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A Critical Assessment of  
the Achievements of the  
Economic Approach

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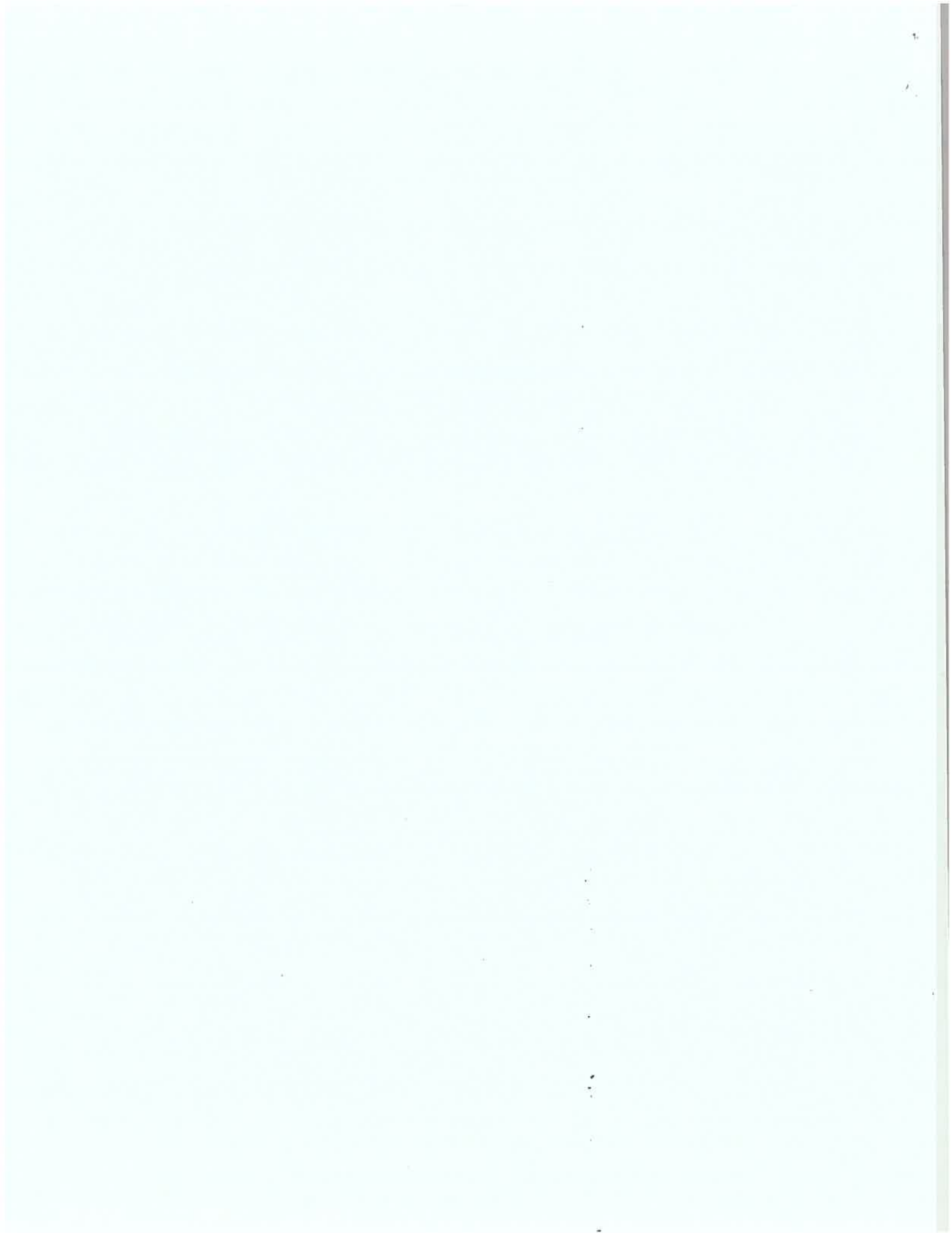
**THE ECONOMICS OF CONFLICT**

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Economics is essentially a study of cooperative behavior, not inter-personal conflict. Further, economics assumes, if not perfect information, at least very good information. Conflict on the other hand is an area where interests are opposed and where ignorance and deception rule.<sup>1</sup>

Let us begin with conflict of interest. Consider an American law suit in which I am suing you for \$30,000. Both of us think that the odds are about 50/50. Further, each of us realizes that if we go through with a suit it will cost us \$10,000 in litigation expenses. Under these circumstances the present value of the suit to me is \$5,000 and to you minus \$25,000. Both of us would be better off if we settled for any amount between \$5,001 and \$24,999. This is a wide range and in essence the conflict is over that range. If I can convince you that I am going ahead with the suit regardless, I may well get \$24,000. If you can convince me that you are equally irrational, I might settle for \$6,000.<sup>2</sup>

As part of our bargaining technique, each of us begins

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1 Non-cooperative behavior is sometimes discussed in economics under the rubric of "opportunistic behavior" or "impacted information". This is the result of Oliver Williamson's effort to make the world sound like a nicer place than it actually is.

