

## Budget justification and Timeline for:

### A Global-Scale Investigation of Firm-level Economic Recovery from Natural Disasters

**Budget justification:** This will be a data- and computationally-intensive project with large data with billions of observations, and full-time research assistance is the highest priority for making progress. The budget is calculated for 6 months of work of a research assistant, working approximately 40 hours per week at a rate of \$25 per hour. I have calculated this way for simplicity, since as a full-time, benefits-eligible employee, there will be some fringe involved. I am estimating, however, that the work involved to get to initial data construction and results will be approximately 6 months full-time equivalent, and will therefore fundraise to pay the fringe or any deficit in salary not met by this amount through other sources or supplement with existing (but smaller) research funds. The 6 month estimate is based on the complexity of the data construction. For example, for the firm data, the research assistant must complete data user agreements with government statistical agencies, contact other researchers, or scrape data when it is publicly available. Each country's data is completely idiosyncratic, and this means that standardizing them will be a major task. The construction of disaster data is a major undertaking as data will have to be at high spatial resolution in order to be associated with firm locations. There is substantial interdisciplinary skill involved in producing these data, since the earthquakes and hurricanes data involve techniques and computational methods from engineering and earth science, and may involve other collaborators beyond those named on the project narrative.

**Timeline:** I anticipate 2-3 months in obtaining and assembling firm data, 1-2 months in creating disaster exposure data for the entire globe for multiple years, 1 month running and diagnosing regression models, and 1 month running robustness checks, writing up initial findings, and aiding in the preparation of presentation materials. At 6-months full-time, this would imply the following timeline (with 12-months half-time doubling this timeline):

January	-Literature review. -Initial contact of authors who can share country-specific datasets not currently in our possession. -Summarizing firm data already in possession.
February	Summarizing and standardizing firm data across countries, initially for 17 countries. -Assigning geographical identifiers to firms.
March	-Finalizing construction of firm dataset across countries with geographic information for each firm through time. -Beginning setup and testing of RCC (UChicago research computing center) for disaster data calculations
April	-Produce earthquake data for each location -Create spatial averaging procedure for associating disaster intensity for each firm -Summarizing and checking merged data for consistency
May	-Produce hurricane data for each location -Follow same procedure as earthquake data for quality checking
June	-Run regressions on final dataset -Summarize initial results in presentations or working paper