ESTABLISHING PRINCIPLES FOR EVALUATING MEASURES DESIGNED TO PROTECT THE HOMELAND FROM TERRORISM[1]

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ABSTRACT This paper proposes some general parameters for evaluating homeland security measures that seek to make potential targets notably less vulnerable, to terrorist attack. Since the number of targets is essentially unlimited, since the probability that any given target will be attacked is near zero, and since a terrorist is free to redirect attention from a protected target to an unprotected one of more or less equal consequence, protection seems to be sensible only in a limited number of instances. In many cases, protection is essentially a waste of resources and effort.

> Conference keynote speaker Rear Admiral William D. Sullivan, vice director for strategic plans and policy for the U.S. Department of Defense, said al-Qaida's goal is to bankrupt the nation and force it to withdraw its troops from the Middle East. "There is no question if you look at what we've spent in the last 4 1/2 years on homeland security and terrorism that it's staggering," Sullivan said. Gary Becker, a senior economist at the Department of Homeland Security, said the Congressional Budget Office has estimated the annual cost of fighting terrorism at tens of billions of dollars. But he said that doesn't take into account many variables, such as delays at airports and the borders and other factors. "We really don't know a whole lot about the overall costs and benefits of homeland security," Becker said (Anderson 2006).

After expending hundreds of billions of dollars over the years to deal with the problem, the Department of Homeland Security, suggests Gary Becker, one of its senior economists (but not the Nobel Laureate as it happens), *still* does not have much of a handle on the "overall costs and benefits of homeland security." More pointed and specific is a 2007 critique by RAND president James Thomson. DHS leaders, he asserts, "manage by inbox" with the "dominant mode of DHS behavior being crisis management." Most programs are implemented "with little or no evaluation of their performance," often

[1] I would like to thank Mark Stewart for comments and suggestions.

only inputs and outputs are measured and not effectiveness, and the agency "receives little analytical advice on issues of policy, program, and budget." And analyst Jeremy Shapiro argues:

> Policy discussions of homeland security issues are driven not by rigorous analysis but by fear, perceptions of past mistakes, pork-barrel politics, and insistence on an invulnerability that cannot possibly be achieved. It's time for a more analytic, *threat-based* approach, grounded in concepts of sufficiency, prioritization, and measured effectiveness....In the early days after 9/11, it made sense to take measures that responded to the circumstances of that attack and reassured a nervous public. But, five years into the apparently endless war on terrorism, homeland security should evolve from a set of emergency measures into a permanent field of important government policy that, like any other, must justify its allocation of taxpayer funds through solid analysis (2007, 1-2, emphasis in the original).

This paper seeks to make a contribution to that process. It attempts to set out some general parameters for coming to grips with a central concern: the effort to make potential targets notably less vulnerable to terrorist attack. It also seeks to apply these parameters to forge something of an assessment of which targets it may make sense to seek to protect and which ones might best be left unprotected.

The paper is concerned with only a portion (though a rather large one) of domestic homeland security spending: 34 percent of homeland security outlays in 2006 were devoted to protecting what DHS calls "critical infrastructure and key assets" (Hobijn and Sager 2007, 2). It focuses on measures constituting what military people might call passive defense such as posting security guards, hardening targets against explosions, screening people entering an area, setting up barriers, and installing security cameras.

The paper, then, does not deal with policing or other active defense measures--efforts to hunt down and detain terrorists after they have committed violent acts or (preferably, of course) before they have done so. Nor is it concerned with mitigation--measures that seek to reduce the consequences of a terrorist attack after it happens such as the establishment of emergency procedures for evacuation, of measures that might contain the damage, of devices for early detection of biological or chemical release, or of facilities to provide medical treatment to the injured. Nor does it assess the promotion of resilience--the ability to absorb, and sensibly to respond to, a terrorist attack (Mueller 2006, ch. 7; Shapiro 2007, 16; Flynn 2007). The costs and benefits of policing, of mitigation, and of resilience-promotion should be subjected to a similar analysis, but that is not the focus here.

Policy considerations: premises

There seem to be at least seven premises which should be taken into consideration when formulating policy for protecting the homeland, for seeking to reduce its vulnerability.

1. The number of potential terrorist targets is essentially infinite

Terrorists seek to kill people and/or to destroy property in pursuit of a political goal.[2] They may exercise some discrimination in selecting targets, but because people and vulnerable property are readily at hand everywhere, they have a wealth of potential targets. Nothing can be done to change this fundamental condition. Indeed, it is difficult to think of something that *couldn't* be a target. A tree in a forest, perhaps? But what about forest fires?

2. The number of terrorists appears to be exceedingly small and their efforts and competence

[2] For their low success rate on this, see Abrahms 2006. For other, more internal, motivating mechanisms that effectively make terrorism more nearly a random process, see Abrahms 2008.

rather limited

Since terrorism of a considerably destructive nature can be perpetrated by a very small number of people, or even by a single individual, the fact that terrorists are few in number does not mean there is no problem. However, many homeland security policies were put in place when the threat seemed far larger, and those perceptions may still be fueling, and possibly distorting, current policy.

Thus, in 2002, intelligence reports were asserting that the number of trained al-Qaeda operatives in the United States was between 2,000 and 5,000 (Gertz 2002). And on 11 February 2003, FBI Director Mueller assured a Senate committee that al-Qaeda had "developed a support infrastructure" in the country, and had achieved "the ability and the intent to inflict significant casualties in the US with little warning."[3] By 2005, however, after years of well-funded sleuthing, the FBI and other investigative agencies reported in a secret report that they had been unable to uncover a single true al-Qaeda sleeper cell anywhere in the United States (Ross 2005), a finding (or non-finding) publicly acknowledged two years later (Isikoff and Hosenball 2007).

Al-Qaeda deserves special attention in all this because it is "the only Islamic terrorist organization that targets the U.S. homeland" (Carle 2008). There seem to be at present to be less than 200 people at the group's core in Afghanistan. Moreover, if one looks at attacks worldwide outside of war zones since 9/11 not only by al-Qaeda, but also by its imitators, enthusiasts, look-alikes, and wannabes, the total number of people killed comes to some 200-300 per year. That, of course, is 200-300 too many, but it rather suggests that al-Qaeda's destructive capacities are rather limited.[4] Moreover, the rate of terrorist mayhem outside of war zones seems, if anything, to be declining (Mack 2008).

One reason for the remarkably low activity is that 9/11 and subsequent efforts have proved to be substantially counterproductive, turning not only governments against their violent global jihad, but also the most prominent and respected jihadists (Gerges 2005, 2008b; Bergen and Cruickshank 2008; Wright 2008). In 2008, CIA director Michael Hayden was willing to go on the record to note that there had been a "significant setback for al-Qaeda globally--and here I'm going to use the word 'ideologically'--as a lot of the Islamic world pushes back from their form of Islam" (Warrick 2008).

In assessing dangers presented by international terrorists, then, policy makers should keep in mind Carle's warning: "We must see jihadists for the small, lethal, disjointed and miserable opponents that they are." Al-Qaeda "has only a handful of individuals capable of planning, organizing and leading a terrorist organization," and "its capabilities are far inferior to its desires" (Carle 2008; see also Sageman 2008, Gerges 2008a, 2008b).[5]

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[3] Testimony by Mueller can be found through www.fbi.gov/congress/congress.htm.

[4] On these issues, see Mueller forthcoming, ch. 15.

[5] Indeed, despite the huffing and puffing by its leaders and spokesmen over the years, one might be led to wonder whether al-Qaeda even "desires" to attack the U.S. at home at all. One former radical jihadist, Libya's Noman Benotman, remembers attending a high level meeting with 200 top jihadists from around the world at bin Laden's headquarters in Afghanistan in 2000. At the meeting, Benotman says he cited various jihadist failures of the 1990s, particularly the spectacularly counterproductive insurgency in Algeria, and he urged bin Laden to "stop this campaign against the United States because it was going to lead to nowhere." According to Benotman, bin Laden, apparently with 9/11 in mind, replied, "I have one more operation, and after that I will quit." He couldn't call back the one under way, he said, "because that would demoralize the whole organization" (Bergen and Cruickshank 2008). The counterproductive results of the 9/11 attacks are likely to have embellished that perspective.

If follows that any terrorism problem within the United States appears principally to derive from a small set of homegrown people, often isolated from each other, who fantasize about performing dire deeds. Indeed, in testimony on 11 January 2007, Mueller continued to suggest that "We believe al-Qaeda is still seeking to infiltrate operatives into the U.S. from overseas," but stressed that his chief concern within the United States had become homegrown groups.

From time to time some of these people may actually manage to do some harm, though in most cases their capacities and schemes--or alleged schemes--seem to be far less dangerous than initial press reports suggest. Conceivably, they might someday rise to the cleverness of the 9/11 plot. Far more likely to be representative, however, is the experience of the would-be bomber of shopping malls in Rockford, Illinois, who exchanged two used stereo speakers (he couldn't afford the opening price of $100) for a bogus handgun and four equally bogus hand grenades supplied by an FBI informant (Lawson 2008). Had the weapons been real, he might actually have managed to do some harm, but the threat he posed was clearly rather limited.

