The Effects of Rising Staple Prices on Food Insecurity: The Case of Tortilla in Mexico
Marina Urbina-Ramirez and Camilo Bohorquez-Penuelas, Department of Applied Economics, University of Minnesota

Motivation
- Research Question: What are the effects of rising staple prices on food insecurity?
- This paper: What is the impact of tortilla prices on household food insecurity in Mexico?
- Since 2006, food prices have increased, reaching its peak between 2008 and 2011.
- Households might follow different coping strategies to mitigate the effects of rising food prices on their wellbeing.

Background
Tortilla is a thin, flat bread, made from maize or wheat. It is the Mexican staple.

Data and Descriptive Statistics
- Mexican National Survey of Household Income and Expenditure (ENIGH): Conducted biannually by the National Institute of Statistics and Geography (INEGI).
- Representative at the national level.
- Captures detailed information regarding household income and expenses.

- Food Security Supplement (FSS): 10 different schedules.
- Sample: 85,604 household-year observations.

- Q1: 2012
- Q2: 2012
- Q4: 2014

Econometric Framework and Identification Strategy
The ENIGH does not track households across years, so it is not possible to estimate fixed effect models using the households as the unit of observation. We construct a series of pseudo-panels, at the state and state-income quintile levels (Deaton 1998; Bellemare, Fajardo-Gonzalez, and Gitter 2016; Gunderson, Kreider, and Peper 2011) and estimate the following equation:

\[ F_{it} = \beta_0 + \beta_1 \log(P_{it}) + \gamma X_{it} + u_i + v_t \]  

Where:
- \( F_{it} \) = Food insecurity rate for unit \( i \) at time \( t \)
- \( P_{it} \) = Price measure (tortillerias, grocery stores)
- \( X_{it} \) = Unit-level covariates
- \( u_i \) = Unit-level fixed effects
- \( v_t \) = Zero-mean error term

We also estimate the equation (1) using the state pseudo-panel for each income quintile, and the state-pseudo panels for rural and urban areas, respectively.

Results and Conclusions

- State-Income Quintile Pseudo Panel Estimates
- State-Pseudo Panel Estimates for Rural and Urban Areas
- State-Pseudo Panel Estimates by Income Quintiles

Source: 2008-2014 Mexican ENIGH and own calculations.