

The Spanish crisis and its households' food consumption

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Abstract

- **We document the following:**
 - Cheap sources of calories are an inferior good in Spain.
 - E.g., bread is inferior.
- **We propose a metric to measure the impact on the welfare of households from the Spanish crisis.**
 - We adapt Armendariz (2016) utility function.
 - Cheap sources of calories are efficient at satisfying hunger.
 - These sources are inefficient at satisfying less relevant wants.
- **This project is still undergoing.**
 - We appreciate any comments or suggestions:
 - arme0019@umn.edu
 - In the subject line, write: Spanish Crisis project.

Bread is a cheap source of calories.

- Food provides many characteristics that consumers prefer:
 - Flavors and textures
 - Art
 - Different types of nutrients
 - **But, fundamentally, food is energy; i.e., food is calories.**
- How much energy would a consumer get if she spent 1 euro on each food?

Food	Calories per Euro
Bread	1,006
Potato	898
Rice	859
Beef	139

Identifying bread as an inferior good

- We perform this regression using the National Household Expenditure Survey:

$$\log q = \alpha + \beta_p \log p + \beta_e \log e + \beta_i \log i + \beta_n \log n + \varepsilon$$

- q : quantity consumed of bread (cheap source of calories) or beef (expensive).
 - p : price of the commodity
 - e : Household expenditure in food.
 - i : Household disposable income.
 - n : number of household members.
- } These measure how poorer households depend on cheaper food.

RESULTS: Number of members

Positive elasticity
 ≈ 0.3
(*Ceteris Paribus*)

	BREAD		BEEF	
	Coefficient	95% interval	Coefficient	95% interval
2006	0.34	[0.31,0.38]	-0.35	[-0.41,-0.28]
2007	0.35	[0.31,0.38]	-0.33	[-0.40,-0.26]
2008	0.30	[0.26,0.34]	-0.31	[-0.38,-0.24]
2009	0.29	[0.26,0.33]	-0.30	[-0.37,-0.23]
2010	0.33	[0.29,0.36]	-0.33	[-0.40,-0.26]
2011	0.29	[0.26,0.33]	-0.36	[-0.44,-0.29]
2012	0.28	[0.24,0.31]	-0.31	[-0.38,-0.25]
2013	0.30	[0.27,0.33]	-0.38	[-0.44,-0.31]
2014	0.28	[0.25,0.32]	-0.38	[-0.45,-0.31]

elasticity
 ≈ -0.33

RESULTS: Disposable Income

Negative elasticity
(*Ceteris Paribus*)

	BREAD		BEEF	
	Coefficient	95% interval	Coefficient	95% interval
2006	-0.01	[-0.12,-0.00]	-0.01	[-0.06,0.04]
2007	-0.03	[-0.06,-0.00]	0.03	[-0.02,0.08]
2008	-0.04	[-0.07,-0.01]	-0.00	[-0.06,0.05]
2009	-0.03	[-0.06,-0.00]	0.00	[-0.05,0.05]
2010	-0.04	[-0.07,-0.02]	0.07	[+0.01,0.13]
2011	-0.03	[-0.06,-0.00]	-0.02	[-0.08,0.03]
2012	-0.05	[-0.08,-0.03]	0.03	[-0.01,0.09]
2013	-0.05	[-0.07,-0.02]	0.07	[+0.01,0.13]
2014	-0.05	[-0.08,-0.02]	0.02	[-0.03,0.08]

Zero (or sometimes positive) relationship.