3. The probability that any specific target will be attacked is vanishingly small in almost all cases

Despite the attention it garners, terrorism is a rather rare occurrence comprised of incidental, isolated acts of mayhem perpetrated by individuals or by small groups, violence that generally does a comparatively limited amount of damage. This consideration is somewhat tautological because if such acts become common and sustained--and therefore become much more significant--we no longer call the process terrorism, but insurgency, guerrilla or unconventional warfare, or, simply, war. Thus, it seems reasonable to consider the Irish Republican Army--whose activities, together with those of its opponents, resulted in the deaths on average of less than 100 people per year--to be a terrorist force. But by the same token the sustained and far more murderous activities of antigovernment and anti-Soviet forces in Afghanistan in the 1980s continue to be best classified as warfare. The current situation in Iraq also illustrates the point. For sound political reasons, President George W. Bush frequently referred to the violence there as "terrorism," but most observers prefer "insurgency." In fact, if the sustained warfare committed by the insurgents in Iraq is considered to be terrorism, a huge number of what have been called civil wars in the past would have to be reclassified as exercises in terrorism certainly including the decade-long conflict in Algeria in the 1990s in which perhaps 100,000 people perished. And so would most "primitive warfare," which, like irregular warfare more generally, relies mostly on raids rather than on set-piece battles.[6]

And, of course, it is terrorism in the sense of isolated and seemingly random violence that is of concern to Americans (and therefore to the Department of Homeland Security), not the kind of sustained violence that would constitute insurgency or warfare. Even under quite dire scenarios, in a country like the United States the chance an individual target will be hit is vanishingly small. Indeed, at present rates, the lifetime probability that a resident of the globe who lives outside a war zone will die at the hands of international terrorists is about one in 75,000. If there are no repeats of 9/11, that probability becomes about one in 120,000 (Mueller 2007b). For such numbers to change radically, terrorists would have to become *vastly* more capable of inflicting damage: in fact, they would pretty much need to acquire an

[6] See Keeley 1996. Indeed, the concept of civil war might have to be retired almost entirely. Most of the mayhem in the American Civil War did take place in setpiece battles between uniformed combatants, but that conflict was extremely unusual among civil wars in this respect--the rebels in most civil wars substantially rely on tactics that are indistinguishable from those employed by the terrorist. Moreover, any genocide, massacre, or ethnic cleansing carried out by insurgents in civil wars would now have to be reclassified as an instance of terrorism. On these issues, see also Mueller 2007b, Mack 2008.

atomic arsenal and the capacity to deploy and detonate it.[7]

Given that it can be carried out by a single individual or by a very small group, terrorism, like crime, can never be fully extinguished. Therefore, it is of course essentially certain that *some* target *somewhere* will be struck by terrorists. However, the chance any individual target will be attacked is exceedingly small, perhaps even vanishingly so in almost all cases. Protection measures may effectively reduce this likelihood further by deterring the terrorists or by reducing the target's vulnerability to attack. But for the overwhelmingly vast number of targets, they do so by nudging that likelihood from near zero to even more nearly zero. And the question is, as risk analyst Howard Kunreuther puts is, "How much should we be willing to pay for a small reduction in probabilities that are already extremely low?" (2002, 662-63).

4. If one potential target happens to enjoy a degree of protection, the agile terrorist generally can readily move on to another one

There is also something that might be called "the displacement effect." Terrorists can choose, and change, their targets depending on local circumstances. This process, of course, does not hold in the case of natural disasters: a tornado bearing down on Kansas does not choose to divert to Oklahoma if it finds Kansans too well protected. In stark contrast, if the protection of one target merely causes the terrorist to seek out another from among the near-infinite set at hand, it is not clear how society has gained by expending effort and treasure to protect the first. The people who were saved in the first locale are gainers, of course, but their grief is simply displaced onto others.[8]

There have been instances in Israel in which suicide bombers, seeing their primary targets, shopping malls, rather well protected, changed targets and blew themselves up on the street (Ellig et al. 2006, 7). The Israelis count this as something of a gain since they claim that fewer people died as a consequence, something likely to be of rather small comfort to the victims' families. Actually, however, if the goal of terrorists is to kill, shopping malls do not generally make all that lucrative a target because people tend to be fairly widely dispersed in them, something that is often less true on the sidewalks outside them (Stratfor 2007).

It also seems essentially impossible, due to the massive number of lucrative targets the country presents, to protect them enough so that international terrorists are directed in frustration to visit their violence on other countries. Measures that make it sufficiently difficult for outside terrorists to get into the country may conceivably do so, but not ones devoted to protection.

5. To the degree protection measures make one target safer, they make other ones less safe

An inference deriving from the displacement effect should be specifically pointed out and considered. Building hurricane shelters in one area does not increase the likelihood another place will be struck by the hurricane, but in the case of terrorism, the displacement effect essentially means that any effort to protect, or to deter a terrorist attack upon, a potential target means that other targets become more at risk (see also Powell 2007; Ervin 2006, 156-58). Obviously, this would be of no concern if all potential

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[7] For an analysis of this (remote) likelihood, see Mueller forthcoming. In contrast, see Allison 2004.

[8] The process is suggested by an episode concerning a neo-Nazi who blew up a Mosque in Germany with a bomb on a timer. It was assumed that this was a dedicated anti-Muslim act. However, the terrorist later related that he had actually intended to blow up a Synagogue, but was forced to find a more convenient target when the trolley he was riding to the target fell unexpectedly behind schedule (Mia Bloom, presentation at "Shaping the Obama Administration's Counterterrorism Strategy," Cato Institute, Washington, DC, 12 January 2009).

targets could be protected, but that, of course, is impossible. Protection policy therefore necessarily requires making choices about what to protect and this, equally necessarily, means that targets left off the protection list become more attractive to the terrorist.

For example, there is a program to protect bridges in the United States and, the last I heard, a list of something like 200 of the most important bridges had been drawn up. There seems to be no evidence terrorists have any particular desire to blow up a bridge, due in part, perhaps, to the facts that it is an exceedingly difficult task under the best of circumstances and that the number of casualties is likely to be much lower than for many other targets (Stewart 2009).

However, to the degree that they do, the 201st bridge accordingly becomes a more attractive target. But the hope of the protectors is that, after security is improved for all these targets, any terrorists who happen to have bridges on their hit list will become disillusioned. If so, however, they might become inclined to consider another kind of bridge: the highway overpass, of which there are some 590,000 in the United States (Hall 2004). If the terrorists' attention is drawn, further, to any one of a wide array of multiple overpass bridge networks, they might be inclined to destroy one of those. The financial and human consequence, not to mention the devastating traffic inconvenience, that could result from such an explosion might well surpass the destructive consequences of one directed at one of those 200 bridges.

6. Most targets are "vulnerable" in that it is not very difficult to damage them, but invulnerable in that they can be rebuilt in fairly short order and at tolerable expense

On the one hand, most, probably almost all, potential terrorist targets are "vulnerable" in the sense that they can be damaged, in many cases badly, even by a simple explosion. On the other hand, if a damaged target can be readily repaired or replaced at an acceptable cost in time and money, including reasonable compensation to any victims--that is, if the effect of the violence can be readily absorbed--there is a sense in which it could be said that the target is not vulnerable. (This discussion focuses entirely on material targets; people are also highly vulnerable and, if killed, cannot, of course, be "repaired.")

For example, the considerable damage inflicted on 9/11 on part of the Pentagon was repaired fairly quickly, as were the tourist facilities destroyed in the Bali attack in 2002. And, of course, very few terrorist strikes cause nearly as much damage as was suffered in those attacks. In the case of the 9/11 attacks, it makes sense to use words like "destroy," "take out," "demolish," and "annihilate" for the destruction wreaked on the World Trade Center. Those terms are utterly inappropriate, however, for the damage inflicted on the Pentagon, a portion of which was made unusable by the attack for a few months.[9]

7. It is essentially impossible adequately to protect a very wide variety of potential terrorist targets except by completely closing them down

Veronique de Rugy has drawn an important lesson from Britain's experience with terrorism during the July 2005 attacks on the London Underground.[10] In part because of previous experience with Irish Republican Army terrorism in the city, she points out, the London Underground is normally fairly well-policed. Then, after the terrorist attacks of 7 July 2005, these prevention and protection measures were, of course, vastly enhanced. Yet, despite this, terrorists successfully infiltrated more bombs into the Underground a mere two weeks after the first attack. As it happened, the bombs did no damage because

[9] For an application of this line of thought to the 1941 attack on Pearl Harbor in which almost every damaged or "destroyed" ship and aircraft was repaired or replaced in a matter of a few weeks, see Mueller 1995, ch. 7.

[10] Personal communication.

they were poorly constructed and did not actually explode, but this fortunate result, of course, stems entirely from terrorist incompetence, not from the protective measures.

As she concludes, this experience strongly suggests that the quest to make targets like that adequately secure is essentially hopeless. Protective measures may complicate the situation for the terrorist somewhat, but in many cases only marginally so. Thus it is difficult to see what value there is in extracting New York police officers from their duties to have them idle around at a sampling of the city's thousands of subway entrances watching vacantly as millions of people wearing backpacks or carrying parcels descend into the system throughout the city. Short of closing such potential targets down completely, their essential vulnerability will always remain, and we should be realistic about it.

Policy considerations: implications

Four policy conclusions or implications can be derived at least in part from these premises.

