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Macroeconomic Effects and Dynamics of Natural Disaster Damages: Evidence from SETX on the Resiliency Hypothesis

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Abstract : This study, focusing on the base regional area (county level), estimates the effect of natural disaster damages on aggregate personal income, aggregate wages, wages per worker, aggregate employment, and aggregate income transfer. The study further estimates the dynamics of personal income, employment, and wages under natural disaster shocks. Southeast Texas, located at the center of Golf Coast, is hit by meteorological and hydrological caused natural disasters yearly. On average, there are more than four natural disasters per year that cane an estimated damage average of 2.2% of real personal income. The study uses the panel data method to estimate the average effect of natural disasters on the area's economy (personal income, wages, employment, and income transfer). It also uses Panel Vector Autoregressive (PVAR) model to study the dynamics of macroeconomic variables under natural disaster shocks. The study finds that the average effect of natural disasters is positive for personal income and income transfer and is negative for wages and employment. The PVAR and the impulse response function estimates reveal that natural disaster shocks cause a decrease in personal income, employment, and wages. However, the economy's variables bounce back after three years. The novelty of this study rests on several aspects. First, this is the first study to investigate the effects of natural disasters on macroeconomic variables at a regional level. Second, the study uses direct measures of natural disaster damages. Third, the study estimates that the time that the local economy takes to absorb the natural disaster damages shocks is three years. This is a relatively good reaction to the local economy, therefore, adding to the "resiliency" hypothesis. The study has several implications for policymakers, businesses, and households. First, this study serves to increase the awareness of local stakeholders that natural disaster damages do worsen, macroeconomic variables, such as personal income, employment, and wages beyond the immediate damages to residential and commercial properties, physical infrastructure, and discomfort in daily lives. Second, the study estimates that these effects linger on the economy on average for three years, which would require policymakers to factor in the time area need to be on focus.

Keywords : natural disaster damages, macroeconomics effects, PVAR, panel data
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