REDESIGNING THE NOBEL COMMITTEE

Dear All:

Well, who won?

The Nobel prize for economic sciences for 2007 was announced today, October 15, 2007. It went to three people: Leonid Hurwicz, Eric S. Maskin, and Roger B. Myerson.

Hurwicz is 90 years old, born in Moscow, Russia and Prof. at University of Minnesota. His education is from Poland.
Maskin is 56 years old and was born in New York City and is at the Institute for Advanced Studies at Princeton. He obtained his BA and Ph.D. from Harvard University in applied mathematics.
Myerson is 56 years old and was born in Boston, MA and is a Prof. at the University of Chicago. His BA and Ph.D. are from Harvard University in applied mathematics.

I was surprised by this year's pick; it didn't even make my top ten list. As I said in my previous email, my amazing streak was bound to falter. Nevertheless, I am surprised for several reasons.

Firstly, the category is really "game theory". And there were already game theory awards in 1994 and 2005. (One could quibble and label it "micro". As I said in my email, "micro" hasn't won in a long time.

Secondly, I feel there are other fields were people are also getting old like Hurwicz that have been more useful / important to economics.

- So what did these guys do that makes them so Noble?

The Nobel committee wrote that they received the Nobel prize for "for having laid the foundations of mechanism design theory". Now, if you ever read a paper on this topic, you will think it's a bunch of mumbo-jumbo. A typical paper will start out with something like "There are N players or agents indexed by j in {1,2,…,N} and a set of social choices Y with generic element y. Agent j of type Theta(j)…"

Mechanism design is a very theoretical, mathematical, game theoretic discipline that attempts to study the design of systems and their effects on outcomes when self-interested individuals with private information about their preferences participate within the system. For example, suppose there is a mortgage crisis and a bunch of banks have lent money to a particular institution that is about to go bankrupt. This bankruptcy will adversely affect all of the banks. So now, they all come to a meeting, where each bank knows how much it might lose from the bankruptcy as well as how important the loss is to them, but this is private information. That is, Bank A knows its preferences, but Bank B does not and so on. Now, what if a moderator in the room asks these banks to reveal how much they would be willing to pay to help this bankrupt institution. Suppose Bank B is willing to pay $10, but he doesn't necessarily want to reveal this truth. If he had it his way, he would like to pay as little as possible, but have everyone else bail out the institution. If everyone did this, there might not be enough money to save the institution and all the banks would be hurt. Thus, mechanism design would ask the following questions: (1) Is there a design of this negotiation between participants that

would lead to an optimal outcome, which in this case would be to save the bank. (2) What would that system look like? How would it have to be designed?

Clearly, if applied correctly these are important questions. There are all types of jargon in this field, like an incentive-compatible mechanism. This is a mechanism or system-design in which all self-interested people will report the truth about their preferences. These systems aren't easy to construct in real-life. In real-life, an interactive system can lead to many outcomes, some of which aren't as good on the whole as others. Mechanism design people are also are concerned with finding mechanisms or systems in which all equilibrium outcomes from the system are Pareto Optimal (a fancy economic word for an outcome in which no one can be made better off without making at least someone worse off). The jargon for this is the implementation problem.

- So it's all mathematics. Call me when they do something useful.

Although the work by Mechanism Design people is very mathematical, there are potential applications of their work. For example, when the Soviet Union and other countries privatized public goods, they used auction mechanisms to give the businesses/rights of the business to various private enterprises. In many countries, the radio spectrum was auctioned off to private individuals. Designing the auction so as to realize the desired objectives is crucial here. Also, the ideas can be applicable to government regulation of industries, where it might be difficult to know whether a company is abusing monopoly power or not, or whether there is an incentive for a firm and its auditor to collude. Mechanism design might help construct regulations that lead to outcomes that are beneficial to the public. Mechanism design might also apply to social choice and voting. For example, Arrow (also a Nobel prize winner) proved many years ago that there is no voting system that will satisfy three basic requirements that all voters would probably agree are good to have. So Mechanism Design would also ask what are the best ways to create voting systems that satisfy basic beliefs that we might all share?