1. Any protective policy should be compared to a "null case": do nothing, and use the money saved to rebuild and to compensate any victims

Working from the premises outlined above, any policy that seeks to protect potential targets--to make them less vulnerable to terrorist attack--should routinely be compared in cost effectiveness to a null alternative. This would hold that, given the (exceedingly) low probability any individual target will be hit, given the ability of terrorists to redirect their focus from one of a huge number of potential targets to another, and given the often rather modest costs of rebuilding an attacked target, it is incumbent upon the policymaker to consider whether the proposed policy is more cost effective than refraining from spending anything at all on a particular target or set of targets and then using money saved to rebuild, to repair, and to compensate in the exceedingly unlikely event that an attack on the target actually happens to take place (de Rugy 2006; Mueller 2006, 147).[11]

Thus, Scott Hook assesses the full costs inflicted by, and stemming from, a terrorist attack on a major metropolitan area in Australia on the scale of the London bombings of 2005 (2008). He calculates that the costs would be about what Australia had spent over a few years on counter-terrorism and then concludes that this might be taken to suggest that Australia "does not appear to be spending too much on counter-terrorism." However, unless it can be shown that such an attack was essentially certain to be prevented by the measures, a question arises. Given the apparent low likelihood of a terrorist attack in Australia, and given the fact that an attack like the London bombings in almost impossible to protect against, would it not potentially be wise--that is, less expensive--for Australia to hang on to its counter-terrorism funds, expending them to rebuild and compensate in the unlikely event that a terrorist attack actually happened to take place there? The answer is not necessarily either affirmative or obvious, but the question should be asked.

2. Abandon, or at least greatly scale back, efforts to imagine a terrorist target list

Considerable effort has been made over the years by the Department of Homeland Security to imagine which targets terrorists might prefer to attack. By 2004, the agency had come up with 30,000, to the apparent dismay of the Department's Director at the time, Tom Ridge. Dismay was premature: within a year, the list had been expanded to 80,000 (Hall 2004). Although the list has remained secret, there have been a number of leaks indicating that miniature golf courses are included, as well as Weeki Wachee Springs, a roadside waterpark in Florida (Spicuzza 2005). This massive data base, noted the DHS Office of Inspector General in 2006, contains a "large number of out-of-place assets" whose "criticality is not

[11] For an otherwise impressive study where this is not done, see LaTourrette et al. 2006.

readily apparent." It supplies such examples as a Mule Day Parade, a casket company, a petting zoo, a flea market, a groundhog zoo, and some, but not all, Wal-Marts. Although there is a process by which "assets" of "extreme insignificance" can be removed from the list, most of the removals were because the assets "were determined not to exist." Only in "rare instances" were some eliminated because they were deemed to have "negligible value" (Office of Inspector General 2006, 9, 11, 13, 24).[12] More recently this list has been vastly expanded by incorporating other compilations, and it now reportedly runs into the hundreds of thousands, becoming in the process even more of an exercise in self-parody.

It is true that not every potential material terrorist target is equally valuable, equally vulnerable, or equally costly to protect or to repair or replace. And one might conceivably compile a *very* short list of targets that might enjoy special appeal to terrorists--the next section of this paper has some suggestions on this. However, because of the multiplicity of targets (especially if killing people is the terrorists' goal), because of the exceedingly low likelihood any particular target will be struck, and because of the semi-random and perhaps quite limited nature of the terrorism enterprise, the process of target identification can quickly become one of imaginative, and even obsessive, worst case scenario thinking. Moreover, as Frank Furedi notes,

> A vulnerability-led response to terrorism is likely to foster a climate that intensifies people's feeling of insecurity and fear. In turn, the search for vulnerabilities invariably leads to the discovery of weaknesses that have the potential to turn virtually any institution in any place into a terrorist target (2008, 651).

Partly in consequence, once a short list is established, the logic of protection becomes overtaken by the effusive, self-generating, and self-perpetuating reality of the porkbarrel. Because essentially anything can be a target, those seeking funds can easily imagine themselves on the list in a determined pursuit of shares of the largesse. Thus, Democratic Senator Pat Leahy of Vermont complained that the Bush Administration wanted "to shortchange rural states," even as Democratic Senator Hillary Clinton of New York faulted that same administration for the opposite perceived defect: "The reality is that they don't have a constituency in big cities."

Porkbarreleers from rural areas can (and indeed have) come up with observations like these:

! We realize North Dakota may not be first on Osama bin Laden's list. But we have some significant infrastructure, we have big buildings you can put a lot of people in at one time, we have the border.

! Yes, New York's more target rich. But there's been a lot of added security there. If you're a terrorist, you may say, Why waste your time in New York City when you can make a hell of mess in Maryland or Delaware or, God forbid, Portsmouth, New Hampshire?

! We have two major interstate highways, and a significant proportion of the traffic is hazardous materials. We have two major railroads. Also, Wyoming has major mining, major electrical generating plants and coal-bed methane. Any one of those becomes a vulnerability for a terrorist.

! We don't have crystal balls. We just believe that we're as important as anyone else.

! No one can say Caspar can't be a terrorist target.

! In an era of satellite television, attacking a rural target may actually instill more fear by

[12] The Department, however, maintains that the National Asset Database is an inventory of assets, from which the most critical can be drawn (Moteff 2007, 26).

delivering the message that no one is safe.

To which their big city counterparts energetically respond:

! Blowing off New York and L.A. so that you can make sure Wyoming is safe makes no sense.

! We have some cities in there that don't even have minor-league baseball teams.

! In a 2007 New York newspaper story entitled, "Waking Up to Terror: City Counterterror Chief Says Each Day He Expects Subway Attack Because Feds Fail to Protect Rails," said chief (who presumably is still awaiting the imminent attack even as he continues to count the days) observes that the Feds were spending $9 on security per airline passenger, but less that half a penny in each mass transit rider. "There is something wrong with this," he concluded. And then, grandly extrapolated from a single case, he asserted that "Terrorists are attacking the subway system worldwide."[13]

The quest after funds has also contested big cities against smaller ones. Tasked to amass a list of the cities most likely to be terrorist targets, thoughtful and presumably well-paid planners had by 2003 come up with a list of seven: New York, Washington, Chicago, San Francisco, Seattle, Houston, and Los Angeles. This exercise in metropolitan chauvinism, however, proved to be notably unpopular in places like, for example, Columbus, Ohio--not to mention Oklahoma City, kept off the list presumably because, although it suffered more deaths from terrorism than all but two of the cities on the list combined, it had been the target merely of a domestic terrorist. In response to the outrage, the list was quickly expanded to 30 and, by 2005, to 73 (including Oklahoma City).[14]

In the end, there is no plausible way this debate can be adjudicated. It is true that cities like New York, London, Madrid, and Washington have been attacked by terrorists in recent years, but so has remote Glasgow as well as resort areas in Egypt and Indonesia that are far from cities. And plotters and suspects apprehended within the United States have variously been accused of planning to inflict (or at least of vaguely thinking about inflicting) mayhem not only on the Brooklyn Bridge and on Kennedy Airport in New York, but on targets in such places as Baltimore, MD, Seattle, WA, Portland, OR, Detroit, MI, Boston, MA, Chicago, IL, Minneapolis, MN, Ft. Dix, NJ, Columbus, OH, Miami, FL, upstate New York, and Rockford and Peoria, IL (Emerson 2006, 120; Lawson 2008).

3. Consider the negative effects of protection measures: not only direct cost, but inconvenience, enhancement of fear, negative economic impacts, reduction of liberties

As terrorism inflicts not only direct, but indirect, costs, it is elemental that any sensible antiterrorism policy proposal must include a consideration of both the direct and indirect costs that might flow from the policy.

Clearly there are sizeable direct economic costs to seeking to protect the homeland. Some of these accrue in direct protective expenditures--for example, to deal with the extremely unlikely event of a direct replication of the anthrax attacks of 2001, the Post Office has spent some $1 billion for each fatality suffered in those attacks (Mueller 2006, 31). But they can also accrue in indirect ones such as deterring inconvenienced customers from entering protected shopping centers (LaTourrette et al. 2006).[15] In the

[13] New York newspaper: Eisenberg 2007 and Lipton 2006. Other quotes: Ripley 2004. On this issue, see also Lustick 2006.

[14] de Rugy 2005a, 26. 2005 city list: www.ojp.usdoj.gov/odp/docs/fy05hsgp.pdf

[15] After undergoing considerable pressure about shopping mall security, the International Council of Shopping Centers announced shortly after Christmas 2006 that it was instituting a program to train guards to help in the fight

case of many homeland security measures, however, such indirect costs appear frequently to have been ignored.

Sometimes security measures can even cost lives. Increased delays and added costs at airports due to new security procedures provide incentive for many short-haul passengers to drive to their destination rather than flying. Since driving is far riskier than air travel, the extra automobile traffic generated by increased airport security screening measures has been estimated to result in 400 or more extra road fatalities per year (Ellig et al. 2006, 35; Blalock et al. 2007). As noted earlier, this is greater that the number killed outside war zones by al-Qaeda and its associates since 9/11.

