Predicting politics: Professors model prediction markets

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Political prediction markets -- in which participants buy and sell "contracts" based on who they think will win an election -- accurately predicted Barack Obama's 2008 victory. Now Northwestern University researchers have determined that these markets behave similar to financial markets, except when traders' partisan feelings get in the way.

That was the case in the 2000 presidential election, where the researchers found that partisan feeling was so strong that it influenced trading.

Nevertheless, the Northwestern team has created a model of how prices fluctuate in these prediction markets -- a model that could eventually be used to tell how certain events affect the outcomes of elections.

This research -- a result of a partnership between Luís Amaral, associate professor of chemical and biological engineering at the McCormick School of Engineering and Applied Science, and Daniel Diermeier, the IBM Distinguished Professor of Regulation and Competitive Practice at the Kellogg School of Management -- will be published online the week of Jan. 21 by the *Proceedings of the National Academy of Sciences*.

The two, along with Tom Rietz at the University of Iowa and postdoctoral researcher Saikat Majumder, studied data from the Iowa Electronic Markets' 2000 and 2004 presidential winner-takes-all market. In this market, traders buy two contracts for $1 -- one contract that will pay you $1 if the Democratic candidate wins and nothing if they lose, and one that will pay $1 if the Republican candidate wins and nothing if they lose. A trader can then make money by selling the contract of the person they think will lose.

"We wanted to know the characteristics of this market, and what we found is that when the market is working appropriately, it's very similar to what you find in financial markets," Amaral says. "From there we were able to make a model that shows how the price of these contracts moves."

But unlike financial markets, traders are limited to buying $500 in contracts in order to limit the possibility of manipulation. That buying limit also means limited potential profits.

"Unlike betting in Las Vegas, the Iowa Electronic Markets are not designed to make money for the market operators," Amaral says. "They are designed to use the wisdom of the crowds to find out what most likely will happen by aggregating the information possessed by a large number of people. In polls, you might not answer how you really feel, depending on how the question is framed or if you want to please the poll taker. In the market, there is a benefit for you to act on what you believe will happen based on the information you have."

For this sort of market to work, however, people must act like rational traders -- which isn't always the case. Researchers found that in the 2000 election, partisan feeling for and against George W. Bush was so strong that traders didn't act rationally -- more Republican traders traded as if they truly believed that Bush was going to win, and more Democratic traders traded as though they believed Bush would lose.

"I was happy that we could find an account for this abnormality, given that it made sense in the market," Diermeier says. "You are trading in a market where you may have a very vested interest in the outcome, which is unlike financial markets, where traders probably don't have an emotional attachment to the price of gold. In political prediction markets, there can be room for wishful thinking."

Diermeier, who is also a professor of political science, said the model offers another way to look at political campaigns.

"Once you have a model like this, then you can identify what types of events are important enough to change the course of the election," he says. "That is the natural next step. You can also consider when the election 'settlement date' was. When was that race over? We all know intuitively when certain races are over, but now we have a systematic way to approach it."

This approach extends beyond politics -- prediction markets like this one exist for everything from scientific breakthroughs to box-office profits.

"These studies are important because if people have some belief that these prediction markets are doing a good job, then they will pay attention to what is going on with them," Amaral says. "If someone is manipulating them -- like if a drug company that has a drug under clinical trials makes it seem as though this drug will be the cure for cancer -- they are misleading people, which could have a huge impact on all these areas. Now that we understand the dynamics, we can see if something strange is going on."

Source: Northwestern University