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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Investigation of superstorm Sandy 2012 in a multi-disciplinary approach" *by* M. Kunz et al.

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We added another paragraph that better describes the applied input-output model:

Using a linear I-O model (Leontief, 1986), the potential impacts of Sandy on different business interruption scenarios of the U.S. economy were estimated. The model describes inter-industry relationships within the economy, where the output from one sector is defined by the production that may become input for another sector. In our approach, the input of the model is accounts data (year 2010; annually published by the Bureau for Economic Analysis) describing the monetary interactions between the various sectors on the U.S. national level. Based on these industrial interrelations, it is possible to quantify the total loss caused by the decrease or interruption of a sector's

production including its indirect repercussions on the entire industrial production chain. To estimate the extent of the production losses, a production loss ratio is determined for each sector, which depends on affected geographic area, intensity and duration of the interruption. For the purposes of our near real-time analysis, we primarily assumed that the direct damage in the aftermath of Sandy affected all industry sectors equally for all of the 14 affected coastal States (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, and Vermont). Afterwards, we determined for each sector which proportion of the national production originates from each of the 14 States (through percentage of value added originating in affected states) and was affected by disruptions or interruptions of a certain intensity.

In an additional worst case scenario, we assumed that all production activities of the manufacture sector were entirely interrupted during two days for all of the 14 States. Under this assumption, and using the linear I-O model (Leontief, 1986) to calculate the indirect effects, the losses were estimated to be approximately 9.4 bn US$ for two days of business interruption. Of course, this estimation can only be considered as an upper limit.

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