Protection policies may also undesirably enhance fear and anxiety, and this can have negative health consequences. Physician Marc Siegel discusses a study that found Israeli women fearful of terrorism "had twice as high a level of an enzyme that correlates with heart disease, compared with their less fearful compatriots" (2005, 4). A notable, if extreme, example of how severe such health effects can become has been documented in extensive studies of the Chernobyl nuclear disaster that occurred in the Soviet Union in 1986. It has been found that the largest health consequences came not from the accident itself (less than 50 people died directly from radiation exposure), but from the negative and often life-expectancy reducing impact on the mental health of people traumatized by relocation and by lingering, and what turned out to be massively exaggerated, fears that they would soon die of cancer. In the end, lifestyle afflictions like alcoholism, drug abuse, chronic anxiety, and fatalism posed a much greater threat to health, and essentially killed far more people, than exposure to Chernobyl's radiation (Finn 2005). The mental health impact of tragedies like 9/11 are of course unlikely to prove to be as extensive, but one study found that 17 percent of the American population outside of New York City was still reporting symptoms of September 11-related posttraumatic stress two months after the attacks (Silver et al. 2002). And a later study found that those fearful of terrorism after 9/11 were three to five times more likely than others to be diagnosed with new cardiovascular ailments over the next several years (Tierney 2008).[16]

It follows that protection and other policies that enhance fear unrealistically (as happened with Chernobyl in heavy measure) can have significant negative health consequences. Moreover, exercises in security theater can have counterproductive effects in the case of terrorism. One preliminary study finds that visible security elements like armed guards, high walls, and barbed wire made people feel less vulnerable to crime. However, when these same devices are instituted in the context of dealing with the threat of terrorism, their effect is to make people feel tense, suspicious, and fearful apparently because they implicitly suggest that the place under visible protection is potentially a terrorist target (Grosskopf 2006). In other words, the protective measures supplied exactly the negative emotional effect terrorists hope to induce themselves.

By the same token, security measures that do reduce fear may be beneficial. As Cass Sunstein puts it, "the reduction of even baseless fear is a social good" (2003, 132). This issue is assessed by Jeffrey

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against terrorism (Mui 2007). If the Council was more worried about terrorism than about deterring shoppers by bringing up the unpleasant subject of terrorism, it should logically have announced and carried out the program *before* the busy Christmas season. One might darkly, and no doubt quite unfairly, wonder about announcing it at a time of the year when there is some advantage in deterring customers, made up disproportionately by people returning and exchanging goods.

[16] See also Bourke 2005, 374-91; Mueller 2006, 148-59. Virtually any list of tips on how to live longer includes the admonition to "avoid stress." For a recent example, see Consumer Reports, March 2008, p. 6.

Rosen:

> The best argument for DHS is that the illusion of safety may itself provide tangible psychological and economic benefits: If people feel less afraid, they may be more likely to fly on planes. But even if conceived on these terms--as a more-than-$40-billion-dollar-a-year-pacifier--the department is hard to defend, since there's no good evidence that it has, in fact, calmed Americans down rather than making us more nervous (2008).

Indeed, for the most part warnings and directives from the Department tend to exacerbate fear. As Ian Lustick puts it, the government "can never make enough progress toward 'protecting America' to reassure Americans against the fears it is helping to stoke" (2006, 97). Thus, in 2008, then-Homeland Security Director proclaimed the "struggle" against terrorism to be a "significant existential" one (Harris and Taylor 2008). The process is encouraged, even impelled, because bureaucrats have an incentive to pass along vague and unconfirmed threats to protect themselves from later criticism should another attack take place. The result as Bart Kosko points out, is a situation in which "government plays safe by overestimating the terrorist threat, while the terrorists oblige by overestimating their power" (2004; see also Mueller 2006).

4. Consider the opportunity costs, the tradeoffs, of protection measures

Any sensible policy analysis must include a consideration of what else could have been done with the effort and money being expended on the policy proposed.[17]

The Department of Homeland Security may not know, as economist Becker admits, "a whole lot about the overall costs and benefits of homeland security," but one study has attempted to do shed some light on the issue. It assesses increased post-2001 federal homeland security expenditures, much of them devoted to protective measures. It then compares that to expected lives saved as a result of these increased expenditures. It concludes that some 4000 lives would have to saved per year saved to justify the increased expenditures, and that the cost per life saved ranges from $63 million to $630 million (or even more) per life saved, greatly in excess of the accepted regulatory safety goal of $7.5 million per life saved. Not only do these expenditures clearly and dramatically fail a cost-benefit analysis, but their opportunity cost, amounting to more than $31 billion per year, is considerable. It is highly likely that far more lives would have been saved if the money (or even a portion of it) had been invested instead in a wide range of more cost-effective risk mitigation programs. For example, an investment of $200,000 per year in smoke alarms will save one life, and similar examples can be found in other risk reduction measures or regulations (Stewart and Mueller 2009).

Any analysis that leaves out such considerations is profoundly faulty, even immoral.

Applications: situations in which protection is essentially futile

These considerations lead to a set of specific policy proposals about protection measures. One very large category includes situations in which protection is essentially a waste of resources and unlikely to be cost effective.

Atomic bomb attacks

Efforts to protect a potential target against an atomic bomb are very unlikely to be effective because of the bomb's destructive capacity and because an atomic terrorist can choose where to set the device off. Accordingly, policy in this area would sensibly focus on prevention and policing, and also

[17] For an extended and wide-ranging discussion of the issue of tradeoffs in such considerations, see Schneier 2003.

perhaps on mitigation efforts such as establishing evacuation routes to move people from contaminated areas and setting up and designating specific facilities to care for victims. Policy should also be concerned about preventing, or dealing with, panic.

Chemical, biological, and radiological attacks

The same generally holds for attacks by other "weapons of mass destruction." The chief victims in these cases would be people, not structures, and protection measures are unlikely to be feasible. Indeed, they are nearly impossible, and DHS's duct tape and plastic sheeting campaign of 2003 seems sensibly to have been abandoned (although the program's chief promoter was later himself promoted to become head of the Federal Emergency Management Administration).[18]

As with atomic attacks, policing and prevention efforts might be feasible including, perhaps, systematic efforts to reduce a terrorist's ability to obtain or steal dangerous materials. Planning for dealing with an attack after it has taken place, in an effort to minimize its consequences, may also be worthwhile. These would include efforts concerning sheltering and evacuation and other mitigation strategies and approaches. Establishing plans, procedures, and preparations to clean up after an attack also might make sense.[19]

As with many other homeland security issues, the installation of sensors to measure biological and radiological levels and therefore to detect attacks in their early stages could save lives, and this presumably can be accepted as a protection measure. But the displacement factor looms large here. If, say, Manhattan has sensors and if the terrorists know this, there is no gain to society if the attackers simply move over to Newark or Washington or Columbus.[20]

The actual damage inflicted by biological, radiological, and chemical attacks is likely in most (though not all) scenarios to be quite limited--indeed, their inclusion with nuclear bombs or devices into a category of weapons of "mass destruction" is quite questionable (Mueller 2006, 14-26). As many have warned, the chief negative impact of such attacks could come from panic by an ill-informed public. Panic, actually, is quite rare, but unnuaced warnings about chemical, biological, and "dirty bomb" attacks may be setting up a situation where the rare could become the norm (Rockwell 2003; Fischoff 2005; Ferguson and Potter 2005, 265-68). Concerns about political overreaction to such attacks are entirely justified and ought to be considered as well.

Small, essentially random conventional attacks

Far more probable than WMD attacks are small, isolated ones using such devices as conventional explosives, incendiaries, and guns. Applying the considerations laid out above, any efforts to protect people and structures from the effects of these are unlikely to be cost effective because of the multiplicity

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[18] There could be danger in some protective measures. Misused, gas masks can asphyxiate--something that reportedly happened in Israel in 1991 when that country became alarmed that the Scud missiles being launched at them by Saddam Hussein might contain gas.

[19] For an excellent discussion of this issue, see Eraker 2004. There ought, as well, to be discussions about applying the extremely conservative standards now in place for determining when an area has become "contaminated," especially with respect to radiological releases. To even discuss this problem, however, presents considerable political problems (Mueller forthcoming).

[20] Such an elemental consideration does not appear to be part of the decision process, judging from a Washington Post discussion of the issue: Hsu 2007.

and the essential vulnerability of targets, the ability of the terrorist to shift targets as needed, the capacity in many cases quickly to rebuild, and the inability to predict which targets are most appealing to terrorists.[21] If the terrorists' goal is to kill people more or less at random, lucrative targets are essentially everywhere. If their goal is to destroy property, protection measures may be able to deter or inconvenience or complicate, but only to the point where the terrorists seek out something comparable among a vast array of potential unprotected targets.

An important difference here is with protection against crime. Although many efforts designed to protect people from crime may well fail to be cost-effective, protection policy in this area at least has some hope of success because crime is vastly more common and, in particular, because it is comparatively easy to designate high crime areas and to ascertain what criminals are after: loot. Because of these circumstances, a fair amount of prediction is possible, and protective measures can often make a potential target less vulnerable to crime, in some cases even effectively invulnerable (though there would still be a displacement problem). Specifically, if there is nothing valuable at the target, or if any valuables there cannot be lifted at acceptable cost and risk, and if criminals know this, the target becomes distinctly (and predictably) unattractive to them. For example, an entire class of targets--municipal buses--were removed from the criminal target list when exact fare procedures were put into effect which meant that any significant amount of money on the bus was now encased in a hardened lock box rather than in a cash drawer used by the driver to make change.[22]

Terrorism, in contrast, is much more like vandalism than like crime. It comes close effectively (and seemingly) to being a random occurrence, and the potential targets of the perpetrators are exceedingly difficult to predict. In seeking to gull gullible locals to snap up state lottery tickets, the New York agency has come up with the (irrelevant, but quite possibly effective) slogan, "Hey, you never know." Something like that may hold for terrorism (Mueller 2006, 154; Sunstein 2003, 128). But, ultimately, one cannot readily become invulnerable to vandalism, though displacement may be possible in some cases.[23]

Unlike protection measures, policing efforts may be effective. Before an attack, standard policing methods of infiltration and surveillance may be able to uncover plots in preparatory stages. Since all, or nearly all, terrorist activities seem to require a conspiracy--that is, the participation of several people--the potential for leaks, for the detection of suspicious activity, and for the infiltration of informants is quite high. Policing can also be effective after an attack takes place. If it is not suicidal, one can seek to bring the attackers to justice--as in the case of the Madrid bombers. Even if it is suicidal, evidence from an attack, or attempted attack, can often aid police in tracing co-conspirators or key suppliers or instigators. Moreover, as with crime, repeated attacks, or attempted attacks, by a group are likely to establish patterns of operations that make them more predictable and, unless they give up the game early, they are likely to make mistakes which lead to their apprehension.