2 It is sometimes said that Hitler's negotiating technique was to point out that somebody had to be reasonable and it wasn't going to be he.

preparation for the trial which means a good deal of resource expenditure. As time goes by, the \$10,000 will be gradually consumed. Eventually, if nothing changes, we will find ourselves in a situation where the remaining costs of litigation is quite small and at that point we may reach an agreement at about \$15,000. We will each have spent about \$9,000 on pre-trial preparation, socially this is pure waste.

When the situation is looked at from the standpoint of the two of us it would be sensible to settle without putting resources into the conflict. Looked at from either one of our positions, however, offering to settle and showing signs of being reasonable will be quite expensive. Hence the conflict is socially irrational, but not irrational from the standpoint of either of the two parties. Note also that one particular bit of information is easy to keep secret. My level of determination to pursue the case is something which you, almost of necessity cannot know.<sup>3</sup>

But we have simplified the matter by assuming a fixed return on resources. As a matter of fact, the individual not only has to decide whether he is going to fight or not, but also on how much resources to invest. The more resources he puts into the fight the higher the probability that he will win. On the other hand, the more resources his opponent puts in the lower the probabilit-

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<sup>3</sup> Insurance companies keep careful track of plaintiffs lawyers and settlement offers depend to a considerable extent on the "toughness" of their legal opponent. For a more thorough discussion of these points, see my Trials on Trial, University of Columbia Press, NY 1982.

ity.<sup>4</sup> All of this, although I've been talking about it in connection with trials is characteristic of conflict in general. A determined opponent may "win" under the most unlikely circumstances. Finland is independent today because in the winter of 1939 they chose to resist a Russian attack when almost everybody must have thought it was insane. Latvia, Lithuania, and Esthonia are Russian provinces because they apparently behaved more rationally. It would be hard, however, to argue that the Finn are not better off than the Latvians, Esthonians, and Lithuanians.

It is clear that the Russians and the Finns would both have been better off if they had simply peacefully agreed in the fall of 1939 to move the border between the two countries to its present location. Clearly, an offer by Finland to do so however, would have been suicidal and a proposal by Russia that the Finns abandon their fortifications would have been laughed at by the Finns. There was a very large expenditure of resources by the Finns, that led to Finland surviving and the Finns having their present rather high living standard.

Game theory is sometimes used to analyze conflict. If conflict were a zero sum game there would presumably be a pair of mixed strategies in equilibrium. Since it is a negative sum game however, the only thing we get out of game theory is that conflict will characteristically be a prisoners dilemma, with both parties having a dominant strategy which is socially non-optimal.

So far I have talked about only two parties. This is not

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<sup>4</sup> For a more comprehensive discussion of this, see once again my Trials on Trial, particularly pages 87-104.

actually characteristic of all conflict situations although it is not particularly uncommon. Schumpeter said that World War II was a three way war between Russia on one side, the axis powers on another and the western powers on the third. He was wrong. It was actually a four way war with Japan's interest markedly different from those of its allies. Indeed, we could say a five way war because of the situation in China at the time. The western alliance was not exactly solid either. This has been characteristic of international conflicts throughout history. Alliances in which the parties wholeheartedly cooperate are most unusual.

The problem is important because if any number can play, the mathematical problems raised in "Efficient Rent Seeking", become important.<sup>5</sup> It is pretty generally agreed that combat is an area where economies of scale continue almost indefinitely. As Napoleon put it, God is on the side of the big battalions.<sup>6</sup> Under these circumstances, the arguments contained in the efficient rent seeking series of papers implies that there is no true equilibrium outcome even though the situation resembles the prisoner's dilemma.

Next, we come to the problem of ignorance and deception. Normally it is not sensible to wait until you have as good information as you possibly can get before you make your moves in

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5 "Efficient Rent Seeking" will by the time this paper is published be most readily studied in a series of papers to be published in Political Economy of Rent Seeking edited by Charles Rowley, Robert Tollison and Gordon Tullock, Kluwer, Boston, 1987.

