment.

Keywords: capacity design, organizational structure, optimal assignment, differential treatment, discrimination, school choice, firm hierarchy. JEL: D47, D61, D8, J7, I24.

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