- Anything else about this Nobel?

Well, yes. Unfortunately, not a lot of it has been applied in real-world settings, besides some of the original work in auction theory. For example, most of the auctions we see today are driven by elements of the work in this area. Although the tools of mechanical design are not always applied, the importance lies in creating a tool in which people can specify a mechanism or the design of a system with self-interested individuals and ask what kinds of outcomes might I expect? This can be very helpful in deciding which systems are better than others.

Also, in many situations, mechanism design theory finds that beneficial trade or the optimal social outcome does not occur. For example, suppose the protecting the environment is one of those situations of a public good, where every individual hopes all the other individuals will agree to contributing something to protect the environment, but they don't have to. They might say, "I don't care about smog in LA". Here the solution will most likely need a government authority or in the case of the world, a world authority that says "No one can pollute more than x." This is known as a "dictatorship" solution, but it is often needed. Even when there is a government authority, it might need help from mechanism design to reveal the true nature and costs of the pollution.

There are many other examples of the dictatorship solution, which were enacted with no reference to mechanism design but were nevertheless beneficial. For example, laws that prohibited smoking in restaurants. Amazingly, it was unheard of a bar to restrict smoking on its own account (i.e. the private market) prior to the law, yet after the law has improved the lives of many people. We might not be able to call it a Pareto optimal solution because many smokers were hurt.

- So what about the Nobel choice?

If you speak to a person in this field, they will tell you that these guys deserved it because they were the first people to really establish this field. However, I'm going to play the devil's advocate and tell you something else.

Firstly, I think there are many economists who have made more important contributions that should be getting the Nobel prize before them (see the list in my previous email).

Secondly, I think game theory has been getting it too often of late.

Thirdly, there are tons of guys in this field who one could argue have made great contributions and have been left out, like Clarke, Groves, Fudenberg, Jean Tirole, Laffont, Klemperer, Green…the list goes on. Oh no, does that mean the Nobel committee will start awarding more game theory prizes? I think it reminds me of what a fellow colleague recently told me: prizes are silly, because it is the collective work of many individuals that make society's progress, not the focus on any one specific individual. Remember, the greatest financial economist never won a Nobel prize (Fischer Black). And let's not forget the honorable Perelman who solved one of mathematics greatest puzzles (the Poincare Conjecture) in 2006 and was awarded the Fields Medal in mathematics in 2006 (the equivalent of a Nobel prize for maths). He told them to take the prize, load it on a small rocket, and shoot it to outerspace.

Fourthly, I think the Nobel prize committee had a minor political motivation once again. That is, I feel that they wanted to give the prize to Hurwicz before he died ("the Fisher Black effect"**),** but as they didn't want to give it to him alone, they added the younger economists. This might be the reason why we saw Mechanism Design get the prize this year. Also, the Nobel prize mentioned several times in their award essay about "global warming" and "social security" and how mechanism design might relate to helping with systems to reduce that. In fact, they reference a recent paper by Maskin entitled "Mechanism Design for the Environment."

If you want to hear how excited the Nobel committee was about his age, just listen here: [http://nobelprize.org/nobel_prizes/economics/laureates/2007/hurwicz-interview.html]

- So is that it?

Basically, that's it. I'm thinking though, that since the Nobel prize was given to mechanism design, maybe the Nobel committee should have the mechanism of giving the Nobel prize examined in light of these theories. Is the method of giving the prize optimal from a mechanism design perspective for choosing the right people? Is it

optimal for recognizing achievement across the world? Is it optimal for providing incentives for collaborative and fair research across the world?

For more information on the winner:

http://nobelprize.org/nobel_prizes/economics/laureates/2007/press.html

Finally, congratulations to these three very smart men and their pursuit of knowledge!

Enjoy!
Ludwig