MODELING THE CASCADING ECONOMIC IMPACTS OF DISASTERS IN INDIA: A SECTORAL INPUT-OUTPUT APPROACH

JAYASREE BEERAPPAGARI

A project report submitted

in partial fulfillment of the requirement for the award of the degree of

MASTER OF ARTS

IN

APPLIED QUANTITATIVE FINANCE

May 2025

MADRAS SCHOOL OF ECONOMICS

Chennai - 600025

MODELING THE CASCADING ECONOMIC IMPACTS OF DISASTERS IN INDIA: A SECTORAL INPUT-OUTPUT APPROACH

ABSTRACT

Natural disasters pose significant threats to economic stability, particularly in developing countries like India, where interdependencies across sectors can amplify the impacts of localized shocks. This study employs a sectoral input-output (IO) modeling framework to capture the cascading economic effects of disasters in India. By integrating disaster shock scenarios—such as floods, cyclones, and droughts—into the national I-O table, the analysis quantifies both direct and indirect economic losses across key sectors. The findings suggest that the indirect impacts constitute around 23 percent of the reported impacts, and that such indirect impacts spread over critical sectors such as electricity and transport. The findings offer valuable insights for policymakers to design targeted resilience strategies, prioritize infrastructure investments, and strengthen economic recovery plans. This research contributes to the growing literature on disaster economics by providing an empirical basis for assessing sectoral vulnerabilities and improving risk-informed development planning in India.

KEY WORDS: Disaster Economics; Input–Output Model; Indirect Economic Losses; Economic Resilience; India; Floods; Infrastructure Planning

JEL CODES: C67, Q54, O18, R15, H84