6 He was heavily out numbered at Waterloo.

conflict. The side which moves first has a distinct advantage and this will more than compensate for at least some ignorance. In a way, the success of our Normandy invasion was influenced by the fact that our meteorologist thought it was not scientific to make estimates of weather more than 48 hours in advance. The German meteorologists made predictions 72 hours ahead. They correctly predicted a severe storm on the third day. The storm caused great difficulty for the landing forces, but the surprise which they obtained from the failure of their meteorologist to make as good predictions as his German counter-part,<sup>7</sup> more than compensated for this.

Lastly, we come to deception and indeed deception is what strategy in general is about. Elaborate measures were taken by the allies before the Normandy landing to convince the Germans that it would take place in the Pas de Calais, instead of around Cherbourg. This was an important factor in its success.

Such deceptive behavior is, of course, common in war. Napoleon's first Italian campaign was based on somewhat similar deception. More usually the military force is put in a position where it has a number of alternatives, and the one actually to be

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<sup>7</sup> Rommel and many other German generals had granted themselves leave and left their post of duty.

<sup>8</sup> The United States has a tendency to be more firm in its early decisions and hence, on the whole, less likely to achieve a surprise. Probably this is because the American military has normally depended on overwhelming material and personnel superiority rather than clever tactics for victory. Although the United States has tended to use deception somewhat less than other armies, it nevertheless has used a great deal of it.

pursued is selected at the last minute.<sup>8</sup>

So far I have been pointing out reasons why we should not expect economics to provide too much aid in analyzing conflict. Since I am the author of a book<sup>9</sup> this may seem bizarre. Nevertheless, I do not claim in that book or now that economics is decisive in the analysis of conflict. I do believe it can provide some aid, mainly in clarifying our thoughts. The Great Learning<sup>10</sup> says that the virtuous man must first clarify his thought. Economics can offer some aid to this clarification. Whether this will lead to the success which the Great Learning promised is an open question.

The first thing we should note about the matter then is that the common statement that war is simply a waste of resources which nobody wins is sometimes true.<sup>11</sup> But it doesn't follow from this that the conflict is irrational from the standpoint of either of the two parties engaged. Indeed, if there are more than two parties engaged, then the considerations dealt with in the "Efficient Rent Seeking" articles implies that there is no possibility for rational behavior in many cases.

As a general rule in any conflict situation there is some settlement which would make all the parties better off than the actual outcome of the conflict. Unfortunately, there is not only

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9 The Social Dilemma: The Economics of War and Revolution, George Mason University Press, 1974, 81, Fairfax, VA.

10 Normally attributed to Mencius.

11 There have been many wars in which one side emphatically gained.



one, there usually are many with the cost of the conflict which has been avoided differently allocated. This gives a bargaining range and in a real sense the conflict is about that bargaining range. Of course this assumes that the parties have the same estimate of the probable outcome and of the return on resources invested. That is not realistic, but temporarily we will make the perfect information assumption of economics.

Nevertheless, the realization that the parties are not behaving irrationally when each one of them chooses to commit resources, even though both parties would be better off if the other one didn't is important. Through divine intervention we could make both parties better off. Nevertheless, in the real world each of the parties is behaving rationally.

The actual process of the conflict itself is frequently misunderstood. I have referred above to a lawsuit which is the easiest kind of conflict to analyze. In many ways it is very similar to military conflict. Indeed, the anglo-saxon lawsuit is an indirect descendent of trial by battle. The elaborate preparation for going ahead with the trial and then the proceedings of the trial itself can be thought of as<sup>12</sup> simply transmission of information.

An army does not surrender because it has truthfully been put in a position where it cannot fight any further. Normally, the surrender occurs when the losing side realizes that the likely future developments if the fighting continues are worse

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<sup>12</sup> Settlements are sometimes made very late in the trial proceedings.

than surrender. Complete surrender, however, is historically most unusual. More normally there is some sort of negotiated settlement. The fighting has changed the parties estimates of future developments. In a way the actual fighting or lawsuit is a clumsy way of developing information on the likely outcome of further investment of resources. It also, of course, changes the likely outcome by changing the resources still available to the parties.

All of this is simply further clarification. There is no doubt that investment of resources increases the likelihood of success. There is equally no doubt that because of ignorance and deception, perfect prediction is impossible. Darius cut in behind Alexander at Issus, thus cutting off both Alexander's communication lines and his possible retreat to Greece. Darius no doubt thought that, granted his immensely superior numbers, he had finished the campaign. That he was ignorant of the shock power of the Macedonian phalanx is not surprising. It was the Persian army that could not make a successful retreat from the battle field.

