

# Economic game theory studied by Haas professor

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You are running a political campaign with limited resources. How should you spend your money to beat your rival? You are a military commander trying to win a battle. How should you deploy your soldiers to gain an edge? You are a company competing against a rival for market share. How should you allocate your marketing budget most effectively?

Professor John Morgan, who studies competition in online markets, worked with [Yahoo!](#) Labs to design a social video [game](#) help answer those questions. “The idea is to study all-pay auctions with budget constraints,” says Morgan, Gary & Sherron Kalbach Chair in Entrepreneurship, “While equilibrium models predict that neither player will have a clear advantage, our guess is that ‘superstars’ will emerge in the data. The goal is to learn about the differences between successful and unsuccessful strategies in these environments.”

The game is called “Shambling Hordes” and features a cast of zombie characters. The Flash-based game recasts players as warlords who direct the “shambling hordes” of zombies to capture other users’ castles. Morgan says the goal was to make the game fun and attracted “hordes” of engaged users, and that testing indicated the zombie theme made the game come alive for users.

As the founding director of the Haas School’s Xlab, Morgan often conducts experiments in the lab setting. A typical experiment involves undergraduate volunteers who are given small amounts of money in a variety of “game” scenarios; their behavior and decisions form data.

This time, Morgan saw clear advantages to developing a hands-on [video game](#) to conduct research. He says sometimes the intrinsic incentive of doing well or trying to win in a game is more motivating than what occurs in the lab. The game teaches players how to think interactively about decisions and how to adapt on the fly to changing strategies of opponents.

Morgan explains, “The ‘right’ strategy depends on the strategy of your opponent and, moreover, has the property that it is best to keep your opponent guessing as to what your next move will be. There is some rudimentary theory for this game but, beyond simple cases, it becomes intractable to analyze using mathematical models. The point of the Yahoo! games is to substitute data—people playing the game in various situations—to go where theory cannot. It is also of interest to learn how quickly individuals adapt and exploit defective strategies of rivals.”

The game launched a couple of weeks ago and Morgan is busy sorting through the initial data. “We are already seeing the ‘superstars’ phenomenon,” says Morgan, “There are players winning 90% of the games they enter. We’re looking forward to a deeper dive into the data to figure out how successful players manage in complex environments.”

Provided by University of California - Berkeley

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