MODELING REGIONAL ECONOMIC IMPACTS OF EARTHQUAKES

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The Objective of the Paper

Existing earthquake economic damage estimates are based primarily upon property losses in the affected region. To structural damages are added damages to the contents of buildings, damages to public facilities, and sums are added for lives lost and injuries sustained. No estimates are made of direct and indirect regional income and employment losses. No attempt is made to estimate probable response patterns of the regional economy to the damage disruption and the expected path of economic recovery.

The purpose of this paper is to examine various types of regional economic models for their suitability of measuring economic impacts of earthquakes from a regional point of view. It also reports on a research project sponsored by the National Science Foundation[1] to develop an econometric model for the Charleston, South Carolina region to measure regional economic responses to earthquakes and to earthquake predictions. This model will link Process Analysis Models (PAM) with a regional econometric model which will make it possible to allow for substitution of inputs and outputs as well as the adoption of new technology in the recovery period. Traditional regional economic models are designed to deal primarily with changes in aggregate demand. In situations of catastrophic change where resource supply side constraints dominate, the problem is to model inadequate aggregate supply side aspects rather than the usual problems of changes in aggregate demand.

Until we have better procedures for estimating regional economic impacts and regional costs of adjustment for consumers, producers and government, we will be on uncertain ground in evaluating the benefits and costs of alternative ways to mitigate earthquake hazards. The performance of the regional economy is at the heart of the matter. How will the regional economy respond to earthquakes and to possible predictions?