Subsidy Design in Budget-Constrained Matching

Haoqi Tong
Duke University

October 22, 2025

Abstract

We study optimal subsidy design in one-to-one matching markets with budget constraints. Under complete information about match values, we develop an algorithm that computes the *minimal* total subsidy required to implement the welfare-maximizing matching. Under incomplete information, the planner observes only the status quo stable matching (not the underlying match values). Departing from a mechanism-design approach, we instead consider *robust* subsidy policies that improve outcomes without any preference elicitation. Our central result provides necessary and sufficient conditions for a subsidy allocation to guarantee, for every profile of match values consistent with the observed outcome, the existence of a stable matching that is weakly better than the status quo. We refer to such subsidies as *non-distortive*. Finally, when the planner has the least information, a uniform subsidy emerges as the unique non-distortive policy choice.