

# Gowthami Venkateswaran

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I am a Ph.D. candidate in Applied Economics with expertise in survey methodologies, econometric modeling, experimentation and causal inference. My research uses observational data to estimate causal relationships in development and environmental economics. I plan to graduate by May 2025 and am looking for a job in the tech sector to work as an economist/data scientist.

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## WORK EXPERIENCE

**PhD Researcher**, University of Illinois, Urbana-Champaign Fall 2019-2024

- Estimated reduced-form causal inference models using methods such as difference-in-differences, instrumental variables, propensity score matching, regression discontinuity and mixed logit models for discrete choice analysis.
- Designed and implemented A/B testing, including power analysis, survey design, randomization and training field staff for phone surveys.
- Web scraped, cleaned and analyzed big data and geospatial data from various sources for econometric modeling.

**Remote Sensing and Data Science Intern**, Corteva Agriscience, Champaign Summer 2021

- Developed python code to retrieve satellite imagery via Google Earth Engine, analyzing the impact of weather and crop insurance on crop loss in soybean and corn across the U.S.
- Employed machine learning techniques to predict which U.S. counties will require the highest levels of crop insurance

**Consultant**, International Center for Tropical Agriculture (CIAT, CGIAR) Fall 2023-2024

- Led and authored a study estimating the causal impacts of internally displaced people on food prices in Mali, using a Difference-in-Difference approach.

**Research Intern**, StateFarm, Champaign Fall 2023

- Estimated a model to assess how variations in state speed limits impact accident rates, with a particular focus on rural areas in the US

**Research and Impact Assessment Intern**, International Fund for Agricultural Development, Italy Summer 2022

- Applied propensity score matching to evaluate the impact an agricultural project in Nepal. Authored a paper analyzing and cleaning survey data for econometric analysis.

**Economics Research Consultant**, Bank of Italy, Italy Fall 2022

- Developed an energy poverty indicator to assess fuel poverty risk among households in the Lombardian region of Italy using Principal Component Analysis. Cleaned and organized data to support data analysis.

**Instructor**, University of Illinois Fall 2021-Fall 2024

- Conducted discussion sections to support student learning. Led a team of three teaching assistants and mentored students' projects each semester, while grading and holding office hours for over 400 undergraduate students.
- Recognized with a teaching award and listed as excellent by students for outstanding performance

## EDUCATION

**University of Illinois at Urbana-Champaign, USA**

Ph.D. in Agricultural and Applied Economics, GPA: 3.88/4

Expected Spring 2025

M.S. in Agricultural and Applied Economics, GPA: 3.80/4

May 2019

**Tamilnadu Agricultural University, India**

B.Tech. in Agricultural Information Technology, GPA: 8.74/10

Aug 2013-May 2017

## SKILLS

**Python** (Advanced): Data cleaning, visualizations, GIS analysis, plotting maps, web scraping. Familiar with scikit, sklearn, pandas, geopandas, selenium

**STATA** (Advanced): Estimating econometric models, power analysis, data cleaning, exporting tables and figures

**ArcGIS** (Intermediate): Plot maps, conduct spatial joins, estimate travel distances

**Google Earth Engine** (Intermediate): Retrieve satellite imagery for weather, vegetation data, use gridded datasets

**R** (Basic): Estimating econometric models, data cleaning

**SQL** (Intermediate): Retrieving, manipulating tables, joins, filtering and writing complex queries

## SELECTED WORKING PAPERS

### **Unintended Environmental and Health Consequences of Distortionary Fertilizer Subsidies**

Utilized India's 2010 fertilizer subsidy change and exogenous variation in soil texture to identify causal impacts of nitrogen subsidies on river pollution and infant mortality. Employed difference-in-difference and instrumental variables techniques to isolate causal effects. Extracted upstream river networks using an API and integrated soil data from gridded geospatial datasets for analysis.

### **Rural Roads and Local Agro-Firm Development: Causal Evidence from India** (with Hemant Pullabhotla and Kathy Baylis)

Applied difference-in-difference methods to identify the causal impacts of transportation infrastructure on agricultural firm growth, exploiting the staggered implementation of the road construction program.

### **Building Resilience among Small-scale Producers in Nepal: The Impact of a Climate Adaptation and Mitigation Project** (with Marup Hossain and Tisorn Songsermsawas)

Applied exogenous variation in program treatment to analyze the impact of a climate adaptation intervention on mitigation practices and farmer resilience in Nepal. Used propensity score matching as a robustness check.

### **Can information encourage investment in health in developing countries?** (with Pallavi Shukla and Kathy Baylis)

Employed a discrete-choice model to assess how providing food-safety information influences the willingness to pay for food safety certification among traders, millers and end-consumers.

## RELEVANT COURSE PROJECTS

### **Analysis of degree of Crop Rotation in Illinois using Satellite Land Cover Data**

Using two years of Cropland Data Layer (CDL), a crop specific land cover data layer from USDA NASS, I examine crop rotation in the state of Illinois. I use geopandas library from python to work with raster files.

### **Machine Learning based Accident Prediction in Sao Paulo, Brazil**

Using weather, spatial and temporal features, I evaluate various machine learning models to predict the occurrence of road accidents in Sao Paulo, Brazil. Data processing involved spatial clustering and negative sampling. I trained and evaluated the following models – Support Vector Machine, K-Nearest Neighbor, Logistic Regression, Random Forest using k-fold cross-validation.

### **Urban Health Impact Assessment using Geocoded Restaurant Data**

I utilize geocoded restaurant data from the Google Maps API and urban health data to investigate the impact of restaurant density on health outcomes. I employ python for data retrieval, processing and geospatial analysis to integrate restaurant locations with health survey data, calculating proximity measures and spatial distributions.