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[21] On the expensive efforts of Augusta, Georgia, to protect its fire hydrants from terrorist molestation, see Pein 2007. Savannah, presumably, is not amused.

[22] Crime deterrence due in considerable part to protective measures can reduce the value of crime to the point where it essentially doesn't pay economically, though there may be other reasons why criminals engage in the practice. See Mueller 1985.

[23] New York seems to have been able to get graffiti under control on the subways. However, this was accomplished not by making the subways invulnerable, but rather by continually cleaning the graffiti up, thus reducing the vandals' incentive to decorate.

Applications: situations where protection may potentially be effective

For a few sets of target, protection may make sense, particularly when protection is feasible for an entire class of potential targets and when the destruction of something in that target set would have quite large physical, economic, psychological, and/or political consequences.[24]

Nuclear plants and material

There are not a large number of nuclear plants, and an adept terrorist attack on them could potentially have devastating consequences. Consequently, they seem to be prime candidates for protection. However, the big ones, nuclear reactors, seem already to be quite secure--and, for a number of reasons, were so even before terrorism became much of an issue.

Chemical plants and material

There are a very large number of chemical plants, although mostly, like nuclear plants, they are placed away from population centers, a fact that may considerably reduce the urgency. It is possible to conjure damaging scenarios, but, except under the most severe circumstances such as the 1984 chemical release, apparently by sabotage, at Bhopal, India, any dispersion is likely to have rather limited physical consequences. Panic, however, could enhance the effect. The same holds for biological pathogens, although in the case, the chief fear is that terrorists will be able to make the pathogens themselves, not steal them.

Key infrastructure nodes

It would make sense to protect any specific infrastructure nodes whose destruction could cause widespread damage--for example, by putting a large area out of electricity for months.[25] It is not at all clear that any such nodes exist. However, if they do, it would probably be more efficient to expend effort to establish backup emergency redundancies rather than seeking to protect the nodes themselves. At any rate, investment in this area is worthwhile because if such nodes are susceptible to terrorist disruption, they probably are as well to more likely events like lightning, heavy winds, and other natural hazards or like human error or sabotage by a disgruntled employee. A similar conclusion might hold for some dams and for concentrations of chemicals and explosives.

Various DHS documents and Presidential and Congressional reports and directives focus on something called "critical infrastructure." Applying common sense English about what that phrase could be taken to mean, it should be an empty category. If any element in the infrastructure is truly "critical" to the operation of the country, steps should be taken immediately to provide redundancies or backup systems so that it is no longer so (see also Stewart 2009).

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[24] Protection of a potential terrorist target may also become advisable if the target is vulnerable as well to higher-probability hazards such as lightning, storms, earthquakes, and perhaps sabotage, and if the combined probability, with terrorism added, now becomes high enough to justify the costs of protection. In general, of course, quite apart from terrorism concerns, there would be value in any effort that, seeking to discover terrorism vulnerabilities, happens instead to uncover a significant and previously-unrecognized vulnerability to higher-probability hazards.

[25] Potentially relevant here is that Osama bin Laden may be something of a node fancier. In December 2001, as he was fleeing the American onslaught in Afghanistan, he somehow managed to imagine that United States was then "in retreat by the grace of God Almighty," and he called for "further blows" against it, including and in particular: "the young men need to seek out the nodes of the American economy and strike the enemy's nodes" (Hoffman 2006, 290). Thus far, however, America's nodes (and non-nodes, for that matter) remain unmolested by terrorists.

Major ports

There are only a few major ports in the United States, and the economy of the country depends heavily on them. Accordingly, protecting them against at least a major attack may be a useful effort. However, since redirection of shipping is fairly easy, if costly and inconvenient, the chief problem here comes, as Stephen Flynn points out, from overreaction: policy makers could probably not restrain themselves from closing all the ports down if one were hit, thus inflicting massive costs on the economy (2007, 35-36, 93). The sensible solution in this case, obviously, would be to have people in charge who are level-headed and not overburdened by CYA considerations. If it is true, however, that this is essentially impossible, protection of ports, however absurdly, may be the most cost-effective measure to take in this case.[26]

Symbolic targets

Protection measures may be justified for a small group of symbolic, even iconic, targets like the Capitol, the White House, the Statue of Liberty, the British Parliament buildings, the Sydney Opera House, the Eiffel Tower, the Washington Monument. In these cases, however, the main cost would be in embarrassment or in a painful loss of prestige because all (like the Pentagon after 9/11) could readily be repaired after an attack by a conventional explosive and because any loss of life might well be smaller than for terrorist explosions in places of congregation. Moreover, in all cases, any protective benefits should be balanced with a reasonable cost consideration--the prevention of embarrassment is not an infinite good. Given the low probability that even prime symbolic targets will be hit, limited protective measures might be all that is called for. Thus, huge amounts of money have been spent in an elaborate effort to make the Washington Monument secure when the considerable bulk of that benefit might have been achieved, perhaps, simply by hiring a few additional security guards.

Relatedly, there may be a small number of potential targets that are likely to appear so lucrative to terrorists that they would have difficulty restraining themselves if the targets were inadequately protected. One might be the person of the President of the United States, though, given assassination attempts in the past, protecting that person is unfortunately wise and necessary for quite a few reasons beyond the kind of terrorism that is of present concern.

Given the proclivities of some terrorists, Israel's El Al airline would seem to be an attractive, high visibility, rather trophy-like target, and so Israel's extraordinary efforts to screen passengers and baggage may make sense. On the other hand a very large number of potential Jewish targets--thousands of synagogues, for example--are highly visible and vulnerable (albeit not, perhaps, quite to the same degree

[26] Concerns about atomic terrorism have led to an obsession with port security assuming, apparently, 1) that after manufacturing their device at great expense and effort overseas, the terrorists would supply a return address and then entrust their precious product to the tender mercies of the commercial delivery system, and 2) that Randall Larsen is incorrect to conclude that "anyone smart enough to obtain a nuclear device will be smart enough to put half an inch of lead around it" (2007, 99). As a result, huge amounts of money have been expended to inspect and to install radiation detectors, a preoccupation that currently triggers 500 false alarms daily at the Los Angeles/Long Beach port alone generated by such substances as kitty litter and bananas (Fessler 2007). This obsession is impressive as well because there seems to be no evidence that any terrorist has indicated any interest in, or even much knowledge about, using transnational containers to transport much of anything (Shapiro 2007, 4, 15-16; see also de Rugy 2007). On the other hand, if officials really do believe an atomic bomb attack is so likely, one might expect that there would be more public information disseminated about what to do when it happens, particularly about what to do if radiation levels are significantly increased as a result of the explosion (or, for that matter, as a result of a "dirty bomb" attack). But thus far, there has been little of this (for an exception, see Perry et al. 2007).

as El Al), yet they seem to go substantially unmolested.

Application: the case of commercial passenger airliners

Finally, it may useful to apply some of this thinking to the case of protecting commercial airlines and their passengers in the United States. Protection may be feasible, or at least may seem to be so, because, although there are many airports in the country, their number is fairly tractable. There are some 27 major ones and a few thousand smaller ones, numbers that are vastly lower than, for example, the number of highway overpasses, fast-food restaurants, or places of congregation like stadiums, theaters, churches, and assembly halls.

The special impact of airliner destruction

Unlike the destruction of other modes of transportation, the downing of an airliner (or, especially, of two or three in succession) does seem to carry with it the special dangers of a widespread, lingering impact on the airline industry and on related ones such as tourism (Schneier 2003, 235-36). Three years after 9/11, domestic airline flights in the United States were still 7 percent below their pre-9/11 levels, and by the end of 2004 tourism even in distant Las Vegas had still not fully recovered.[27] One estimate suggests that the American economy lost 1.6 million jobs in 2001 alone, mostly in the tourism industry (Calbreath 2002). These numbers do not necessarily represent dead losses to the economy because much of that money may have simply have been spent elsewhere or else productively saved. However, they do suggest a very substantial disruption that unfairly affects a small number of industries, a disruption that was costly to all because it was felt necessary partly to mitigate the consequences by the infusion of tax money.

By contrast, if a bus or train is blown up, people still need to board them and will do so after a short period of wariness--as was found after the bombings in London and Madrid. To a considerable degree, people have a choice about whether to use commercial airliners, and many can turn to other modes of transport--or, often, simply not take the trip. Riders of subways, buses, and probably even ferries very often do not have the same luxury. Indeed, after 9/11 a bus was actually hijacked, an exercise that had little consequence for the bus industry. The 2005 bombings of the Underground and of a bus in London did have an effect on tourism there. However, that seems to have been comparatively transitory and would likely have been caused by *any* sufficiently impressive terrorist activity.

Similarly, if a building is destroyed, people still enter them: after 9/11 people soon returned to office buildings, even skyscrapers. Indeed, if the 9/11 attacks had been accomplished by explosives (as was attempted in 1993 with the World Trade Center or as was accomplished with the building-demolishing bombing in Oklahoma City in 1995), there would have been a vastly lower economic impact because few would have systematically avoided buildings, or even urban office buildings. Put another way, if Timothy McVeigh had used an airplane to destroy the Murrah Building in Oklahoma rather than explosives, the economic consequences would likely have been far greater, at least until the perpetrator was apprehended.

