Something to think about…

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What are "prediction markets" and how might they be useful in development work?

If you wanted to predict the next country to experience an outbreak of avian flu, or to predict the likelihood of conflict in a country and the number of displaced persons, what would be the best way to approach this? A standard approach might be to assemble a small team of highly qualified experts to analyze the problem in depth and have them work to agree on a common prediction.

The prediction market approach, by contrast, asks a larger group (a marketplace) of diverse and independent people to each make their own predictions, and then finds a way to take an average of those opinions and use this as a "group" prediction. The people participating in the market do not need to be highly expert in what they are predicting, only to have some degree of connection to the topic.

"Prediction" or "Information" markets are becoming an increasingly popular means of applying the techniques of the financial markets to solve complex problems or to provide accurate predictions of future events outside the financial world. The individuals who participate in a market do so by "betting on" or buying shares in a particular outcome, and are rewarded based on the accuracy of their prediction (the reward may or may not be a real monetary or physical reward).

There are many real life examples where market-based predictions have been consistently accurate at predicting events, or solving problems that would typically require complex analysis and a high degree of expertise to solve. For example, the University of Iowa's "Iowa Electronic Markets" has been predicting the results of American presidential elections since 1988 with greater accuracy than the polling companies.

How and why do prediction markets work? The idea behind them is illustrated in the famous parable of four blind men each trying to describe an elephant by means of touch. One touches the ears, another head, another trunk, the last the legs. Each one gives a totally different description of the elephant that none of the others can recognize, because each one "sees" only a part of the elephant. The market is a means to add together the experience of each individual so that the group together can see the "whole elephant".

In complex situations there is usually a large amount of information that can be factored into coming up with a solution. It is unlikely that any one expert can consistently know and correctly apply all the information needed to solve the problem every time. The power of the market is that although no one person has all the required information or expertise, the individuals participating in the market probably do have most of the information and the required perspectives between them. A market is a way of aggregating all the different perspectives and experiences of a group to come up with a single solution which is better than the individual opinions it is made up of. Note: the group solution is not necessarily better than the best individual solution, but it will be better than the vast majority of them, and over repeated applications, the group will have a better prediction record than any one member of the group, even the most expert and best informed of them.

It is obvious from our everyday experience that not all group decisions are wise ones; otherwise there would be no stock market bubbles or looting mobs. In order to make good decisions a number of conditions need to be met. These are:

- **Diversity of opinion**: Each person should have private information even if it is just an unusual way of looking at the known facts.

- **Independence**: Participant's opinions are not determined by the opinions of those around them. People are prepared to make up their own minds and don't just follow the opinion of the rest of the group, or a few outspoken individuals.

- **Decentralization**: Participants are able to draw on local or specialized knowledge.

- **Aggregation**: Some mechanism exists for turning private judgments into a collective forecast.

Any market needs to be carefully designed to ensure these conditions are met if it is to be effective.

So how is this idea relevant to development work? Iowa Electronic Markets is already working with the CDC to use this technique to predict US outbreaks of human influenza, using local doctors or health workers as the market. It is not a stretch to imagine the same type of method being used for disease surveillance in developing countries, or at the international level to predict the spread of avian flu.

This technique is also useful in predicting sensitive issues where people are likely to say one thing publicly and another thing privately.

One practical example is project completion dates. Google uses a version of this technique to predict when new products are ready to launch since when staff can enter their opinions anonymously they are more likely to give realistic rather than optimistic predictions. More critically, this same type of approach could be used to predict political unrest, conflict or other man-made humanitarian disasters, or the likely success of post-conflict transition and peace building. We are often unable or unwilling to openly discuss such politically sensitive issues, but with the protection of anonymity through a market where no one individual's opinion can be identified, we are more likely to end up with a realistic assessment of the situation.

The potential for UNICEF to apply this technique is enormous, especially as a means to pool our collective knowledge, and to do this together with our partners. One practical example might be to help predict the future path of the HIV pandemic at global and country level, and assess how likely it is we will meet our programmatic goals in this area.

There are some dangers in prediction markets, including the risk that participants skew outcomes for personal gain, or that they miss fundamental factors by "following the crowd". That said, prediction markets, correctly used, could be a powerful tool to use alongside more traditional methods to test our assumptions, provide a reality check and therefore improve our contingency planning.

Further information about the ideas on which this article is based and some real-world examples (unfortunately not on development issues) can be found in *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations* by James Surowiecki (2004).