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Training strategic thinking: Experimental evidence ☆

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ABSTRACT

Strategic behavior is crucial for strong firm performance, especially in competitive environments. Thus, designing a good strategy is a key issue for firms. Designing a strategy requires a combination of strategic thinking—which involves analyzing a firm's strategic environment, defining a vision of its future, and devising new ideas to out-think competitors – and strategic planning – which implies using these ideas to formulate a business plan. Although many firms excel at strategic planning, few devote enough resources to strategic thinking, which results in strategic insanity (i.e., firms repeatedly applying the same strategies with the expectation of different outcomes). To foster a strategic environment within a firm, firm managers and other workers must show willingness for active involvement in a firm's strategic decisions. Nevertheless, not everybody has the skills to do so, as many firms lack work force training programs. This study shows, experimentally, how training affects firms' strategic behavior. The starting point is two groups of individuals with initially equal qualifications who play in a sequential game whose rules hinder the calculation of equilibria. The members of only one of the groups previously receive a treatment entailing a process of training and learning that aims at fostering strategic thinking. The results point to a significant increase in the number of strategic decisions in the treatment group in sharp contrast to the control group, confirming the initial hypothesis (i.e., the positive impact of training).

1. Introduction

Strategic behavior is crucial for firms' growth and strong performance, especially when operating in a competitive environment (Bernhut, 2009). Thus, the design of a good firm strategy becomes an essential task for enterprises. This task implies the combination of two elements: strategic thinking and strategic planning (Graetz, 2002). Strategic thinking relates to the processes of analyzing a firm's current strategic environment, defining a perception of the firm's future, and devising new ideas, which enables the company to out-think its competitors (Moon, 2012). Strategic planning involves using these strategic ideas to formulate a business plan, which permits the company to draw up a strategic roadmap (Harris & Ogbonna, 2006).

Many firms have excellent strategic planning skills but pay little or no attention to strategic thinking. This imbalance in their behavior often results in firm strategic insanity, whereby firms repeatedly undertake the same business strategies but expect distinct business results each time. Furthermore, many firms view a strategy as a one-off event in response to changes in their business environment, rather than a daily activity inside the firm (Bonn, 2001).

Properly achieving the right strategic atmosphere at the firm level means that managers and other workers with responsibilities must have considerable involvement in some firm strategic decisions to foster the above process (Ogilvie, 1998). Unfortunately, not all managers and workers (whether qualified or not) develop the skills to do so, as many firms lack training programs for workers.

This research delves into the fundamentals of strategic thinking. Some individuals' decisions depend on strategic thinking, and each individual makes decisions using different mental processes (see, e.g., Benito, Brañas-Garza, Hernández, & Sanchis, 2011a; Bosch-Domènech, Montalvo, Nagel, & Satorra, 2002; Camerer, Ho, & Chong, 2004). Therefore, individuals may learn from thinking strategically, or, conversely, the ability to think strategically may be innate to individuals, as the decision-making process involves an individual's skills.

Acknowledging that different agents have distinct abilities to think strategically in the context of games, this study's focus is on verifying whether individuals learn to think strategically, and whether individuals can learn to compute equilibria in complex situations. The aim of this work, through the use of an experiment, is to test how training can affect strategic behavior at the firm and individual levels. For this purpose, two samples of individuals, with initially equal qualifications, play a sequential game whose equilibrium is very difficult to calculate. To foster strategic thinking among individuals, the experimental

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approach is to administer a treatment (i.e., a process of training and learning) to the members of one group, while the individuals in the other group receive no treatment. Analyzing the different behavior between the treatment and non-treatment groups will reveal how training affects strategic thinking. In anticipation of the results of the experiment, the number of strategic decisions should significantly increase within the treatment group, in sharp contrast to the non-treatment group, confirming the initial hypothesis.

The remainder of the paper has the following structure. Section 2 presents the theoretical models on training strategic thinking and their main equilibrium predictions. Section 3 describes the design and implementation of the experiments. Section 4 analyzes the main results, and Section 5 lays out the conclusions of the study.

2. Training strategic thinking

Leaders with good strategic thinking emerge because of their innate talent (i.e., from nature) or because they develop that talent (i.e., from nurture), or due to a combination of the two. Therefore, a crucial skill for firms or organizations is to be able to discover ways to identify and produce future leaders with the ability to think strategically.

A convenient and appropriate method to develop individuals' strategic thinking ability is game theory training. Game theory proposes games involving intelligent agents with conflicting interests who are able to make moves and countermoves that yield specific payoffs. Game theory can easily seem confusing, as the details of many games involve numerous calculations, which are inapplicable to many real-world situations. Nonetheless, devising strategic situations where individuals can think about how they would behave is possible (Brandenburger & Nalebuff, 1996; Dixit & Nalebuff, 1991).

Game theory is far from being what people commonly consider a game. At the most basic level, game theory relates to the study of how people, firms, or nations (agents or players, in game theory parlance) determine strategies in different situations when facing competing strategies from other agents. This aspect of game theory is what motivates its use as a tool to improve strategic thinking.