We ask this question

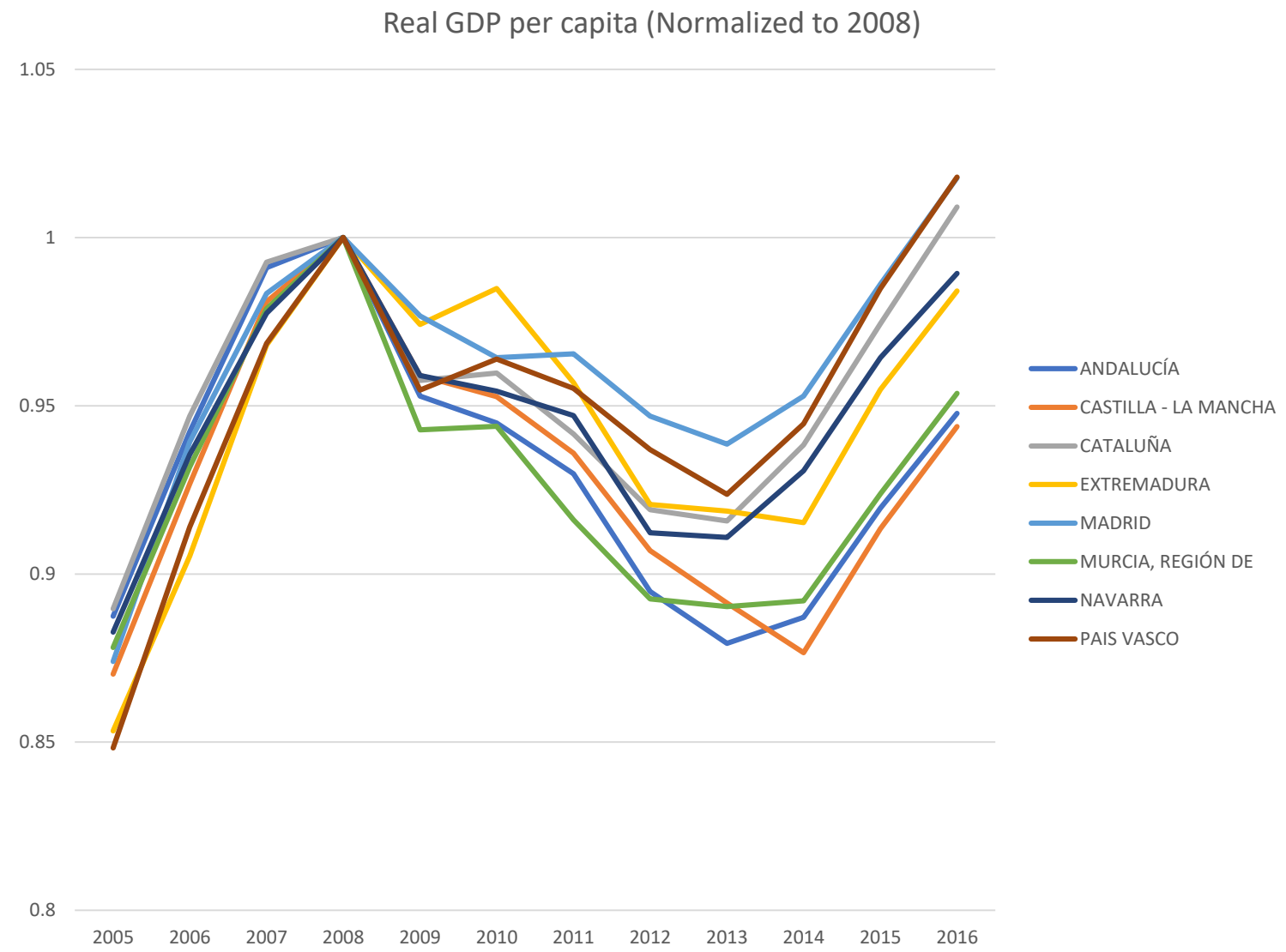
What is the impact of the Spanish crisis on Households' welfare?

The answer depends on the utility function of households.

The Spanish crisis in 08

- Real GDP per capita dropped between 2008 and 2013.
 - The drop was close to 10%.
 - Every Spanish Autonomous Community was affected.
 - By 2016, most Communities had not recovered.
- This crisis affected many households.
 - Employment rates dropped over 10 percental points.