The events of September 11, 2001, suggest there can be another special cost in the case of airline terrorism. In fear of flying, many people canceled airline trips and consequently traveled more by automobile, and studies have concluded that more than 1000 people died in automobile accidents in 2001 alone between September 11 and the end of that year because of such evasive behavior (Sivak and

[27] Domestic flights: Financial Times, 14 September 2004, 8. Las Vegas: Clarke 2005, 63; some Las Vegas casinos report that their fourth-quarter earnings in the last quarter of 2001 were about one third of the year earlier.

Flannagan 2004; Blalock et al. forthcoming).

It probably mattered as well on 9/11 that the airplanes were commercial passenger airliners. If they had been private or cargo planes the effect on the airline industry (and on highway fatalities) would probably have been considerably less.

Can commercial passenger airplanes be protected?

A problem in these considerations, however, is that it is not clear that commercial passenger airplanes, as a class of targets, can actually be adequately protected except, maybe, at a spectacularly high cost. That is, in this case, protection may essentially not be possible--or feasible.

Although protective and screening measures can make the terrorists' task more difficult, it may be essentially impossible to do so adequately--at least against the intelligent, dedicated, and careful terrorist. Screeners at Newark Airport failed 20 of 22 undercover security tests conducted in one week in 2006, a phenomenon hardly unique in the annals of the Transportation Security Administration. "We can do better, and training is the path to improved performance," said the airport's federal security director as he hopefully characterized the process as one of "perpetual improvement" (Marsico 2006; see also Goldberg 2008). At present, the screeners can't really detect plastic explosives and disassembled bombs and weapons, and there are suggestions that a fairly impressive explosive can be made out of the battery in a laptop computer. There may be limits on chemicals, but several conspirators could meet after the screening to collate the substances they brought in in small bottles.

One could attempt to follow the methods the Israelis use with their airline, El Al (Ellig et al. 2006, 27-28). However, the economic cost to apply this approach in the American context would come to $79 billion per year, a figure eight times what DHS is currently spending on airline security and more than its total budget (Ellig et al. 2006, 30). Moreover, the El Al approach requires passengers to come to the airport several hours before the flight, a stricture that might all but destroy the American airline industry.

Are airplanes an attractive terrorist target?

In addition, airplanes may not actually be terribly attractive targets to terrorists. There have been remarkably few terrorist attacks on airplanes since 9/11 anywhere in the world, despite wide differences in security measures: in 2004 a couple of Russian airliners were exploded by suicidal Chechen female terrorists, but that seems to have been the extent of it. Indeed, Ian Lustick has suggested that, given how easy it seems to be at least for dedicated, risk-acceptant terrorists to blow up an airliner, "we must conclude that the absence of terrorist attacks or discovered attempts cannot be attributed to our counter-measures, but to the absence of terrorists in the U.S. trying to carry them out" (2007). Also relevant is the fact that, of the tens of billions of pieces of unscreened checked luggage transported on American carriers in the two decades after a bomb planted in a piece of checked luggage caused a PanAm jet to crash into Lockerbie, Scotland, in 1988, not a single one exploded to down an aircraft. Similarly, plots to down planes with liquid explosives were broken up in 1995 and 2006. That's not a high degree of frequency.

Some of this may derive from the fact that it is not necessarily so easy to blow up an airliner. Airplanes are designed to be resilient to shock, and attentive passengers and airline personnel complicate things further. Apparently, the explosion over Lockerbie was successful only because the suitcase bomb just happened to have been placed at the one place in the luggage compartment where it could do fatal damage. Screening and protection measures, then, may reduce the chances of a successful airplane downing by terrorists, but the probability of that happening is already so low that the gain may not be worth it.

Is the response to 9/11, like the event itself, an outlier?

Much of the concern about terrorists taking down an airliner extrapolates from the 9/11 experience which had, as noted, a crushing, if temporary, effect on airline passenger traffic. Particularly in the few years after 2001, it was commonly said that if terrorists were able now to down two or three more airliners, they would destroy the airline industry.

But, as the degree of destruction on 9/11 was unique in the history of terrorism, so, possibly, is the extent of the reaction. From time to time terrorists have been able to down airliners--the Lockerbie tragedy high among them--but the response by the flying public has not been nearly so extreme. After the two Russian airliners were blown up by Chechen terrorists, that airline industry seems to have continued without massive interruption.

However tragic in its own terms, the downing of additional American airliners may not prove to be nearly as consequential as sometimes envisioned--perhaps in part because 9/11 has established such a vivid, and high, benchmark.

Can the costs be reduced?

Even if it is concluded, after taking these considerations into account, that the protection of commercial passenger airliners is necessary, the process should still include sensible cost-benefit analyses in an effort to provide the best benefit at the lowest cost. Is there, in particular, any real need to have boosted expenditures and procedures beyond those already place on September 10, 2001--or even to have continued those? There clearly has been a demand for safety from the flying public, but not for specific measures such as vastly boosting the number of air marshals, forcing people to take off their shoes in security lines, or establishing a complicated no-fly list that generates enormous numbers of false positives.

Relaxing some measures. One might begin such a consideration by exploring areas in which protective measures might be relaxed with little or no likely effect on the essential security of airline passengers or on their willingness to fly.

Actually, there have already been some modest relaxations, ones that seem to have been sensible, to have reduced costs, and to have been accepted by the flying public--that is to say, they have not, it seems, led to a decline in airline passenger traffic. These include:

! Passengers are no longer required to undergo the unproductive, time-wasting process of answering questions about whether they packed their luggage themselves and have had their bags with them at all times. This exercise was instituted after the Lockerbie bombing of 1988, generating quite possibly the greatest amount of sustained mendacity in history, particularly among people who had checked luggage at hotels for a period of time before going to the airport.

! Beginning in late 2005, passengers were allowed to take short scissors and knives with them on planes, as these were deemed too inoffensive to pose much of a security risk. The measure was justified on the grounds that it productively freed screening personnel to concentrate on weaponry potentially more lethal. Perhaps that has been its consequence, although a spokeswoman for the Association of Flight Attendants did alarmingly warn of another one at the time: "When weapons are allowed back on board an aircraft, the pilots will be able to land the plane safely but the aisles will be running with blood" (Goo 2005).

! The inconvenient ritual of forcing passengers to remain in their seats during the last half-hour of flights to Washington's DCA airport has been eliminated.

! Considerations of permanently closing Washington's DCA airport, potentially a very costly venture, were abandoned.

! Harassment of automobiles picking up and dropping off passengers appears to have been relaxed some.

! Passengers are now usually required to show boarding passes only once to inspectors.

! Passengers no longer need to show their identification at the gate.

Further advances have been variously suggested. Pilots have wondered forcefully why they need to be screened for weapons since, once in the cockpit, they scarcely need weapons to crash the airplane should they take it into their mind to do so. The general requirement to screen crews at all has been questioned, particularly since ground crews and delivery personnel with equal or greater access to the plane are not screened at all (Smith 2007).

It is also often noted that passengers boarding planes at foreign locales, including at security-conscious Heathrow airport in London, are not required to remove their shoes--the procedure that seems most to slow down the security line--and there seems to be little evidence people are any more reluctant to board planes because of this.

There ought also to be some discussion of why airports are still on orange alert where they were placed after an airline bomb plot was rolled up in distant Britain in 2006. Since the additional security cost for being on orange rather than yellow alert for the Los Angeles airport alone apparently can run to $100,000 per day, this issue would seem to deserve some reflection (Goo 2004).

Abandoning efforts to prevent a replication of 9/11. Any effort designed solely to prevent a direct replication of the 9/11 attacks seems questionable. As pilot Patrick Smith puts it forcefully:

> To understand what makes these measures so absurd, we first need to revisit the morning of September 11th, and grasp exactly what it was the 19 hijackers so easily took advantage of. Conventional wisdom says the terrorists exploited a weakness in airport security by smuggling aboard box-cutters. What they actually exploited was a weakness in our mindset--a set of presumptions based on the decades-long track record of hijackings. In years past, a takeover meant hostage negotiations and standoffs; crews were trained in the concept of "passive resistance." All of that changed forever the instant American Airlines Flight 11 collided with the north tower. What weapons the 19 men possessed mattered little; the success of their plan relied fundamentally on the element of surprise. And in this respect, their scheme was all but guaranteed not to fail. For several reasons--particularly the awareness of passengers and crew--just the opposite is true today. Any hijacker would face a planeload of angry and frightened people ready to fight back. Say what you want of terrorists, they cannot afford to waste time and resources on schemes with a high probability of failure. And thus the September 11th template is all but useless to potential hijackers (Smith 2007; see also Schneier 2003, 123-24, 247-48; Mueller 2006, 4).

If the change of mindset, together with the installation of cabin door locks (an inexpensive, though possibly unnecessary additional measure), has made a direct replication of 9/11 essentially impossible, this means, as Smith continues, we are "wasting billions of taxpayer dollars and untold hours of labor in a delusional attempt to thwart an attack that has already happened."

More specifically, measures designed to intercept weapons that can puncture people (as opposed to fuselages) might be reexamined. As Smith notes, "a deadly sharp can be fashioned from virtually anything found on a plane, be it a broken wine bottle or a snapped-off length of plastic" (2007).

