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Citation

Knowledge@SMU. The Impact of Terrorism on Economic Growth and Technology Innovation. (2008).
Available at: <https://ink.library.smu.edu.sg/ksmu/237>

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The Impact of Terrorism on Economic Growth and Technology Innovation

Published: February 04, 2008 in Knowledge@SMU

A large scale terrorist attack on a country can have wide-ranging and long-lasting effects at all levels. In the case of 9/11, nearly the entire world was impacted to some degree. Singapore Management University economics professor Winston Koh served as guest editor for a special issue of *Technological Forecasting & Social Change* published by Elsevier.

Comprising six articles by researchers from Argonne Laboratory, American Council of the UN University, Naval Postgraduate School, Georgia Institute of Technology, Chung Wah University, Taiwan, University of Washington, and Singapore Management University, the collection offers cross-disciplinary insights into the impacts of terrorism. A key question addressed in this special issue is the role of science and technology in helping to mitigate and defeat terrorism. In his own article, "Terrorism and its impact on economic growth and technological innovation", Koh examined how terrorism affects macro-economic growth, and the current and future allocation of resources to research and development (R&D) in counter-terrorism and intelligence gathering technologies.

Koh spoke to Knowledge@SMU about some of the economic and technological impacts of terrorism in the US and beyond, and how businesses can become more resilient and better prepared for such threats.

Knowledge@SMU: You have focused on the impacts of terrorism on economic growth and technological innovation in the US and Europe. Do you think the impacts on Asian countries would be similar?

Koh: In the case of the US and Europe, the amount of resources devoted to R&D is a lot more than in developing countries. In the west, given a fixed pool of resources, some of it will be channeled into certain types of R&D to counter terrorism. People have talked about detection, inspection and so on. In developing countries, I think the situation is more to do with the fact that if they don't make a country safe for investors, then they are going to see some of the international investors less willing to invest in that country. That is the reason why the Singapore government is serious about making sure that the country is safe. There are patrols in the airports and the MRT (mass rapid transit) and, basically, all infrastructure is given special attention. The intention is to tell investors not to worry. I think in the aftermath of 9/11, many multinational companies do assess the different regions to see how safe they are from terrorist threats. In places such as Indonesia, which is a prime target for terrorism, there have been several terrorist incidents in Jakarta and Bali. So, if they don't put in resources to counter terrorism, you will definitely see some impact on their economy.

Knowledge@SMU: In your article, you mentioned there was a concern that increased government spending on defense and security may "crowd out more economically productive investments and funding for R&D research". How can governments better balance the resources between the need for security and economic growth?

Koh: It's a tough question. Take for example the US. It's one of the countries where I've seen an actual shift of resources. They see that there is a terrorist threat and they want to be one step ahead of the terrorists. What they have done is to accelerate a lot of R&D programmes in this area. For the US, the impact on growth is minimal, at least in the short-term. In the long-term, if too many resources are diverted to these R&D programmes that focus on homeland security, it will probably impact innovations in areas that will benefit the economy.

Knowledge@SMU: Since the US government is focusing on security, is that a growth driver for the private sector to generate the technologies and innovations that the government wants?

Koh: I think you will see part of the R&D community benefiting and certain sectors accelerating. But the question is whether the areas benefiting from this shift are necessarily the ones that bring about the most growth potential for the economy in the long term. In the short term they will benefit. Imagine a situation where you continue to devote resources to this area and the return is only 5%, but if you have invested in other areas the return would be 10%. Over time, that will be quite significant.

Knowledge@SMU: But could the opposite happen where these sectors possibly generate good economic returns?

Koh: It could, provided that the innovations have a worldwide market. It's very hard to say. For countries like Singapore, the best thing is not to devote those resources but tap on whatever other countries are doing. Because we're so small, our resources are probably not going to generate that kind of return. You might as well focus on things that benefit the economy in a big way, such as biotechnology and other fields in which Singapore can probably do well. If you talk about the US, they have so many agencies which have huge amounts of resources to invest. Even European countries are not allocating as much as the US does.

Knowledge@SMU: You were in the private sector when 9/11 took place. Did you see companies taking extra precautionary measures overnight?

Koh: I was in the banking sector at that time. One of the things that banks do is to put in place business continuity plans. They make sure that if any part of the business is hit, there will be a backup. In the aftermath of 9/11, a lot of banks operating in New York secured alternative sites and had their computer systems all backed up. It's something they have done all the time, but 9/11 just heightened the sense that the terrorist threat is real and that if they want to be resilient they need to think about where they want to operate. Some businesses even think they should move to somewhere further away from the target. All these were in the immediate aftermath but, after a few years, many thought that the risk was manageable and have moved back to New York.

Knowledge@SMU: In your opinion, how can businesses be more resilient against the effects of terrorism?

Koh: The best way is not to put all your eggs in one basket and to diversify your sources of supply. Don't rely on just one particular region or country, so that if one region or country is affected you still have alternative sources of supply. Of course, in terms of making sure that your operations have all the risk management aspects taken care of -- for instance, operational risks -- don't concentrate all your manufacturing in one area but have certain alternative sites. If one area is hit for whatever reason, you can continue operating as normal. I think a lot of people have become more aware about the need for alternative operational sites.


Knowledge@SMU: Would the measures that companies need to take in the US be different from Asia?


Koh: Generally for business continuity it's probably the same. I think in US the stakes are lot higher so people put a lot more money into it. In Asia, I think less so unless you're a multinational company.

Knowledge@SMU: Any additional thoughts since your article was first published?

Koh: What I feel is that people are a lot more aware of the avenues that terrorists use to push forward their agenda. It's no longer just weapons of mass destructions, but they have also tried to disrupt economies through other means such as cyber-crime, money laundering to fund their activities, and infiltrating local communities. So it's no longer the case of planting their own agents to push their agenda forward, but they infiltrate and recruit from the local communities and then turn them against the government. Many recent terrorist incidents involved local residents as in the case of the UK.

In a few years' time, we can look back and see if R&D returns and economic growth in the US have been affected in any way. I think there is some relationship between what is happening now in the US and 9/11. Following 9/11, there was a global recession because supply chains were disrupted and trade was affected. How did the US move its way out? The Federal Reserve lowered interest rates. From 2001 to 2005, the interest rate was very low which was partly responsible for the consumer boom. In terms of the property boom, there was a lot of easy money to be had. If you look at the sub-prime crisis, it partly had its origin in the aftermath of 9/11 where interest rates were lowered to booster the US economy. So we are seeing some of the effects of 9/11 today.

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