RESEARCH STATEMENT

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Teams are central to the functioning of the modern firm. A key determinant of firm productivity, therefore, is the effectiveness of their management. My dissertation comprises three papers that explore the optimal provision of incentives in firms that employ teams. The first considers the robust design of incentives when a principal does not fully understand her workers' production technology; the second simultaneously considers how to optimally match workers into teams and provide incentives for effort; and the third investigates how information complementarities interact with team incentives when team formation is decentralized. Together, this research offers empirical researchers in the fields of industrial organization, labor, and development both novel frameworks for thinking about firm productivity, and empirically testable predictions. I first discuss each paper and its applications, then outline work in progress.

My job market paper, **"Robust Performance Evaluation"**, addresses a fundamental question in incentive theory: How should a principal compensate identical agents whom complete tasks independently when she cannot observe the actions they take, but can observe their individual performance? If individual performances are uncorrelated and the principal has a complete understanding of the agents' environment, then the Informativeness Principle dictates that the principal optimally compensates each agent according to her own performance alone. But what if the principal does not know all of the actions the agents can take and so optimizes against worst-case scenarios? In stark contrast to the Bayesian setting, I show that any worst-case optimal contract involves nonlinear joint performance evaluation; each agent's wage is nonlinear in total output and increases in the performance of another agent. This result is driven by a rent-extraction benefit of joint incentives that emerges in the presence of robustness considerations. It thereby generates the novel prediction that interdependent, team-based incentive schemes can arise in the absence task interdependence or correlation in individual performances; they will also arise when the principal does not have a complete understanding of the agents' environment.

In **"The Optimal Assortativity of Teams Inside the Firm"**, with Carlos Segura-Rodriguez, we conduct a unified analysis of optimal team composition and incentives in the presence of both adverse selection and moral hazard. We consider a Beckerian matching setting in

which positive assortative matching is full-information optimal. Under asymmetric information, we show that a novel rent-efficiency tradeoff arises: When complementarities are weak and effort costs are high, expected wage payments increase in the assortativity of the matching the manager implements, i.e. if the most productive workers are matched with one another as often as possible, then expected wage payments are maximized. As a result, either random or negative assortative matching can be profit-maximizing. This sheds light on recent empirical work documenting patterns of non-assortative matching inside of firms, even when there are productive complementarities.

As self-organizing teams are playing an increasingly important role in economic activity, a key related question is whether management should assign workers to teams or delegate the sorting problem to workers themselves. In "The Optimal Assortativity of Teams Inside the Firm", we show that if the moral hazard in teams problem is not too severe and talent is scarce, then delegation outperforms centralized assignment because workers can exploit private information about one another's characteristics to sort efficiently.

In **"Matching to Produce Information: A Model of Self-Organized Research Teams"**, with Carlos Segura-Rodriguez and Peng Shao, we consider a different framework with rich informational complementarities in which decentralized matching is not, in fact, efficient. In this model, each worker can produce multiple signals about an unknown state. The signals that each worker produces are correlated with those of other workers in the firm, thereby affecting the incentives of workers to form teams with one another. In this setting, we uncover a novel source of moral hazard: An efficient team of workers producing complementary signals may be disrupted if one of its members can form an inefficient team in which she exerts less effort. This inefficiency rationalizes targeted management interventions which designate specific workers as "project leaders" with more assumed responsibilities.

In on-going research, I continue to explore topics related to strategic robustness and the internal structure of organizations. In **"Payoff Continuity in Games of Incomplete Information: An Equivalence Result"**, I establish an equivalence between two well-known notions of proximity for information structures in games of incomplete information. These notions possess the robustness property that two information structures are close if and only if they imply similar strategic predictions across all games the players might be playing. In **"Search Committees with Disparate Costs"**, with Nageeb Ali and Aislinn Bohren, we study how heterogeneity in hiring search costs distorts the quality of hired candidates and the welfare of the committee.