

## Taboo Tradeoffs

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Paul Wolfowitz wondered how his imaginative colleagues at the Defense Advanced Research Projects Agency (DARPA) could have been so politically tone deaf. Many outsiders thought the DARPA decision to sponsor policy futures markets revealed moral callousness bordering on depravity. Meanwhile defenders of the idea pointed out the obvious hypocrisy of moral outrage against gambling and argued, correctly in our view, that this market would have been an intriguing experiment to test the idea that useful information about significant and plausible political futures, say a coup in Saudi Arabia or a collapse of the Russian currency, is distributed out among vast numbers of people who may have bits of information that government analysts and the people they normally talk to don't have.

There is always a price for violating taboos, and the 'terrorism betting market' crossed a number of boundaries. But we should be used to that by now. DARPA's policy futures market was a good example of how some of the radical ideas associated with the Internet boom, far from dying out with the collapse of the bubble, have instead percolated quietly into a very broad swathe of political and economic life.

The Internet's ability to move information around the world instantaneously and cheaply makes it possible to push decisions down to the level of the individual (or the single machine). This in turn made it possible to imagine building a market around almost anything. Beyond the breathless hype of 1997 about the perfection of markets and visions of frictionless efficiency, there were some real innovations at the intersection of technology and ethics, where societies make the most important decisions about what is considered legitimate to trade in markets and what is taboo.

It wasn't that long ago that many people thought financial derivatives were somehow immoral. There was a huge uproar in the early 1990s about viatical markets, where people suffering terminal diseases trade their stream of life insurance benefits after death, to investors who pay cash up front. E-bay will not today allow you to put up for auction human sperm or eggs. But pick up any college newspaper and you will find advertisements offering a set price for young healthy young donors to give up an egg or sperm. On the face of it we are saying that is ethically acceptable to sell reproductive tissues but only if the price is set by a middleman company, and not directly by supply and demand. To whom, exactly, is this fair? Offering a kidney for auction on E-bay (which turned out to be a hoax) certainly tested the limits of what many consider decent. But that was precisely the point.

It is easy to get up in arms about auctioning a human organ. It is gut-wrenching to look closely at the messy arrangements that currently determine who gets transplants and who does not. We are not saying that all of these decisions will, or should, be determined in markets. The closer we get to well functioning markets, though, the more clearly revealed are the limits. The idea of taking taboo trade offs into a market has a shot in the arm effect, undermining complacency about the existing and often opaque ways we do make decisions about conflicting values. Think of it as 'shock therapy' not

for post communist economies but for encrusted, opaque, and overly complex decision making systems that have been passed down from a different era and patched up over time without any master plan.

Does this sound like post-September 11 critiques of the US intelligence agencies? One purpose of the DARPA experiment simply was to see if it could provide intelligence analysts with a new tool to help them connect the dots. No policy maker would have made decisions solely on the basis of what this market said, because markets don't actually make predictions about anything. Markets act as a gauge of people's expectations about the future. That is an important source of data -- but only one source among many -- that an intelligence analyst would like to have on her desk when she is asked to make a judgment about an extremely complicated possible future. We are a long way from having any real predictive algorithms about world politics. And we know from bitter experience that our existing information sources don't perform as well as we'd like.

But another purpose of the experiment might have been to fundamentally challenge foundational ideas about what an intelligence agency is and what it does. Put aside for the moment concerns about the variety of ways in which this market could have been gamed, manipulated, or undermined. That is true of all markets and that is why regulation is an on-going, adaptive, learn-by-doing kind of practice. What if the policy futures market demonstrated that in some significant subset of problems it could beat the predictive capabilities of the very best CIA analysts armed with classified information and 'insider' data? In fact the dot.com phenomenon posed exactly this kind of challenge to many traditional businesses. The fact that most of the dot coms are gone shouldn't hide the fact that their entry on the scene drove massive re-engineering of critical business processes, changes that almost certainly would have taken decades in the absence of the challenge. Sometimes shock therapy does work.

The radical idea from the Internet boom that matters here is the deep questioning of many traditional forms and tokens of expertise. Open source software projects don't care if you have a Ph.D. in computer science or even a high school degree; what matters is how good your code is and how much you contribute. On Slashdot you become the important opinion not because you can throw credentials around but because but because lots of other readers rank your contributions highly, a process called collaborative filtering. Instead of accepting what the New York Times Book Review says is the best book of the year, many people choose to bet their reading time on Amazon's collaborative filtering network of reviews. And who is now the authority on the quality of a particular car or dishwasher? Not necessarily the anointed specialists of Consumer Reports, but rather the aggregated opinions, weighted by what users judge as reliability, of the people who post their personal reviews on e-pinions.com.

So what makes for useful expertise in the kinds of global political economy issues that DARPA's market would have covered? The chancier the environment, the harder it is for smart and knowledgeable people to translate their cognitive and information advantages into successful predictions. And there are many signs that the outcomes we often want to predict in world politics—the sorts of outcomes the DARPA betting markets would have addressed—fall into the category of very chancy. Being smart and well informed about their underlying causes is very important, but getting better at prediction may be equally important for policy makers.

Since 1988 one of us (Tetlock) has been studying how political forecasters assign probabilities to possible futures and how they update those probabilities in response to new evidence. These studies show that 'experts' left to their own devices are often overconfident by wide margins. In a few cases they hit big by attaching high probability to surprising events that 'amateurs' dismiss or may not even have on their radar screens (for example, the demise of the Soviet Union or the collapse of white-minority rule in South Africa). The problem is that these highly successful predictions are buried in a mountain of mistakes, a much larger number of predictions that never pan out. And experts tend to compound this problem by being reluctant to admit their mistakes. Amateurs are actually better at recognizing the limits of what they know. The experts are inclined instead to reinforce their positions by declaring that they were right on the fundamentals and just off on the timing. But if you are a policy maker worried about North Korea's nuclear potential, the time frame in which the country's economy is likely to collapse might make all the difference.

It is unfortunate that the debate over the policy futures market deteriorated into a game of beat up on, or praise to the sky, the idea of markets. We could have had a real discussion about what we are willing to sacrifice in order to protect our collective self image as people who won't countenance the use of markets in this setting. And a properly functioning betting market might have given us valuable insight into how predictors can couple vision with humility. It also might have taught us something quite valuable about the nature of expertise in extremely complex political environments. And all of this might have helped with re-engineering our intelligence agencies for the future.