

## **“The Economic, Health, and Political Consequences of Japan’s Earthquake”**

### **Event Summary**

On March 22, 2011, the Center on Japanese Economy and Business (CJEB) at Columbia Business School hosted a panel to discuss the health, economic, and political consequences of Japan’s March 11, 2011 Tohoku earthquake, which generated a destructive tsunami and damaged the Fukushima Daiichi nuclear power plant. The panel featured David J. Brenner, Higgins Professor of Radiation Biophysics at the College of Physicians & Surgeons of Columbia University; Gerald L. Curtis, Burgess Professor of Political Science at Columbia University; and David E. Weinstein, Carl S. Shoup Professor of the Japanese Economy at Columbia University and Associate Director for Research at CJEB.

Professor Weinstein introduced the panel by acknowledging the tremendous tragedy of the Tohoku earthquake and tsunami. He described arranging this panel just a few days before, determined to do his part to improve public understanding of the events unfolding in the region and to uncover reasons for optimism and inspiration.

Professor Brenner began the presentations by addressing and clarifying many of the concerns regarding the local and global health impact of nuclear radiation from Fukushima. Once the earthquake hit, nuclear reactors were shut down as per protocol. However, the Fukushima Daiichi reactor generated an enormous amount of heat in its core, and when the water pumps stopped functioning, workers were not able to manually pump enough water into the core to prevent overheating. At the time of this event, these workers, dubbed the “Fukushima 50,” were still working to pump water into the reactor at great risk.

Regarding the primary risk concerns, Brenner asserted that a distinction must be made between the average population and the Fukushima 50. In the best case scenario, there will be no widespread radiation sickness, and the cancer risk will increase by less than 0.01% for 100,000 people. In the worst case scenario, the offshore winds will change direction and blow radioactive material over the region, increasing the cancer risk by less than 0.05% for 500,000 people. Given the average person’s lifetime cancer risk of 44%, this would increase one’s cancer risk to 44.01-44.05%. However, it is a much different story for the workers in the plant; it is very likely that there will be some fatalities within a few weeks.

Brenner shared his belief that the dispersion of radioiodine (I-131) is the primary concern, but this threat should diminish after a few months because of its 8-day physical half-life and 3-month biological half-life. The main method in which it would be transferred is through milk, so the best

way to avoid it is simply to avoid drinking milk from the region. The other radioactive material, caesium (Cs-137), is less likely to enter the food supply, but would last longer if it does, requiring future monitoring.

Lastly, Brenner assured the audience that the United States is safe from radiation risks since it is inconceivable for any radioactive material to cross the Pacific Ocean and not be dispersed to negligible levels. However, the United States has 23 reactors of similar age and design to Fukushima Daiichi. Thus, the United States must ensure that adequate precautions are taken at these plants to reduce domestic risks.

Professor Weinstein then discussed the economic consequences of the earthquake, noting that Japan's economic geography has always been largely determined by its physical geography. Since the Tohoku earthquake largely impacted rural areas, Weinstein hypothesized that it would likely have a smaller economic impact than the weaker 1995 Hanshin earthquake which hit more densely populated areas. Furthermore, while the number of total dead and/or missing was significantly higher following the Tohoku earthquake, largely due to the tsunami, the total collapsed buildings were much fewer than in Hanshin. Weinstein explained that after the Hanshin earthquake, Japan's industrial production dropped 2.6% in the first month, but bounced back 2.2% and 1.0% over the following two months. It was almost impossible to detect an impact on Japan's overall annual GDP growth. Using Hanshin as a case study, Weinstein believes that regions affected by the Tohoku earthquake will bounce back, and a collapse of the Japanese economy will not occur.

Weinstein further explained that a major reason why natural disasters tend to leave a small long-term impact on affected countries is because of the trade-off between the negative effect on supply (i.e. destruction in capital) and the positive effect on demand (i.e. 120,000 households needing to rebuild, thereby increasing demand for government infrastructure). Moreover, since Japan's capital utilization rates were already low, Weinstein anticipates that the demand effect will offset the supply side and result in a relatively small economic impact in the long term.

Weinstein concluded that, while the human toll of the Tohoku earthquake is tragic, fortunately the economic impact will be much less severe. However, he noted that although this earthquake and the tsunami did not seriously impact the physical geography of Japan's most productive regions, the smaller towns in the hardest-hit regions (i.e. Rikuzentakata) will face permanent obstacles to rebuilding and repopulating the land. Moreover, if the nuclear situation at Fukushima deteriorates, it could alter the physical geography of the region, making some lands inhabitable.

Professor Curtis closed the panel with a discussion on the governmental response and resulting political environment surrounding the crisis. While noting that the media has criticized Prime Minister Kan, Curtis argued that the government has responded more openly and honestly than it ever had before; in contrast to the response to the Hanshin earthquake, Kan's government has

been conveying facts to the public as soon as they become available. Curtis asserted that the Democratic Party of Japan (DPJ) is not attempting to hide information and, furthermore, has no overt relationship with the Tokyo Electric Power Company (TEPCO), which manages the Fukushima plants.

Assessing the short-term consequences, Curtis predicted that the DPJ and opposition parties will come to an agreement on the DPJ budget proposal as some controversial projects will be cut to provide funding for disaster relief. Yet he argued that Kan must prove his ability to mobilize people, politically and bureaucratically, to handle the crisis. In the long term, Curtis wondered if younger politicians will be able to raise the political debate to a higher level—beyond political bickering—and take the opportunity to promote real change in the government. Curtis believes that the public will not respond well to those who appear to be taking the crisis lightly.

Observing the global response, Curtis noted that developed countries were reminded how important Japan is to the world economy, as seen through the G7 joint intervention to drive the yen value down and calm markets. Additionally, unlike after the Hanshin earthquake, Kan has welcomed foreign assistance; the U.S. military stationed at Okinawa has assisted in extensive rescue operations and supply deliveries, and the U.S.-Japan relationship has been strengthened further.

Ultimately, Curtis believes that the recovery from this crisis has the potential to mobilize the strengths of the Japanese people and trigger a new mood among the younger generation to increase political participation and accelerate Japan's growth.

This event was co-sponsored by the Weatherhead East Asian Institute and the Program for Economic Research at Columbia University, as well as the Center for Japanese Legal Studies at Columbia Law School. It was moderated by Curtis J. Milhaupt, Fuyo Professor of Japanese Law, Parker Professor of Comparative Corporate Law and Vice Dean at Columbia Law School.