

Virtual soccer management game yields real-life lessons in economics, human behavior

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A study using a soccer management game to explore more than a half-million participants' monetary choices confirmed it's possible to use a virtual world to mimic real-world behavior on a grand scale. The results open the door to the predictive use of game worlds in policymaking, commercial and other real-life applications, said co-author Edward Castronova, a professor in The Media School at Indiana University.

The study—published this month in *PLOS ONE*, a multidisciplinary open access journal—confirmed the viability of conducting controlled research using "big data" on a scale many times larger than the typical social science experiment.

"Our work shows that huge social experiments with game worlds and their thousands of players are not only feasible but also relevant for real-world society," Castronova said. "We could use huge game worlds to practice better economic policy, or even responding to things like the Las Vegas shootings."

The experiment Castronova and colleagues in Serbia and The Netherlands conducted gave participants starter money to play an online game. Those who were given more money not only spent more but also ended up purchasing more [virtual money](#) using their own real funds.

"This suggests that a positive change in the money supply in a virtual context leads to inflation and increased money demand, and does so much more quickly than in real economies," the authors wrote.

"Differences between virtual and real currency behavior will become more interesting as virtual currency becomes a bigger part of the real economy."

In the past, behavioral economists used computational simulations to predict outcomes. However, those simulations did not allow researchers to model human behavior. Virtual worlds, on the other hand, have enabled them to incorporate thousands of real players making virtual choices into their studies.

The experiment involved 575,000 players interacting with the game "Top Eleven—Be a Football Manager" for one month.

The game is free to download and play, but players are encouraged to spend money on virtual items to enrich their experience, including bidding on high-quality soccer players and buying "token packages" with items such as soccer jerseys and club emblems.

The players receive a flat amount of virtual money at the outset of the game and later are given the chance to purchase more game money. The frequent availability of new players and token packages keeps players in the game and increases their demand for more virtual currency with which to pay for more assets.

In Castronova's experiment, players were given 40 tokens of [virtual currency](#). Later, some were offered an additional amount of either 40 or 80 tokens. Those who received more tokens were more likely to keep playing the game and increase spending.

"We explored monetary policy in these environments by changing the money supply and observing money demand," Castronova said. "We found that giving people more money caused inflation, which increased the demand for money. These are exactly the effects you would expect

to find in the real-world economy. In other words, once again, social behavior in a virtual world closely parallels social behavior in the real world."

Another example of a real-world application of such studies would be to predict the effects of proposed policy.

"Remember 'We have to pass the bill to find out what's in it?' Well, now we have the technology to do a virtual, massive test of a national health care policy before actually implementing it in the real world," Castronova said. "All you need is game characters that get sick and players who care about them and their [game money](#) (which, we now know, they most certainly do)."

More information: Nenad Živić et al. Results of a massive experiment on virtual currency endowments and money demand, *PLOS ONE* (2017). [DOI: 10.1371/journal.pone.0186407](https://doi.org/10.1371/journal.pone.0186407)

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