It is hard to criticize Darius's strategy except retrospectively. At the time, probably only Alexander himself and a few of his generals realized the importance of the qualitative superiority of the Macedonian forces, and Alexander's brilliance as a general.

In this case there was no positive effort of deception on the part of Alexander even though he did achieve surprise. Deliberate deceptive measures are, however, common in war. Sam Houston fighting against the Mexicans for Texan independence regularly retreated before the Mexican army with both armies pausing during the hot noon day period for a siesta. After many

days of this behavior, he attacked and caught them in their siesta. As far as I know, it is the only example of a surprise attack delivered in broad daylight across an open field at the center of the enemy army. Clearly this was the climax of a long, carefully thought out, plan of deception. The Mexicans had been "trained" to regard the siesta as a period in which no one would fight.<sup>13</sup>

Here again, economics offers nothing except the statement that such deception can pay off very well. Once again there is a clarification of our thinking process, but no easy rule for success.

Note that although I have argued that conflict is normally socially undesirable, I have not argued that is undesirable from the standpoint of the parties which engage in it. It is one more of the many cases in which the prisoners dilemma leads to socially inappropriate behavior.

Let me now turn back to an earlier part of this article, when I pointed out that the "Efficient Rent Seeking" literature implies that there isn't even a prisoners dilemma equilibrium in many cases. Let me simply use two illustrative examples. We begin with a conflict game which is mathematically tractable and seems to be much like real conflict. Each party to a two party game (the matter is easily expanded to many parties but we will use only two here), is permitted to buy as many lottery tickets as they wish at the price of a dollar apiece. Each of the parties writes his name on all the tickets he buys, and they are placed

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13 Of course they had some tendency to think that way already.

in a drum which is rotated. One is drawn and a prize of \$100 is given to the party whose name is on that ticket.

Note that this maps conflict in a mathematically tractable manner. The probability of success of each party is predicted by his resource investment and as a matter of fact, there is no reason why the parties could not sell their chances to an insurance company for their fair actuarial value. We rule out an agreement between them because one of the things this game is suppose to duplicate is the negotiations leading up to such an agreement.

Using the numbers I have given just above and assuming that each party is able, if there is an optimal strategy for the other party to figure out what it is and hence respond to that optimal strategy, each of them buys twenty five tickets. Note the peculiar nature of this particular equilibrium. For \$25.00 each of them buys a 50/50 chance of \$100.<sup>14</sup> The total investment in lottery tickets approaches \$100 as the number of players increases infinitely. It is however characteristic only of these particular numbers.

But suppose that we attempt to map the real world of war and provide economies of scale. Let the number of tickets be equal to the cube of the individual player's investment. Here, if we calculate what each party would invest as the best reply to the other party's investment, we have the astonishing outcome of \$75 a piece. In other words, each of them is investing \$75 to get a

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14 This is the correct equilibrium but of course the situation is dominated by the restriction on the number of parties.

50/50 chance on \$100. Clearly this is an absurd result, but any other outcome for this particular pair of players is equally absurd.<sup>15</sup>

It seems likely that this is true with respect to all kinds of conflicts in which the number of parties are not restricted by some artificial restraint. The present development in the United States of amicus curiae procedures permitting more than two parties to a lawsuit has probably brought us into this kind of a situation even in the law. Here we have another area where economics is not very helpful.

I must here warn the reader that it is not certain that the literature set off by the "Efficient Rent Seeking" article has reached a final conclusion. It is conceivable that some ingenious mathematician will find an equilibrium here. All we can say is that so far, no one has in spite of use of all of the reasonably likely methods of analysis.

Of course, much economic behavior in the common man's meaning of the term is not cooperative, the obvious case, is bargaining, a problem which has occupied many many economists but cannot be regarded as solved.<sup>16</sup> Part of sales effort also falls in this category although of course by no means all. Indeed, its presence either in investment or research is likely. Thus conflict appears

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15 Once again, this whole matter is dealt with in detail in the efficient rent seeking set of articles. It is unfortunately true that substantially any set of rules that we impose for this game leads to unlikely results.

16 For my effort to solve this problem, see Trials on Trial, op. cit. pp. 52-64.

in areas normally thought of as economic, and economists have difficulty with even this sort of conflict.

