

**The Impact of Individual and Group Characteristics on Strategies and
Outcomes in Coordination Games: Theory and Evidence**

by

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Abstract

This project analyzes the impact of individual and group attributes on games or tasks involving alternative forms of coordination. Decision-making in institutions and corporations is often delegated to groups, committees, or task forces where group members must coordinate their actions to accomplish assigned goals. As such, it is important to understand how group and individual characteristics influence the effectiveness of task decisions and the expected success of task completion. More precisely, should the task designer assemble teams of homogeneous or heterogeneous individuals? Are demographic characteristics such as age, gender, cultural background, or education crucial in determining the potential success of the group at performing the task? Is the experience of the group in having completed previous tasks an important predictor of success at future tasks? Or is the nature of the task itself what should crucially shape the design of the group that will work on its completion?

The bulk of the economics literature on teams (e.g., Marschak and Radner 1972, Holmstrom 1982) has concentrated on incentives which are designed to maximize the efficiency of tasks completed by a group of homogeneous individuals. However the effect of individual and group characteristics on group dynamics and output has been largely overlooked. In the traditional literature, the incentive-designer does not select group members based on their observable characteristics. Rather, she chooses the reward scheme for an exogenous set of group members (and perhaps chooses group size as well). Yet member characteristics are potentially important in group decision settings such as committee assignments or special task forces, where a principal (institution or corporation) assigns tasks to employees and these tasks are not contracted upon.

The project consists of both a theoretical and an empirical section.

In the theoretical section, we formulate and solve a simple model of group decision-making involving two forms of coordination by a potentially heterogeneous group. In the first game, players attempt to match each other's decisions (i.e., coordinate on a "matching" solution), and in the second game, players attempt to maximize the breadth or coverage of their efforts (i.e., coordinate on a "mismatching" solution). In both of these instances, players have the opportunity to discuss their intended strategies before they actually make their decisions, and may re-assess their plan of action as play progresses. The players involved in this task potentially differ in attributes such as age, gender, or cultural background. We model these potential differences as "frames" or underlying common factors, which will influence the players' ability to succeed in the different coordination games. The existence of these frames may enhance the group's ability to coordinate on solutions that are more salient or stand out given that group members share a common frame. Although these salient solutions, known as "focal points", were first introduced by Schelling (1960), little is known about the role they play in real-life coordination games. For instance, is the fact that two players attended the same school important in determining their ability to work together and coordinate on a solution? Or is it more important that these two players be of the same gender or have worked together in the past? In other words, which frames most crucially affect coordination outcomes?

In the empirical section, we use data from a naturally occurring experiment to evaluate the relative importance of various frames on the ability of groups to succeed at coordination games. The television game show "Family Feud" presents contestants (families) with two varieties of coordination games in which their ability to match the responses of a public opinion survey plays a key role in their playing success. Because monetary rewards from successful play are substantial, the incentive effects associated with playing these games should be at least

as effective as the ones used in comparable laboratory experiments. In addition, the games' fairly simple rules make them highly amenable to analytical and empirical scrutiny. Since, to a large extent, public opinion surveys represent a form of consensus perception, we draw on the theory of focal points to shed light on strategies and observed behavior in these games. We use econometric analysis to uncover the strength of the various frames and how they influence the success of strategies and the nature of the outcomes in these games. This econometric work consists of both least squares and censored dependent variable regressions to measure the impact of individual, group, and game characteristics on continuous and discrete measures of strategic play and game outcomes. The variables we explicitly analyze are (a) individual characteristics (age, gender, ethnicity), (b) family characteristics (biological affinity, generational gaps, experience), and (c) game characteristics (match/mismatch, survey categories). This way, we evaluate the relative importance of each of these sets of factors, and draw conclusions on the importance of frames and attributes in group decision-making involving coordination.

References

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