Methodology

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1 Estimate Log Marginal Utility of Expenditure

- For every farmer i in year t, we compute $\log \lambda_{it}$, where λ_{it} is the marginal utility of expenditures.
- Define Y as the self-reported expenditure categories from the ARMS survey, and let Z be a measure of household composition (for instance, log household size)
- Use python package CFEDemands to estimate $\log \lambda_{it}$

2 Calculate $Cov(\log \hat{\lambda}_{it}), \tau_{it})$ with OLS

- Let τ_{it} be a vector of government program payments received by farmer i in year t. That is, τ is a matrix with with columns representing self-reported payemnts for the following programs: Price Loss Coverage, Market Facilitation Program, Agriculture Risk Coverage Program, Federal Crop Insurance, Direct Payments, etc.
- Construct X_{it} as a vector of controls including other sources of income (both on- and off-farm income sources).

- Estimate $\beta : \widehat{\log \lambda}_{it} = \beta \tau_{it} + \gamma X_{it} + \varepsilon_{it}$

3 Calculate $Cov(\widehat{\log \lambda}_{it}), \tau_{it})$ with 2SLS

- Using external data on government payments, construct matrix of mean administrative payments by zip code z and by year t.
- With zip code-level cross walk on the ARMS data, merge administrative payments data so each individual has a vector of mean administrative payments at the zip code level.
- Define τ_{it} and X_{it} the same as in OLS step.
- Define $\mathrm{Z_{it}}$ as the matrix of zip code administrative payments.
- Perform 2SLS using Z to instrument for τ