

# Fighting Terrorism: What Economics Can Tell Us

*Interview with Todd Sandler*

*Sophisticated economic analyses, says this long-time student of terrorism, suggest that the best way to prevent terrorism is to reduce the resources of the terrorists—both financial and in terms of personnel. Preventive methods at home require constant vigilance and a recognition that terrorists change their tactics. Retaliation is rarely effective over time.*

**Q** Obviously, September 11 has greatly raised the level of consciousness of terrorism in the United States, but you had been working on this issue for quite some time.

A. Yes, for twenty years.

**Q.** What got you interested in the first place?

A. There was a lot of work being done in political science on this topic, going back to the early 1970s. However, I did not see that any effort was being made to apply modeling skills and statistical skills to study what was going on.

**Q** What kind of modeling?

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A. Game theory and microeconomic theory.

**Q. What do you mean by microeconomic theory in this case?**

A. Simply the notion that one of the participants, be it the terrorist or the government, has an objective and wants to optimize that objective, subject to constraints.

**Q. So you tried to apply to this issue techniques that are commonly used in economics?**

A. That is exactly right.

**Q. Was there a pioneer in this field, or were you among the pioneers?**

A. I was certainly among the pioneers. The only economist who did some very good work was William Landes, who was at the University of Chicago at that time. He wrote a paper for the *Journal of Law and Economics* in 1978 on skyjackings. Before I undertook my work, and helped interest others to study this issue, no one was talking about the possibility that if you focused on trying to stop one type of terrorist event, the terrorists just learned to change their operations and engage in another type of terrorism.

**Q. Your response and the response of others to the Landes work are examples of this substitution by terrorists among operative modes.**

A. Yes. Landes calculated the benefit of metal detectors just by looking at skyjackings and ignored substitutions.

**Q. And what did he find?**

A. He found that metal detectors were very, very effective in decreasing the number of attempted skyjackings.

**Q. And he published this finding in the 1970s?**

A. That is correct.

**Q. Is this analysis over a period from the early 1960s to the mid- or late 1970s for just the United States?**

A. That is correct. He used only the data that were made available by the Federal Aviation Administration.

**Q** What else did Landes find?

A. He found that with the detectors in place from January 1973, the number of skyjacking attempts declined from close to forty a year to one. He proclaimed the policy extremely effective and declared “end of story” at that point.

**Q. And then what research came along to suggest that this was too simplified a view?**

A. The research that I did with Walter Enders. We found that just when metal detectors were introduced, kidnappings and the takeover of embassies and buildings, which were rarities, greatly increased.

**Q. What was the implication of that?**

A. That a substitution was taking place. Consequently, we looked at that substitution by examining the interrelationships of these time-series of data over longer and longer periods of time. It was unmistakable. No matter how you ran the data, no matter how you looked at it, there was a clear substitution present.

**Q** What kind of analysis did you use to substantiate this result, or was it evident?

A. No, it was never evident. Not when you are looking at a given time-series that shows the number of events over time.

**Q. Was it a straightforward regression-type analysis trend?**

A. At first, yes, it was a straightforward regression with a policy shock or intervention put in.

**Q** Was it basic linear regression?

A. Yes, it is called intervention analysis. You allow something to change—for instance, the introduction of metal detectors—and then you look at each series separately. But that does not work, because when the terrorists make their decisions, they are using the same resource constraint to do more than one thing. That means

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that if you look at the time-series for kidnappings, or bombings, or hijackings, they have to be interrelated. So any assumption that these are independent time-series is wrong from the start.

**Q. So what kind of technique do you adopt to account for this interdependency?**

A. It is called vector autoregressive analysis.

**Q** Explain, if you can, what that is in layman's terms.

A. Essentially, it says that when you apply a shock, you look at the interrelationship of all the series simultaneously. It is like simultaneous equations.

**Q. So you applied this technique to the Landes issue.**

A. Yes, and Walter Enders and I published a paper in 1993 that is very well known and cited in the *American Political Science Review*. It documented the substitutions, and we found many. We found there was a substitution away from hijacking to other activities. We found that when the United States secured its embassies, the embassy attacks declined, but the terrorists waited for U.S. officials to leave secure grounds, and then they murdered them.

