The Impact of Subsidized Health Care on Food Expenditure and Food Security:
Evidence from Colombia

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Research Question

- What is the effect of a subsidized health care regime on household food expenditure and food security?
  - Evaluate whether this scheme generates an **income effect** on food expenditure.
  - Analyze if helps to mitigate food insecurity on poor households.

Background

Characterization of the Colombian Health Care System

- **Law 100 of 1993** → Creates a subsidized regime **(SR)**, aiming to cover poorest population and unemployed. Formal workers and non-poor households belong to the contributive regime **(CR)**.

	Subsidized Regime	Contributive Regime
Target	Poorest and vulnerable (unemployed, working with no written contract)	Middle and upper classes
Funding	Public	Private
Eligibility	SISBEN (score)	All formal workers, self-employed with more than 1 minimum wage
Benefits	Equal	

- Public workers and those enrolled in the military have their own **special** health care regimes. **Uninsured** population have the right to access to public clinics and hospitals for emergency assistance.

Eligibility to the Subsidized Regime

- **SISBEN score** → Proxy means test.
  - Categorization of households not only based on their income, but also on socio-demographic characteristics (dwelling units, possession of durable goods employment status, schooling level, etc.).
  - Information source: *Census of the Poor.* Not available to the public.

Previous Literature

- Positive effect of the **SR** on health care utilization and health outcomes -**substitution effect**- (e.g., Panopoulus and Vélez, 2001; Trujillo et al., 2005; Gaviria et al., 2006; Camacho and Conover, 2013; Miller et al., 2013).

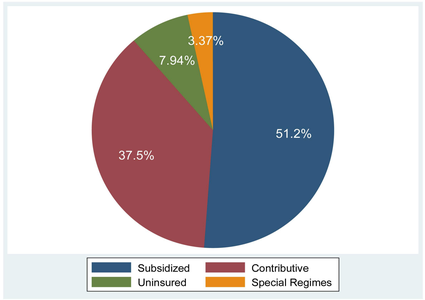
Data and Descriptive Statistics

Data → 2008 Living Standards Survey **(LSS)**
- Detailed information about household expenditure.
- Food security supplement → Incorporates the same battery of questions as the Current Population Survey **(CPS)**.
- Sample: 50,542 individuals in 13,611 households.

Final sample → Households enrolled in **SR** (Treatment group: 6,677 obs.) and the **uninsured** (Control group: 1,036 obs.).

Outcomes of interest (Y_i):
- Log(per capita household food expenditure).
- Share of food expenses on total expenditure → **Test Engel's Law.**
- Share of starchy staples (roots and tubers) on food expenditure → **Test Bennett's Law.**
- Food insecurity status (= 1 if food insecure) → **USDA definition.**

Distribution of Households by Health Care Insurance Status



Source: 2008 Colombian LSS. Author's estimates.

Descriptive Statistics

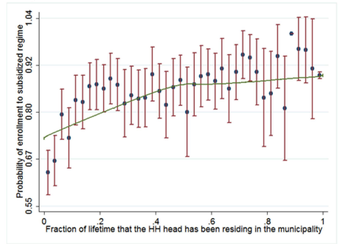
	Subsidized		Uninsured		Differences in means	
	Mean	Std. Dev.	Mean	Std. Dev.	T-stat	P-value
Log(food expenditure)	11.080	0.862	11.300	1.033	-7.408	0.000
Share of food expenditure	0.662	0.203	0.607	0.220	7.898	0.000
Share of starchy staples	0.266	0.168	0.224	0.169	7.509	0.000
=1 if HH is food insecure	0.533	0.499	0.496	0.500	2.231	0.026

Source: 2008 Colombian LSS. Author's estimates.

Econometric Framework and Identification Strategy

- **Endogeneity of the treatment variable (S_i)** → Enrollment to the **SR** is given by the SISBEN score:
  - Score is subject to self-selection and measurement error.
  - Politicians manipulate the score for electoral purposes (Camacho and Conover, 2011).
  - Researcher cannot observe original score, only enrollment (treatment) status.
- **Instrumental variable (P_i)** → **Proportion of lifetime the household head reports having resided in the current municipality** (Gaviria et al., 2006).
  - The extent of political connections and social networks within the community are highly correlated with enrollment to the **SR.**

Probability of enrollment to the SR, conditional on the IV



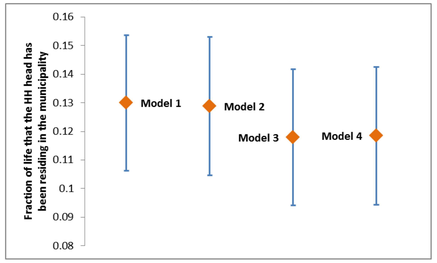
Source: 2008 Colombian LSS. Author's estimates.

$$S_i = \gamma' X_i + \delta_1 P_i + \delta_2 H_i + v_i \quad \rightarrow \textbf{First-stage equation}$$
$$Y_i = \alpha' X_i + \beta_1 \hat{S}_i + \beta_2 H_i + u_i \quad \rightarrow \textbf{Second-stage equation}$$

Other controls: X_i → Household characteristics; H_i → Self-reported health status of household members.

Preliminary Results and Conclusions

Frist Stage Results (δ_1)

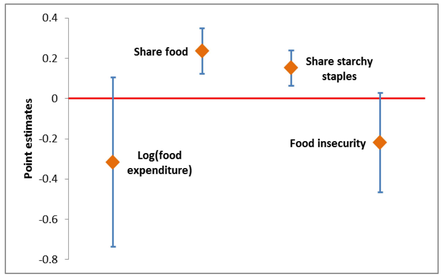


Source: 2008 Colombian LSS. Author's estimates. Blue lines represent 95% confidence intervals.

	Model 1	Model 2	Model 3	Model 4
Control variables (X_i, H_i)			YES	YES
Department Fixed Effects		YES		YES

Instrument is relevant and estimates are very close to Gaviria et al. (2006), which is 0.1189.

Second Stage Results, Model 4 (β_1)



Source: 2008 Colombian LSS. Author's estimates. Blue lines represent 95% confidence intervals.

- Estimation for food expenditure is not statistically significant → No evidence on income effect?
- But there is a positive impact on the food share → Engel's Law would not hold.
- Positive effect on the share of starchy staples → Bennett's Law would not hold.
- The **SR** has a **positive impact on mitigating food insecurity**.