The reluctant gamesperson - A comment on Baye, Kovenock and De Vries

GORDON TULLOCK
University of Arizona, Department of Economics, Tucson, AZ 85721, U.S.A.

My role with respect to "efficient rent-seeking" is an unfortunate one. Rather by accident, I discovered a new paradox in economics, something we emphatically don't need. Various people have attempted to abolish the paradox or demonstrate that it is not very severe. My unhappy role has been pushing the discussion "Back to the Bog". Although I don't like paradoxes, I invented one and I am now defending it.

Further, this paradox is a fairly important one. I invented it in connection to rent-seeking, but any kind of competitive activity where differential capital investments give advantage raises the same problem. Thus, it is some evidence that the competitive market doesn't work very well. Needless to say, I find this unpleasant. As a result of this long debate, I am beginning to wonder if it may not be true that the competitive market does have this previously unknown defect which will make it unlikely that it will reach the efficient equilibria even if it does approximate them.

There is another problem. I was originally an enthusiast for game theory. In fact, long ago when it was a simpler subject, I taught a course in it. Now I have begun wondering whether the mixed strategy is actually a legitimate solution. Perhaps Pascal was right about games of strategy and Von Neuman and Morgenstern wrong. I regret to say that these doubts are going to be part of this comment.

Baye, Kovenock and De Vries propose mixed strategy solutions for the efficient rent-seeking paradox for those cases where the exponent is two or greater. As a matter of fact, Perez-Castrillo and Verdier, have already provided a solution for those cases where it is above two. It is as it turns out, a pure strategy solution, although it is not obvious that Perez-Castrillo and Verdier realized this when they first submitted their article. I called it to their attention in the course of my comment. I accepted their solution, but if there was going

* He kindly explained his position to me both in letters and in conversation. The solution to the Tullock rent-seeking game when $R > 2$: Mixed strategy equilibria and mean dissipation rates. Public Choice 81(3–4): 363–380.
to be only one person playing there would of course have to be some way of deciding which one.

The only obvious method is a preclusive bid by someone and this, although it works, leads to an unpleasant equilibrium. First, people have to move quickly without giving the matter careful thought. One would therefore assume that a lot of mistakes, like the one that I mentioned in that note that cost Sony $45 million, could be expected.

In the area with an R of less that two both Perez-Castrillo and Verdier and Baye, Kovenock and De Vries have nothing very precise in the way of a solution. Above, the difference between the two solutions is that Perez-Castrillo and Verdier used a pure strategy and Baye, Kovenock and De Vries mixed strategies.

The first thing to be said here is that it is probably quite unusual in the real world where this kind of problem is approximated for R to be above two, so the solution to this particular part of the problem is not exactly of great practical importance. Still, it's a step. But in most cases in which you have competitive investments, whether it's rent-seeking or building new factories there is a sunk cost problem. Once started, you cannot get the money back, and you may be led step by step into very large investments. This is a problem which is not dealt with by either of the papers.

With regard to the first example on page 371, they solve it with the prize at $1.00. If they had been Germans, and calculated it in marks so instead of being $1.00, it was DM 1.40, the solution would have been different.

This is a question which I had never thought of before. I used the exponential form when I wrote "Efficient Rent-Seeking", because I wanted a form which showed economies of scale, and that was the standard elementary textbook method of doing it. With mixed strategies it raises very severe problems. Suppose I am playing against a German who makes all of his calculations in marks, and I make them all in dollars. We could get radically differently mixed strategies. I have to apologize for starting the discussion without even thinking about this problem. As a matter of fact I think it is much more general. I believe that most functions which are not purely linear would raise this particular problem in cross currency calculation.

Turning to mixed strategies, to repeat, I originally thought these were wonderful, and I now think they are not. Further, my reason is fairly simple and straight forward. Firstly, assume that the other players in any of these games are playing the approximately calculated mixed strategies. Under these circumstances, the payoff to me for any of the pure strategies which is part of the mixed strategies, is the same. Thus, there is no reason why I should go through all the trouble of rolling dice, etc., and if I have any reason at all for playing some other number, let us say I am risk averse, it would give the