**Q. What period was this?**

A. This was in the 1970s and 1980s.

**Q. So there were many examples of these substitutions.**

A. Yes. There were many examples. Each result was highly significant and very robust to changes in the specification. This is not “you just try to find it and make it happen.” And we also ran these vector models every possible way.

**Q. What were the policy implications of your findings?**

A. The policy implications are as follows: If you really want to address terrorism, then you have to go after their resources. You cannot focus on just one type of event.

**Q. What are the resources? Are we talking about financial resources?**

A. Sure. We are talking about financial resources, personnel, and infrastructure. The authorities must infiltrate groups, find out who are terrorists, and then capture them and bring them to justice.

**Q. Anything else?**

A. Another implication is that if you are going to put technology in the way of the terrorists, then you have to be careful about two things: One is to try to anticipate where they are going to substitute and try to guard against that substitution. And, second, the technology is not static, which means it is going to be overcome with time and intelligence, so there must be constant upgrades to the technology.

**Q. So that is the abstract principle. Let us talk about some specifics.**

A. A specific substitution would be the use of flammable liquids, which the metal detectors did not detect, in place of materials identified by metal detectors.

**Q. That would be a technological response to metal detectors. When were flammable liquids used?**

A. In the early 1980s there was a spate of skyjackings to Cuba in the United States. There were two big spikes, both in the early 1980s. There was one day when three planes were hijacked on the East Coast, all to Cuba. I think there were five in two days. Of course, they all used the same technique because it was reported on the news. Then everybody copied it.

The only way to change that technique is basically to open up any bottles at the security gates. That was not going to happen, and it still does not happen today. The way they finally reversed that trend was to conclude an agreement with Castro that anybody hijacking planes to Cuba would be immediately arrested and put in jail for forty years. Once that was done, there was no more hijacking to that nation. There are some areas where no technology is going to be able to serve its purpose.

**Q. So the level of punishment did have some effect, you found?**

A. Yes, the bilateral agreement between Cuba and the United States had a tremendous effect.

**Q** Let us update this discussion to the current situation because there are a number of things we should talk about. There is a general tendency to believe that the trend of terrorism is inexorably upward.

A. It is not. However, what we call the “spectaculars,” which usually consist of one event a year wherein many people are killed—that is clearly upward.

**Q** Let us talk about the trends in general. What are the numbers of incidents per se? Are they actually down?

A. Yes, way down in the 1990s. Transnational terrorism is at

about 40 percent of what it was in the 1970s and 1980s.

**Q. So in the 1970s and 1980s we had a lot of hijackings, embassy bombings, kidnappings, and so forth?**

A. Yes, lots of bombings. Bombings comprise about half of whatever goes on in transnational terrorism.

**Q. And that declined in the 1990s?**

A. Yes, all kinds of events declined, and they usually fell fairly proportionally to one another. And transnational terrorism has been in a downturn starting in the 1990s.

**Q. According to the very latest data?**

A. Yes.

**Q. But you are talking about the “spectacular” event—does that mean injuries and fatalities have increased?**

A. Yes, they have increased because there are fewer, but deadlier, events. If you have the misfortune to be involved in an incident, the likelihood that it will end in death or injury is now about 20 percent higher than it was in the previous decade.

**Q. Has the nature of these events changed?**

A. They are more targeted at causing death, which is attributable to a greater number of fundamentalist groups. And when I say fundamentalist, I do not mean only Islamic fundamentalist, I mean Christian, Jewish—it crosses all religions.

**Q. Explain a little bit why fundamentalism is the issue.**

A. Fundamentalism is the issue for the following reasons. In the 1970s and 1980s most terrorism was left-wing-based, and there is a characteristic of left-wing terrorists: They want a lot of people watching, according to Brian Jenkins, but not a lot of people killed. Jenkins, one of the world’s most respected experts on terrorism, is at the Rand Institute in California. Now, there

are more groups, as many as a third to one-half, that are based on fundamentalist beliefs. These groups apparently see everybody as legitimate targets.