Consequently, expensive security measures that seek to keep weapons (as opposed to explosives) out of the passenger cabin might well be reexamined. In fact, if passengers had been allowed to bring weapons onto airplanes, 9/11 might never have happened because this would have massively complicated the plotters' plans. Even the explosives policy might be reconsidered. Current methodology cannot detect plastic explosives, a technology that is well-known and potentially lethal. Yet there has been no effort to blow up a plane with this readily-available material, and this suggests, at a minimum, that terrorists are certainly not trying very hard.

And then there are the air marshals (see also Stewart and Mueller 2008a, 2008b). Their chief, and apparently only, goal is to prevent a replication of 9/11, a problem that, as indicated, doesn't seem, actually, to exist. There were less than 50 of these bored, seat-occupying entities with high attrition rates before 9/11, but there are now thousands, and the program costs hundreds of millions of dollars per year (de Rugy 2005, 4). So far, their best known episode was to kill an apparently deranged and menacing, but innocent and unarmed, passenger during a Florida airport altercation in 2005 (Bovard 2005). In January 2008, Australia announced a considerable cutback in the number of its sky marshals (Maley 2009). If this change is accepted in stride by the Australians, maybe the same would result could be expected in the United States.

How much security theater is necessary?

It would be useful in such considerations fully to explore the degree to which security theater may or may not be needed. If there is a measure which makes passengers feel substantially safer, this would have to be considered as a benefit even if the measure itself does not actually enhance security at all (Mueller 2006, 157-59). However, quite a few security measures presumably carry little theatrical value: for example, air marshals are not supposed to be identifiable by passengers (or terrorists, of course), and so the absence, or presence, of such people on a flight does nothing to affect feelings of security. Crew screening probably has a similar non-effect.

But there should be studies to determine if other measures are equally useless from this perspective. As noted, the relaxation of the ban on short pointy objects does not seem to have enhanced fear or reduced passenger traffic. Would other such changes be acceptable? What would happen to fear levels and passenger traffic if security were severely reduced or ended all together?

What are the negative consequences of the security measures?

For a full cost-benefit analysis, one would also have to take into consideration not only the human costs where the decline in short haul air trips has apparently led to an increase in highway fatalities as discussed above, but also the economic costs of longer waits in airports. One economist calculates that strictures effectively requiring people to spend an additional half-hour in airports cost the economy $15 billion per year whereas, in comparison, total airline profits in the 1990s never exceeded $5.5 billion per year (Congleton 2002, 62).

What are the opportunity costs?

> Finally, a sensible analysis must of course include a consideration of the opportunity costs. Specifically, what is being foregone in order to shell out nearly $10 billion per year on airline security? Could the money be more effective--save far more lives--if it were used instead to enforce seat belt laws or install smoke alarms?

Conclusion

"In general," concludes security expert Bruce Schneier, "the costs of counterterrorism are simply too great for the security we're getting in return, and the risks don't warrant the extreme trade-offs we've

been asked to make" (2003, 249). This certainly seems to be the case for the often quixotic quest to make the country less vulnerable. Although there may be some areas in which the effort makes sense, most of it, on reasonably close examination, seems to have been a considerable waste. At the very least, it is surely time to subject these expenditures to systematic analysis.

The same can likely be said for some of the streams of homeland security spending only incidentally considered in this paper. For example. Jeffrey Goldberg (2008) suggests that much of the money spent on airline security "would be better spent on the penetration of al-Qaeda social networks," and Schneier concludes that "the place where we can get the most leverage for our terrorism dollars" is "working with overseas police to roll up terrorist financing through effective intelligence" (Rosen 2008; see also Mueller 2006, 183-85). Chasing after, and gaining intelligence on, terrorist networks, both at home and abroad, is certainly a desirable undertaking but, given what seems to be the limited capacities of the terrorists, even this process should be evaluated systematically. Huge amounts of money have been expending in the quest and, although there have been some impressive results in rolling up, or rolling over, various terrorist cells and groups, particularly overseas, there also seems to have been a great deal of wasted effort in the massive accumulation of information and data. A case in point: the New York police counterterrorism hot line generates thousands of calls each year--8,999 in 2006 and more than 13,473 in 2007--not one of which has led to a terrorism arrest (Neuman 2008).

Schneier also supports spending on "emergency response and disaster relief" (Rosen 2008). Stephen Flynn puts this somewhat more broadly, arguing that it is important for the society to become "resilient," arguing that "the more resilient we become as a society, the less consequential acts of terrorism become" (Rosen 2008; see also Mueller 2006, 147-48). The quest here is also laudable, but a reasonable discussion of how much money to spend on the process should accompany it. Moreover, as Furedi points out, the effort often seems to assume that, contrary to experience, "resilience is not a normal state but the outcome of policies and programmes dedicated to its realization" (2008, 648).

In all this, it may be too late for careful cost-benefit analyses because homeland security has become, in venerable Washington parlance, a self-licking ice cream cone. Like farm price supports, the "war" on drugs, and the Cold War quest to ferret out domestic Communists, it has become conventional, unacceptionable, and self-perpetuating. Despite the fact that terrorist damage worldwide outside war zones since 9/11 has been quite limited, there is a potential political price to pay for seeming to be critical of counterterrorism efforts: people in politics may have come to fear being accused of being soft on terrorism as much as they once feared being accused of being soft on Communism.[28] For their part, bureaucrats may be wary that Rosen may be on to something when he suggests that "we have come to believe that life is risk-free and that, if something bad happens, there must be a government official to blame" (2008).

In result, homeland security, and its attendant expenses, may be with us for a very long time, even it there are no more terrorist acts in the country to impel it along.

[28] For some discussion of the costs and benefits of domestic terrorism policing, comparing them to previous efforts to police domestic Communism, see Mueller 2007a. See also Mueller 2008.

REFERENCES

Abrahms, Max. 2006. Why Terrorism Does Not Work. International Security 31(2) Fall: 42-78.

----. 2008. What Terrorists Really Want: Terrorist Motives and Counterterrorism Strategy. International Security 32(4) Spring: 78-105.

Allison, Graham T. 2004. Nuclear Terrorism: The Ultimate Preventable Catastrophe. New York: Times Books.

Anderson, Troy. 2006. Terror May Be at Bay at Port; Shipping Hubs Too Vulnerable. The Daily News of Los Angeles 18 May: N1.

Bergen, Peter, and Paul Cruickshank. 2008. The Unraveling: The Jihadist Revolt Against Bin Laden. New Republic 11 June.

Blalock, Garrick, Vrinda Kadiyali, and Daniel H. Simon. 2007. The Impact of Post-9/11 Airport Security Measures on the Demand for Air Travel. Journal of Law and Economics 50(4) November: 731-55.

----. forthcoming. Driving Fatalities After 9/11: A Hidden Cost of Terrorism. Applied Economics.

Bourke, Joanna, 2005. Fear: A Cultural History. London: Virago.

Bovard, James. 2005. Dead Man Tells No Tales: Media Docility and Another No-Cost Federal Killing. reasononline.com 14 December. http://www.reason.com/news/show/33006.html

Calbreath, Dean. 2002. Attacks to Cost 1.6 Million Jobs. San Diego Union-Tribune 12 January: C-2.

Carle, Glenn L. 2008. Overstating Our Fears. Washington Post 13 July: B7.

Clarke, Richard A. 2005. Ten Years Later. Atlantic January/February: 61-77.

Congleton, Roger D. 2002. Terrorism, Interest-Group Politics, and Public Policy. Independent Review 7(1) Summer: 47-67.

de Rugy, Veronique. 2005. What Does Homeland Security Spending Buy? Working Paper #107. Washington, DC: American Enterprise Institute for Public Policy Research, 1 April.

----. 2006. The Case for Doing Nothing. Cato Unbound 28 September. www.cato-unbound.org/2006/09/28/veronique-de-rugy/the-case-for-doing-nothing/

----. 2007. Is Port Security Funding Making Us Safer? Audit of the Conventional Wisdom (Center for International Studies, MIT) November.

Eisenberg, Carol. 2007. Waking Up to Terror: City Counterterror Chief Says Each Day He Expects Subway Attack Because Feds Fail to Protect Rails. Newsday 7 March.

Ellig, Jerry, Amos Guiora, and Kyle McKenzie. 2006. A Framework for Evaluating Counterterrorism Regulations. Washington, DC: Mercatus Center, George Mason University.

Emerson, Steve. 2006. Jihad Incorporated: A Guide to Islam in the US. Amherst, NY: Prometheus Books.

Eraker, Elizabeth. 2004. Cleanup After a Radiological Attack: U.S. Prepares Guidance. Nonproliferation Review 11(3) Fall/Winter: 167-85.

Ervin, Clark Kent. 2006. Open Target: Where America is Vulnerable to Attack. New York: Palgrave Macmillan.

Ferguson, Charles D., and William C. Potter. 2005. The Four Faces of Nuclear Terrorism: Threats and Responses. New York: Routledge.

Fessler, Pam. 2007. Auditors, DHS Disagree on Radiation Detectors. Morning Edition, National Public Radio, 19 September.

Finn, Peter. 2005. Chernobyl's Harm Was Far Less Than Predicted, U.N. Report Says. Washington Post 6 September: A22.

Fischoff, Baruch. 2005. A Hero in Every Seat. New York Times 7 August: 4-13.

Flynn, Stephen. 2007. The Edge of Disaster. New York: Random House.

Furedi, Frank. 2008. Fear and Security: A Vulnerability-Led Policy Response. Social Policy and Administration 42(6) December: 645-61.