In sum so far I have been saying that economics is of some, but not a great deal of help in dealing with conflict situations. We now turn to a particular conflict situation which is in some ways the most important in the present day world, and certainly has had more economists working on it than any other. I.e., the potential of nuclear war. The terminology of nuclear war changes from time to time, but I think at all times we have been in a prisoners dilemma situation in which the dominant strategy has been to initiate a nuclear conflict.<sup>17</sup> Certainly before the mid-1960's initiating nuclear war by the United States would have been the game theoretically recommended choice, because in those days the Russians really had no practical way of responding. Even after they acquired some ability to hit the United States with a few nuclear weapons in the end of the 50s the US potential was so much greater that it would have been insane of them to take advantage of the alternative even if we had blown up Moscow.

It should be said that the failure to undertake such nuclear war before the Russians had any ability to hit back at all, was not the result of economic reasoning. It has to be said also, however, that the very numerous economists at places like the Rand Foundation were not in favor of such an attack. Thus it would appear that although we were in a situation in which economics gave a fairly straightforward recommendation no one

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17 Possible it would be best to begin simply with an ultimatum and only use the nuclear weapons if ultimatum is rejected.

seriously considered it.

As an extreme example of this, in the early spring of 1950, the Navy decided that it was being robbed in the allocation of funds of the American budget and set off what became known as the B-36 controversy. This led to a series of congressional hearings and a firm decision that the United States method of fighting future wars would be very simple: in the event of any aggression we would use nuclear weapons. Two months thereafter, the aggression occurred and in spite of our announced policy, the use of nuclear weapons does not seem to have even been seriously considered by Truman or his advisors.<sup>18</sup>

In this case, what we have developed is a theory called "insane", or Mutual Assured Destruction, (MAD) in which it is assumed that both parties should aim at enough nuclear weapons so that after a first attack, they would be able to inflict unacceptable damage on the other party. Putting ourselves into a position where this was regarded as a suitable defense method is clearly Insane as its title implies. Although a number of economists and game theorists were involved, probably their influence was only peripheral.

These policies, and indeed all of the nuclear policies have built into them an unlikely assumption about the real world which is that if anybody uses nuclear weapons, everybody will immediately lose sanity and begin throwing weapons around regard-

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18 The war in fact was eventually ended by Eisenhower who made a credible threat to use nuclear weapons. Some three million people died because this threat was made in 1953 instead of 1950.

less of consequences. If we assume however, that people remain sane, then the MAD policy simply ceases to have logical coherence. For example, if the Russians announced that they were going to begin tomorrow destroying our cities at the rate of one a day until we surrendered and that if we fired back, they would fire two rockets at our cities for every one that we fired them in addition to their one a day program, we might not believe them. We might think that this is a bargaining technique which they are not actually going to do implement. If we did believe them, however, the rational policy would be immediate surrender. Of course the same thing applies if we make the threat to them. The lower right hand cell of the prisoners dilemma matrix in this case is each of us destroying one city a day of the other, and possibly each of us accelerating by firing two weapons for every one fired by the other. This is undesirable, but it is the solution to the prisoners dilemma.

It is not hard to argue mathematically that we really should carry out that policy. Earlier it would have been easier since the position of nuclear balance is a fairly recent phenomena. It started in around 1967-68. Before that the United States had a pretty clear cut predominance although the predominance was greater of course in the early 1950s than in the early 1960s.

What we see here is a situation in which we have a fairly good formal analysis for conflict which leads to a result which

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19 In this particular case, Bertrand Russell and myself would have been willing to accept the conclusions in the late 40s and early 50s. Both of us wanted a preventative war by the United States at that time.



no one is willing to accept.<sup>19</sup>

More people have worried about this problem than any other single problem of analyzing conflict. Many of them are brilliant, and they have had full access to the necessary scientific equipment. They have characteristically refused to accept the conclusions of the formal analysis.

The basic theme of this paper has been that economics can't do a great deal about conflict because it is essentially analysis of cooperative behavior. At best, it makes it easier for us to understand what is going on in conflict. I should like to close however by pointing out that although economics can't do very much here, there is no other discipline that does better.<sup>20</sup> Conflict seems inescapable both for human beings and in the non-human part of the biosphere. The predicted outcome is always worse than at least one outcome which could be obtained if the conflict were somehow prevented. Unfortunately, it is frequently true that at least one party can gain from engaging at least some conflictual behavior.

If we have an outside force, policemen who are not part of the conflict, then they can solve the problem although their mere presence absorbs resources. Historically human beings have usually had police forces and also historically, those police forces have usually chosen to use their position to extort far more resources than the minimum amount necessary to keep the peace. I hope somebody solves this problem some day, but I certainly haven't.

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<sup>20</sup> The theologians might quarrel with this statement.