**Q** I get a little nervous about attributing the increase in terrorism to fundamentalism. Is there not a higher level of poverty among the perpetrators, or lower levels of economic development, or do they see themselves more as victims of violence, or are there other factors here?

A. Let us take Osama bin Laden. He is from a very rich family and had tremendous means himself, and certainly globalization made his family and made his fortune. However, his ability to recruit people is due to the fact that globalization has also created a situation where many individuals do not have a lot at stake.

**Q. There are a lot of unemployed men in his organization.**

A. And a lot of people who see U.S. foreign policy as evil. But we have to make very clear that this fundamentalism and this murderous activity by fundamentalists are not unique to the Islamic world by any means. We see it in Israel—we have seen fundamentalist Jews entering a mosque and committing wholesale murder. This is not unique to any religion.

**Q** What are the implications for policy considerations of the fact that incidents are down but death tolls in spectacular incidents are up?

A. It makes policy making even harder in many ways because one has to look for the innovation. It is my belief that in all probability the next “spectacular” is not going to be the use of an aircraft, because everyone is looking for that. It is going to be some other means that is just as simple and just as deadly.

**Q** So we are preventing one sort of terrorist activity, but there is going to be another sort. Let us talk about September 11, then. In your analysis, what does that event reflect?

A. One thing that it reflects is that terrorists are after publicity and, consequently, to really get the media's attention, they have to do something to top the last act. This was an act that topped all acts. In fact, it topped all acts for a number of years put together.

**Q. You mean the number of deaths?**

A. Actually, the number of deaths was equal to about twelve or fourteen years of transnational terrorism deaths.

**Q** So here we have this most spectacular of "spectacular" horrors. Let us talk a little bit about what your evidence and analysis suggest about the response to this.

A. One response should be that you have to increase airport security. There is no question, because if you do not do that, then obviously they will just try that method again. But focusing on that, and trying to do a pretty good job, and probably doing a good job there will motivate the terrorists to innovate, and they are going to find the weakest link in the system.

**Q. For example, the location with the weakest airport security?**

A. The airport with the weakest security is the logical place to attack. Innovative attacks will be directed at vulnerabilities such as was found by the guy with the shoe bomb. Other innovations will follow. And it is not going to be in the shoes next time, it is going to be in a belt or in a hat, because right now if you have thick shoes, you have to take them off in the airport. That is why terrorism is such a difficult problem. Whenever you recognize how it has been done in the past, then the authorities make that what they look for. So then the terrorists just find a new way.

**Q** Does this have further implications?

A. The further implication is to try to find experts who can advise the government on what the next innovation is, and how likely terrorists are to find an equally simple way of causing massive loss of life. If you do that, the last thing you should do is then put it on the news and tell everybody, something that is constantly happening.

**Q. What about going after the resources, which we talked about earlier?**

A. That is absolutely necessary. The freezing of assets is long overdue and needs to be continued. The only disappointment is that cooperation among different nations is episodic. Some cooperate for a given length of time and then stop; others do not.

**Q. So you think that has to be pursued vigorously because of the constant substitution effect? The real constraint is on the resource end, not on the innovation end.**

A. You have to be vigilant in terms of the innovations, but at the same time if you want to bring about a reduction in terrorism, you have to go after their resources.

**Q** You also wrote about the alliance after September 11. What are some of the implications of your research concerning that?

A. The alliance is still held together primarily by the United States, which is still pretty much going it alone. Why is that? One of the reasons is that, according to the data, about 40 percent of the terrorists' attacks have been directed at Americans.

**Q. Over what period of time?**

A. This is since the late 1960s.

**Q. But all these incidents did occur on international soil, so you would think those countries would be upset.**

A. Not as much if Americans are being hit, unless there is an economic ramification to that.

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**Q** Is there some documentation of economic ramifications?

