Can self selection create high-performing teams?☆

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A B S T R A C T

Does the way that teams are formed affect their productivity? To address this question, we run an experiment comparing different methods of team formation: (1) random assignment; (2) self selection; and (3) algorithm assignment designed to maximize skill complementarity. We find that self selection creates high-performing teams. These teams perform better on a team task than randomly-assigned teams and as well as those assigned using the algorithm. Exploring the mechanism, we find evidence that, when given the choice, individuals self select into teams primarily based on their social networks and exert higher effort towards the team task.

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1. Introduction

Teamwork is prevalent in today's workplaces. Over 80% of firms use teams as part of their organizational approach, and over 70% of firms use self-directed teams (Lazear and Shaw, 2007). Previous literature into teamwork studies how to make teams more productive, either assuming that the team formation process is exogenous, or focusing on a particular team formation method—e.g., self selection (Bandiera et al., 2013; Hamilton et al., 2003). An important but underinvestigated question is which group formation method firms should employ. In this study, we explicitly compare different team formation methods—i.e., self selection and principal assignment—in a field experimental setting.

Theoretically, it is not obvious which method is superior in creating productive teams. On the one hand, it is possible that workers have limited understanding of the technology of team production, or their incentives regarding team composition are not perfectly aligned with those of the firm. As a result, we may see a decrease in team productivity by self-chosen teams relative to those assigned by managers. On the other hand, if social connection plays a role in self selection, it may help mitigate free-riding behavior in teamwork, and therefore promote greater effort from members and lead to an increase in productivity. Socially-connected members may also know more information about each other, such as work style or personality, that is generally hidden to the firm but that affects team communication and coordination.

To investigate how individuals self select into teams and how these teams perform compared to teams formed through alternative processes, we randomly place subjects into one of three treatments in forming teams for a group project: 1) random assignment, 2) self selection, and 3) algorithm assignment designed to maximize skill complementarity. The random assignment serves as a baseline control, self selection allows the subjects to sort into teams freely, and the algorithm assignment is based on the premise that members with diverse skills may complement each other and therefore boost team productivity. We collect data on members' pre-existing social networks, evaluate their project as the main outcome variable, and, after project completion, elicit information on how much time each member contributed (individual effort).

The results of our experiment show that the group formation process has a significant effect on group performance. When given the choice, subjects sort into groups based on social connections, at the expense of skill complementarity. Evaluating their group projects, we find that self-selected groups perform significantly better than those that are randomly assigned, and about as well as those that are assigned by the algorithm. These results provide evidence that self selection can create high-performing teams. Examining potential sources of this superior performance, we find evidence that self-selected teams exert higher effort.

Our findings support self selection as an effective method for forming teams. The fact that self-chosen teams perform as well as algorithm-assigned teams provides evidence that social connections can compensate for a lack of skill complementarity. Furthermore, letting workers choose their own teams lowers the firms' expenses involved in collecting and processing information about individual workers, suggesting that decentralized group formation can be more efficient.

Our results have applicability to workplace team formation for several reasons. First, our subjects are representative of real Singaporean workers because they are business students at the National University of Singapore who will soon be joining the workforce. Second, our group formation treatments reflect possible firm approaches to team assignment. In our algorithm treatment, we obtain the same type of skill information as that obtained by firms during the interview process. In the self-chosen treatment, we mimic a decentralized group formation process that firms can undertake. Finally, the group project reflects tasks undertaken in real organizations.

This paper adds to previous work in the composition and performance of teams. Hamilton et al. (2003) find that heterogeneous teams in a garment factory in California are more productive than teams with members of homogeneous ability. Hoogendoorn et al. (2014) examine undergraduates in the Netherlands and find an initial increase in productivity for teams with greater ability dispersion, with an ultimate productivity decline as dispersion becomes too wide. In comparison, we examine skill complementarity in multiple dimensions. That is, in our algorithm treatment, we utilize four different skills instead of one. In this way, our study better mirrors the economic theory approach to team configuration highlighted by Lazear and Shaw (2007).

Bandiera et al. (2013), the closest study to the current paper, examine how strengthening team incentives affects the composition and performance of worker-chosen teams. They find in a field experiment with U.K. fruit pickers that with stronger incentives, workers are more likely to choose their groups based on ability rather than social connections. Our observation that self-chosen teams tend to sort based on social networks is consistent with their findings. However, our primary research question and design are different from theirs. While the teams in their study are all chosen by the workers themselves, we compare the outcomes of self-chosen groups and those exogenously assigned by a principal. Also, unlike their within-worker experimental design, our experiment is run between subjects in a randomized controlled trial.

Our results further lend support to previous findings that endogenous group formation or governance can foster performance. For example, Chen (2017) finds that coordination in a minimum-effort game in a laboratory setting is improved when subjects are allowed to choose their own groups. Similarly, Blasco et al. (2013) find that coders allowed to choose their own groups in an online field experiment perform better on a coding task. Our results are consistent with the existing evidence that having the right to choose group features fosters cooperation.

This paper also makes useful contributions to the literature of social identity and group membership. Evidence from the social identity literature in economics suggests that people are less likely to shirk their group responsibilities when they feel more attached to a group (see, for example, Akerlof and Kranton, 2000; Chen and Li, 2009; Eckel and Grossman, 2005). In addition, Pan and Houser (2013) observe that the group formation process can affect not only ingroup trust, but also outgroup trust. By allowing people to choose their own groups, attachment and trust among group members seems to increase, improving group outcomes. As emphasized by Goette et al. (2012), separating labeling and the effects of social ties is important to understanding the micro-foundations of social group preferences. In addition, Goette et al. (2006) use random assignment of officers in the Swiss Army to platoons and find that group membership affects individuals' willingness to cooperate unselfishly, enforce norms, and punish outsiders vindictively. Our results add field experimental evidence to the value of social ties in within-group cooperation.

Lastly, our findings contribute to the extensive literature on decentralization in large organizations. Within this field, most studies examine decentralization from a mechanism design standpoint (see Mookherjee, 2006 for a comprehensive survey). These studies emphasize that decentralization provides benefits through improved communication, but may create costs arising from the principal-agent problem. However, there are fewer empirical examinations of the impact of decentralization on productivity. Ichniowski et al. (1997) and Ichniowski and Shaw (1999, 2003) document that U.S. businesses have increased the use of innovative human resource management practices, delegating production decisions to worker teams, and find that this has a significant impact on productivity. This study contributes to the literature by providing field experimental evidence on the benefits of decentralizing the group formation decision.