

Modeling the Flood Footprint of the 2012 Beijing flood

Topic: Disaster Analysis I

Author: Zhao Zeng

Co-Authors: Yang XIA, Dabo Guan, David Mendoza Tinoco

As an important part of natural disasters, extreme floods are increasingly harming people, especially in big urban areas. This has significant effects on human societies and always leads to high economic losses. Currently, there is a lack of common and generally accepted methodological ground for flood economic damage assessment. This paper provides an adaptive methodology for flooding economic impacts analysis at city level, based on input-output model. The 2012 Beijing flood that occurred in China in July 21th, 2012 as result from torrential rainfall “the heaviest rainfall over the past six decades” is selected as case study. The resulting economic loss mainly came from capital damage, induced production capacity loss and labor constraints on production capacity. This paper utilises an Adaptive Regional Input-Output (ARIO) model to estimate the total economic loss resulted from the 2012 Beijing flood and also presents a theoretical route for economic recovery in this disaster aftermath by taking supply bottleneck and demand constraints into consideration. With the advantage of I-O model in capturing the inter-industry connectedness, our study emphasises the significance of taking into account indirectly propagating effects through inter-industry relationship and highlights the crucial role of labor constraints during a disaster aftermath and thus the importance of transportation reconstruction to release such labor constraints during recovery period. Our study is expected to provide guidelines regarding adaptation measures and also proposes to integrate risk, impact and inter-dependency analysis.