A. Yes. I have done some in terms of tourism, especially small countries with large tourism industries that face a significant terrorist threat—for instance, Greece. I have looked at what it cost them after some of the hijackings, and it was significant. It took them hundreds of millions of dollars to try to get the tourist industry back in shape, and it took a lot of security updates at the airports to convince U.S. officials that they could tell Americans that they could fly out of these airports again. Another economic cost is lost foreign direct investment, and that is especially true for small developing and developed countries, compared to larger countries. For instance, France has always had a lot of terrorism, but when you try to analyze the effect on foreign direct investment, it does not really show up. But when you look at Greece, it shows up. I think we calculated that Greece lost about 15 percent of its foreign direct investment. Spain was another one. Now 15 percent may not seem much, but in these countries, foreign direct investment was 25 to 50 percent of savings. So it comes out to hundreds of millions of dollars.

**Q** What grade do you give our response, given your research, to the September 11 terrorism?

A. I would give it a “B.” First, in terms of airport security, I do not think we are there yet. It has taken us much too long to get as far as we have. I live in Los Angeles, where frequently they have to close the airport because of a false positive, so we are not there yet. In terms of the retaliation, retaliations in the past have not worked, but this is a different kind of retaliation.

**Q** Well, let us talk about that. Tell me what the evidence is on that. You are talking about military retaliation?

A. In the past, retaliation by Israel, for instance, has had no lasting effect.

**Q.** That is an important point, so let me try to get our readers to understand that. What kind of analysis or statistical analysis supports this conclusion?

A. Vector autoregressive analysis. What we would see is that the amount of terrorism directed at Israel would initially go up after the retaliation, then it would go down.

**Q. Below trend?**

A. I will explain why it goes up and down. Within about three months, it is right back to the same mean trend as in the past. Now, why do we see this little sine curve, the cyclicity of terrorist incidents?

**Q** There is a bunching effect?

A. Yes. The terrorists shift events to the present that they intended for the future, but then they do not have the resources a month and a half from now to do those acts because they have already done them. So then we see this lull; we see this downturn. Now the media come in and, at that point, proclaim the retaliation is successful. But it is not successful; it is just a substitution for what has been planned for the future into the present, and it has no lasting effect.

**Q** When did you publish a piece on that?

A. The piece on the ineffectiveness of Israeli retaliation was published by two political scientists (Brian Brophy-Baermann and John Conybeare) using our technique in the *American Journal of Political Science*.

**Q. Do you think that the ineffectiveness of retaliation would hold if it had been updated?**

A. Yes, absolutely. We also did it with regard to the Libyan attack and retaliation in 1986, and published it in the 1993 *American Political Science Review* article. We found that the retaliation led to more terrorist incidents. And that is what motivated the other authors to try the same technique using Israeli data.

I want to make clear that the retaliation the United States has used this time to win the Afghan war will be more effective. It is longer-term retaliation—it has not involved going in for one day, bombing some buildings, and coming out.

**Q** And that is why you think it will be more effective?

A. A lot of terrorists were killed, not to mention the destruction of their camps, and their infrastructure, and their communications network. It will have a medium-term effect, maybe as long as one to three years. But eventually they will find new places to develop. This means any efforts against terrorism must be persistent.

**Q** So that implies we have to do some other things.

A. Yes, it does.

**Q. Do you have some ideas about what those things should be, consistent with your own research?**

A. Some other things would be to continue to try to get coop-

eration on freezing assets, continue to get cooperation from other countries in terms of vigilance over terrorist cells and trying to bring them to justice. Spain has done something in terms of this, as has Germany, and England has started to do some things. That is really important, but it also has to involve parts of Latin America and parts of Asia, and you are not going to get everybody on board because many of these governments basically do not care. It is not in their interest.

**Q** You write about what I would call the “public goods” issue. If we have to bear all the financial burden and the benefits are dispersed around the world, it is asymmetric.

A. It is very asymmetric, and it is also suboptimal. It leads to much less action than would be desirable from a worldwide viewpoint.

**Q. So that feeds your point that we really need a worldwide alliance?**

A. I would settle for just the major powers being in it.

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