A Tale of (Two) Teams: How Uncertainty and Complexity Drive Team Formation

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Abstract

The current prevalence of teams in the work place presents somewhat of an economic puzzle. Getting several people to work with each other is communication and coordination intensive, hence expensive. Examples of communication and coordination failure abound. As a consequence, we would expect teams to only be used in two circumstances: If a task is either so complex that it exceeds a single person’s capability - or if solving a task is so time critical that it is better to have several people work at it simultaneously rather than making sequential attempts. Yet, in practice, team work abounds.

In this paper, I propose that complexity and time pressure are not the only two drivers of team formation. Uncertainty about how to solve a task can also make team formation optimal. This is true even if the task’s solution turns out to be relatively simple. I model tasks as a discrete combination of expertise that are necessary to solve the task. Given a task, the firm knows the likelihood with which each combination of expertise is the correct one to solve the task. Depending on the distribution, an individual worker, a hierarchy, or a team will be the best optimal organizational response. I solve the optimal organization problem for the whole distribution space. Moreover, I establish that uncertainty and complexity independently generate team formation. Finally, I show that the driver of team formation matters and that uncertainty and complexity driven teams differ, for example, in their investment behavior and in long-run organizational adaptation. These results align with anecdotal evidence.