Money can't buy zero risk

Mark Stewart and **John Mueller** examine the value of homeland security spending

In the aftermath of 9/11, security concerns have trumped economics. Photo: PETER MORGAN, REUTERS

In the nearly 10 years since 9/11 a lot of money has been spent in America — and elsewhere — on reducing the risk of another major terrorist attack. But what has all that spending achieved, could it have been used more effectively and would the money have saved more lives if it had been spent on something else? These are tough questions to ask and no one wants to take anything away from the awfulness of what happened or the tragedy of lives lost on that terrible day. But at some point someone needs to make a — not to put it crudely — cost benefit study of counter terrorism spending. The key question is: are the gains in security worth the funds expended? That's the question we've tried to answer.

As we approach the 10th anniversary of 9/11, United States government expenditures on domestic homeland security have risen by $580 billion over those in place in 2001. When we add in private sector costs and opportunity costs of delays and inconveniences associated with enhanced security regulations — but leaving out the costs of the terrorism-related wars in Iraq and Afghanistan — the increase in expenditures on domestic homeland security in the US in the decade exceeds one-trillion dollars.

Australia has also dramatically increased its homeland security expenditures to over $8 billion in total, yet this expenditure, expressed in relation either to GDP or to population size, is less than a quarter of what the US spends.

In the US the Department of Homeland Security (DHS) focuses all or almost all of its analyses on contemplation of the consequences of a terrorist attack while substantially, and surprisingly, ignoring the equally important probability-component of risk assessment as well as the key issue of risk reduction. Overall, it seems, security concerns that happen to rise to the top of the agenda are serviced without much in the way of full evaluation — security trumps economics, as one insider puts it — and such key issues as acceptable risk are rarely discussed while extravagant worst case scenario thinking dominates, and frequently savagely distorts, the discussion. A recent study of decision-making at DHS by the National Academy of Sciences concludes essentially that DHS doesn't know what it is doing, having "paid little effective attention" to "features of the risk problem that are fundamental".

It is clearly time to examine massive security expenditures in a careful and systematic way, applying approaches routinely required of other governmental agencies and standard coin for policy decision-making for decades throughout the world when determining regulations even in such highly charged and politicised decisions as those regarding where to situate nuclear power plants, how to dispose of toxic waste, and how to control pollution. A conventional approach compares the cost of security measures with the benefits as tallied in lives saved and damages averted. A security measure is cost-effective when the benefit of the measure outweighs the costs of providing it. *The benefit of a security measure = (probability of a successful attack) × (losses sustained in the successful attack) × (reduction in risk).* The "probability of a successful attack" is the likelihood a successful terrorist attack will take place if no new security measures are put in place, and "reduction in risk" is the effectiveness of the new measures to foil, deter, disrupt, or protect against a terrorist attack. The same equation can be used to calculate how many attacks will have to take place to justify the expenditure.

Police and domestic intelligence agencies have long had in place procedures, techniques, trained personnel, and action plans to deal with bombs and shootings and those who plot them. In addition the tragic events of 9/11 massively heightened the awareness of the public to the threat of terrorism, resulting in extra vigilance that has often resulted in the arrest of terrorists or the foiling of terrorist attempts including ones to blow up airliners in 2001 and 2009. Importantly, the risk reduction resulting from extra vigilance comes at no cost to the taxpayer.

In our analysis we assume that risk reduction caused by the security measures in place before 9/11 and by the extra vigilance of the public after that event reduced risk by 50 per cent. This is an exceedingly conservative estimate because security measures that are at once effective and relatively inexpensive are generally the first to be implemented. In addition, we assume the increase in US expenditures on homeland security since 2001 has been dramatically effective, reducing the remaining risk by an additional 45 per cent. Total risk reduction, then is generously assumed to be 95 per cent. We include in our cost measure only enhanced local, state, and federal security expenditures since 9/11 — totalling $75 billion a year — leaving out many other expenditures including those incurred by the private sector, opportunity costs, and costs of the terror-related wars in Iraq and Afghanistan.

In 2010 vigilant street vendors in New York largely averted a terrorism attack in Times Square. Had the bomber been successful he might have caused a dozen fatalities with loss of life and property damage worth $US100 million.

We applied this successfully foiled attack to our cost effectiveness equation.

The result was that for the counter terrorism spending since 9/11 to be fully justified, homeland security would have had to deter, prevent, foil or protect against 1667 Times Square style attacks a year, or more than four a day.

The 2005 attacks on underground trains and a bus in London that killed 52 people and injured many hundreds of commuters and passers by can be evaluated in a similar way. The losses from attacks like this would not exceed $5 billion. For enhanced security measures to be cost-effective for attacks of that magnitude, their rate of occurrence without those enhanced measures would have had to exceed 30 a year. If we posit that such an attack is thwarted once a year, a conservative threat likelihood by any measure, the ratio of benefit to cost is a meagre 0.03 meaning that spending $1 buys only 3¢ of benefits.

For a terrorist attack, or set of attacks, that, like those of September 11, 2001, caused $200 billion of destruction (something that has only occurred once in all of history), enhanced expenditures would be cost-effective only if that sort of attack would have occurred more than once a year without them. Moreover, it is not clear that other 9/11-like attacks would trigger the extreme economic reaction engendered by the original intensely shocking event.

We are not saying that homeland security spending is wasteful because we believe there will be no more terrorist attacks. Like crime and vandalism, terrorism will always be a feature of life, and a condition of zero vulnerability is impossible to achieve. However, future attacks might not be as devastating as 9/11, as evidenced by the attacks on Western targets in the ten years since 9/11 that, although tragic, have each claimed victims numbering in the tens to a few hundred.

The frequency and severity of terrorist attacks are low, very low in fact, which makes the benefits of enhanced counter terrorism expenditures of a trillion dollars since 9/11 challenging, to say the least, to justify by any rational and accepted standard of cost-benefit analysis.

However, there are specific measures that are cost effective. We find that hardening cockpit doors on aircraft is, but air marshals decidedly are not.

Although there are emotional and political pressures on the terrorism issue, this does not relieve politicians and bureaucrats of the fundamental responsibility of informing the public of the limited risk that terrorism presents and of seeking to expend funds wisely.

Instead of saving lives, extravagant homeland security spending is, in a sense, costing lives. In the past month over 320 people have been killed by tornadoes in the US. Yet there are studies that show $200 million spent subsidising the purchase of tornado shelters for mobile home owners would save 30 lives during the life of the shelters. These are guaranteed lives saved for a modest government investment. There are other examples ranging from air bags to smoke alarms to pharmaceuticals known to save many lives. Diverting even a small proportion of homeland security spending to such measures could save many at a fraction of the cost.

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The above essay is drawn from the authors' paper *Terror, Security, and Money: Balancing the Risks, Benefits, and Costs of Homeland Security* presented at the annual convention of the Midwest Political Science Association in Chicago, see http://polisci.osu.edu/faculty/jmueller/ A book of the same title will be published by Oxford University Press in October 2011.