To study how training may affect strategic thinking, a repeated game (see Benito, Brañas-Garza, Hernández, & Sanchis, 2011b), deriving from a Schelling (1969) segregation model offers a suitable methodology. This game assumes the existence of a society comprising eight individuals of two types: four black (B) individuals and four white (W). These individuals spread out in a ring (representing society) with the following initial configuration: {B, W, B, W, B, W, B, W}. Denote the individuals' locations from left to right. Each individual accepts up to 50% of unlike neighbors in her neighborhood, which consists of one individual on each side. These parameters help determine whether an individual is happy (if the number of neighbors like her is larger than or equal to one) or unhappy (if the number of neighbors like her is zero). From the initial configuration of society, unhappy agents may move in turns starting from the left, after paying a moving cost of 5 Euros, to the nearest point to their right that fulfills their neighborhood configuration demands. Nearest, in this game, means the place the player can arrive at by passing the smallest number of neighbors on the way. Therefore, each player has two possible actions: either staying at her initial location or moving to the nearest space with a neighbor like her. In this game, each agent has an initial endowment of 5 Euros. If the agent ends up with at least one neighbor like her, she gets a payoff of 20 Euros (without penalization for the moving costs). Unhappy agents receive no payoff at the end, but they have to pay moving costs should they move. Benito et al. (2011b) prove the existence of a unique sub-game perfect equilibrium (i.e., where all individuals end up being happy), in which only players who are initially in positions 4 and 8 move. Fig. 1 illustrates this equilibrium path.

This game facilitates the analysis of strategic thinking, as the game is quite complicated, and because of the high degree of difficulty in computing its equilibrium. Benito et al. (2011b) show that agents playing this game very rarely reach the equilibrium path. Despite its complexity, the equilibrium of this game is trivial with four agents, instead of eight, in a ring with the following configuration {B, W, B, W}. In this four-player game, to obtain the maximum payoff the first three players only have to envisage that, by forcing the last agent to move, everybody ends up happy (see Fig. 2).

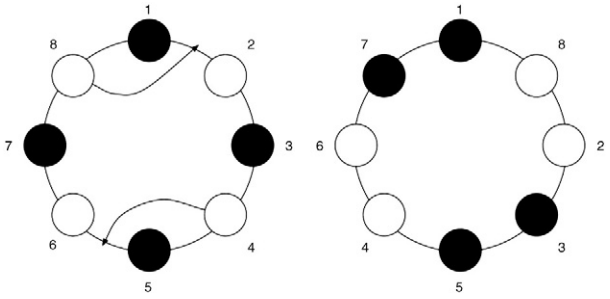

Fig. 1. Equilibrium in a game with 8 players.

Taking these two scenarios into account, the definition of strategic decisions is those decisions in which an unhappy player decides to stay when her best response is to stay (e.g., positions 1, 2, 3, and 7 in Fig. 1; and positions 1, 2, and 3 in Fig. 2).

The study uses the eight- and four-player games to test whether agents learn to think strategically. All individuals in the sample play in the eight-player game, but only some of them previously play the four-player game, as a training procedure, before playing in the eight-player game. Should learning occur, the results of the experiment should show that agents who play in the four-player game before playing in the eight-player one do better, in terms of strategy, than agents who play for the first time in the eight-player scenario.

3. Design and implementation of the experiment

This section describes the design of the experiment that tests for the existence of training strategic thinking. The discussion below explains the designs of the eight- and four-player games.

3.1. Eight-player game

In the eight-player game, to ensure that each of the subjects in the experiment prefers to have someone like her in her neighborhood (therein defining a happy agent), each player who ends up with at least one of her adjacent neighbors like her (either to the left or to the right) receives 20 Euros at the end of the experiment. If none of her adjacent neighbors is of their same type, however, she receives nothing (as the rules of the game deem the individual unhappy in that neighborhood). In this experiment, as in Benito et al. (2011a, 2011b), subjects may move around the ring to a more attractive neighborhood (with agents of their type). Each individual has an initial endowment of 5 Euros that she has to give up should she move to a different neighborhood.

Individuals, in groups of eight, arrange themselves in a circle or ring that represents society. The initial allocation of the participating

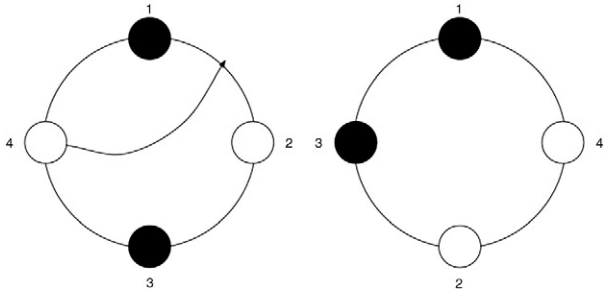

Fig. 2. Equilibrium in a game with 4 players.