Gerges, Fawaz. 2005. The Far Enemy: Why Jihad Went Global. New York: Cambridge University Press.

----. 2008a. Taking On Al-Qaeda. Washington Post 17 June: C8.

----. 2008b. Word on the Street. Democracyjournal.org (Summer): 69-76.

Gertz, Bill. 2002. 5,000 in U.S. Suspected of Ties to al Qaeda; Groups Nationwide Under Surveillance. Washington Times 11 July: A1.

Goldberg, Jeffrey. 2008. The Things He Carried. Atlantic December.
Goo, Sara Kehaulani. 2004. Going the Extra Mile. Washington Post 9 April: E1.
----. 2005. TSA Would Allow Sharp Objects on Airliners. Washington Post 30 November: A1.
Grosskopf, Kevin R. 2006. Evaluating the Societal Response to Antiterrorism Measures. Journal of Homeland Security and Emergency Management 3(2).
Hall, Mimi. 2004. Terror Security List Way Behind. USA Today 9 December: 1A.
Harris, Shane, and Stuart Taylor Jr. 2008. Homeland Security Chief Looks Back, and Forward. governmentexecutive.com 17 March. www.govexec.com/story_page_pf.cfm?articleid=39539
Hobijn, Bart, and Erick Sager. 2007. What Has Homeland Security Cost? An Assessment: 2001-2005. Current Issues in Economics and Finance (Federal Reserve Bank of New York) 13(2): 1-7.
Hoffman, Bruce. 2006. Inside Terrorism. Revised and expanded. New York: Columbia University Press.
Hook, Scott. 2008. Assessing Expenditures in Individual Agencies: The Case of the Australian Federal Police. In Risky Business: Measuring the Costs and Benefits of Counter-Terrorism Spending, ed. Carl Ungerer, Henry Ergas, Scott Hook and Mark Stewart. Australian Strategic Policy Institute, 13-18.
Hsu, Spencer S. 2008. New York Presses to Deploy More Bioweapons Sensors. Washington Post 9 January: A3.
Isikoff, Michael, and Mark Hosenball. 2007. The Flip Side of the NIE, 15 August. www.newsweek.com/id/32962
Keeley, Lawrence H. 1996. War Before Civilization: The Myth of the Peaceful Savage. New York: Oxford University Press.
Kosko, Bart. 2004. Terror Threat May Be Mostly a Big Bluff. Los Angeles Times 13 September: B11.
Kunreuther, Howard. 2002. Risk Analysis and Risk Management in an Uncertain World. Risk Analysis 22(4) August: 655-64.
LaTourrette, Tom, David R. Howell, David E. Mosher, and John MacDonald. 2006. Reducing Terrorism Risk at Shopping Centers: An Analysis of Potential Security Options. Santa Monica, CA: RAND Corporation, Technical Report.
Lawson, Guy. 2008. The Fear Factory. Rolling Stone 7 February: 60-65.
Lipton, Eric. 2006. U.S. Can't Protect All Targets, Chertoff Says. New York Times 13 September.
Lustick, Ian S. 2006. Trapped in the War on Terror. Philadelphia, PA: University of Pennsylvania Press.
----. 2007. Airport "Counter-Terrorism" Measures. www.trappedinthewaronterror.com/blog 21 February.
Mack, Andrew. 2008. Dying to Lose: Explaining the Decline in Global Terrorism. In Human Security Brief 2007. Vancouver, BC: Human Security Report Project, School for International Studies, Simon Fraser University, 8-21.
Maley, Paul. 2008. Overhaul Cuts Sky Marshals by a Third. Australian News 23 January.
Marisco, Ron. 2006. Screeners at Newark Fail to Find 'Weapons': Agents Got 20 or 22 'Devices' Past Staff. Newark Star-Ledger 27 October.
Moteff, John D. 2007. Critical Infrastructures: Background, Policy, and Implementation. 13 March. Washington, DC: CRS Report for Congress, Congressional Research Service, RL30153.
Mueller, John. 1985. Crime is Caused by the Young and Restless. Wall Street Journal 6 March: 34.
----. 1995. Quiet Cataclysm: Reflections on the Recent Transformation of World Politics. New York: HarperCollins. Available at http://polisci.osu.edu/faculty/jmueller/links.htm.
----. 2006. Overblown: How Politicians and the Terrorism Industry Inflate National Security Threats, and Why We Believe Them. New York: Free Press.
----. 2007a. Extrapolations from a Book About Nothing. In Cultural Politics and the Politics of Culture: Essays to Honor Alexander Stephan, ed. Helen Fehervary and Bernd Fischer. Bern: Peter Lang, 39-45.
----. 2007b. Reacting to Terrorism: Probabilities, Consequences, and the Persistence of Fear. Paper Presented at the Annual Convention of the International Studies Association. Chicago, IL, 28 February. Available at http://polisci.osu.edu/faculty/jmueller/links
----. 2008. Terrorphobia: Our False Sense of Insecurity. American Interest May/June: 6-13.
----. forthcoming. Atomic Obsession: Nuclear Alarmism from Hiroshima to Al Qaeda. New York: Oxford University Press.
Mui, Ylan Q. 2007. From Monitoring Teens to Minding Terrorists: Mall Security Guards to Receive New Training, but Feasibility Is Questioned. Washington Post 3 January: D1.
Neuman, William, 2008. In Response to M.T.A.'s 'Say Something' Ads, a Glimpse of Modern Fears. New York

Times 7 January: B1.
Office of Inspector General. 2006. Progress in Developing the National Asset Database. Washington, DC: Department of Homeland Security, OIG-06-40, June.
Pein, Corey. 2007. Bin Laden's Next Target? Augusta is Spending Millions to Guard Its Fire Hydrants from Terrorists. Whatever It Takes to Protect Our Precious Bodily Fluids. Metro Spirit (Augusta, Georgia) 23-29 May. http://www.metrospirit.com/index.php?cat=1211101074307265&ShowArticle_ID=11012205072612553
Perry, William J., Ashton B. Carter, and Michael M. May. 2007. After the Bomb. New York Times 12 June.
Powell, Robert. 2007. Defending Against Terrorist Attacks with Limited Resources. American Political Science Review 101(3) August: 527-41.
Ripley, Amanda. 2004. How Safe Are We? The Fortification of Wyoming, and Other Strange Tales from the New Front Line. Time 29 March.
Rockwell, Theodore. 2003. Radiation Chicken Little. Washington Post 16 September: A19.
Rosen, Jeffrey. 2008. Man-Made Disaster. New Republic 24 December.
Ross, Brian. 2005. Secret FBI Report Questions Al Qaeda Capabilities: No 'True' Al Qaeda Sleeper Agents Have Been Found in U.S. ABC News 9 March. http://abcnews.go.com/WNT/Investigation/story?id=566425&page=1
Sageman, Marc. 2008. Leaderless Jihad. Philadelphia: University of Pennsylvania Press.
Schneier, Bruce. 2003. Beyond Fear: Thinking Sensibly About Security in an Uncertain World. New York: Copernicus.
Shapiro, Jeremy. 2007. Managing Homeland Security: Develop a Threat-Based Strategy. Washington, DC: Brookings Institution, Opportunity 08 paper.
Siegel, Marc. 2005. False Alarm: The Truth About the Epidemic of Fear. New York: Wiley.
Silver, Roxane Cohen, E. Alison Holman, Daniel N McIntosh, Michael Poulin, and Virginia Gil-Rivas. 2002. Nationwide Longitudinal Study of Psychological Responses to September 11. JAMA 288(10) September: 1235-44.
Sivak, Michael, and Michael J. Flannagan. 2004. Consequences for Road Traffic Fatalities of the Reduction in Flying Following September 11, 2001. Transportation Research Part F: 301-05.
Smith, Patrick. 2007. The Airport Security Follies. nytimes.com 28 December. jetlagged.blogs.nytimes.com/author/psmith/2007/12/28/
Spicuzza, Mary. 2005. Weeki Wachee Mermaids in Terrorists' Cross Hairs? St. Petersburg Times 22 April.
Stewart, Mark G. 2009. Risk and Cost-Benefit Assessment of Counter-Terrorism Protective Measures to Infrastructure. Newcastle, Australia: Research Report No. 272.01.2009, Centre for Infrastructure Performance and Reliability, University of Newcastle.
Stewart, Mark G., and John Mueller. 2008a. A Risk and Cost-Benefit Assessment of United States Aviation Security Measures. Journal of Transportation Security 1: 143-59.
----. 2008b. A Risk and Cost-Benefit Assessment of Australian Aviation Security Measures. Security Challenges 4(3) Spring: 45-61.
----. 2009. Cost-Benefit Assessment of United States Homeland Security Spending. Newcastle, Australia: Research Report No. 273.01.2009, Centre for Infrastructure Performance and Reliability, University of Newcastle.
Stratfor. 2007. U.S. Shopping Malls: Unlikely al Qaeda Targets. Stratfor, 9 November.
Sunstein, Cass R. 2003. Terrorism and Probability Neglect. Journal of Risk and Uncertainty 26(2/3) March-May: 121-36.
Thomson, James A. 2007. DHS AWOL? Tough Questions About Homeland Security Have Gone Missing. RAND Review Spring: 30.
Tierney, John. 2008. Living in Fear and Paying a High Cost in Heart Risk. New York Times 15 January.
Warrick, Joby. 2008. U.S. Cites Big Gains Against Al-Qaeda. Washington Post 30 May: A1.
Wright, Lawrence. 2008. The Rebellion Within. New Yorker 2 June.