The size of the damage



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Employment rates



Utility function of households

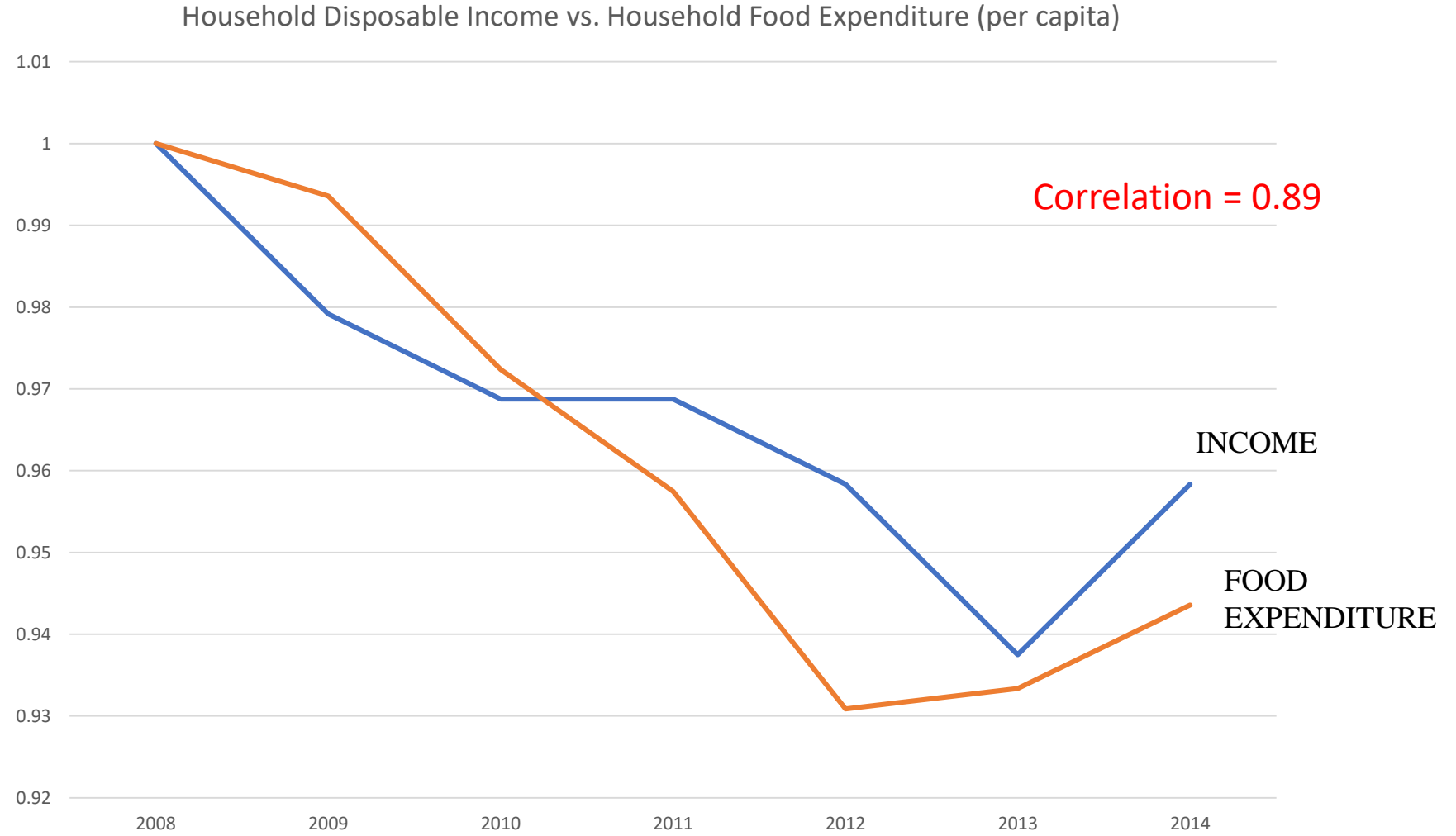
$$u(b, m, z) = [u(b, m)]^\beta z^{1-\beta}$$

- u*: Armendariz (2016) utility function.
b: Cheap source of calories.
m: Expensive source of calories.
z: Other sources of food that are not calories.

Motivation for using a Cobb-Douglas utility function

- Food expenditure is highly correlated with disposable income.
- $\beta = 0.15$, because about 15% of total households' expenditure is assigned to food.

Disposable Income and Food Expenditure



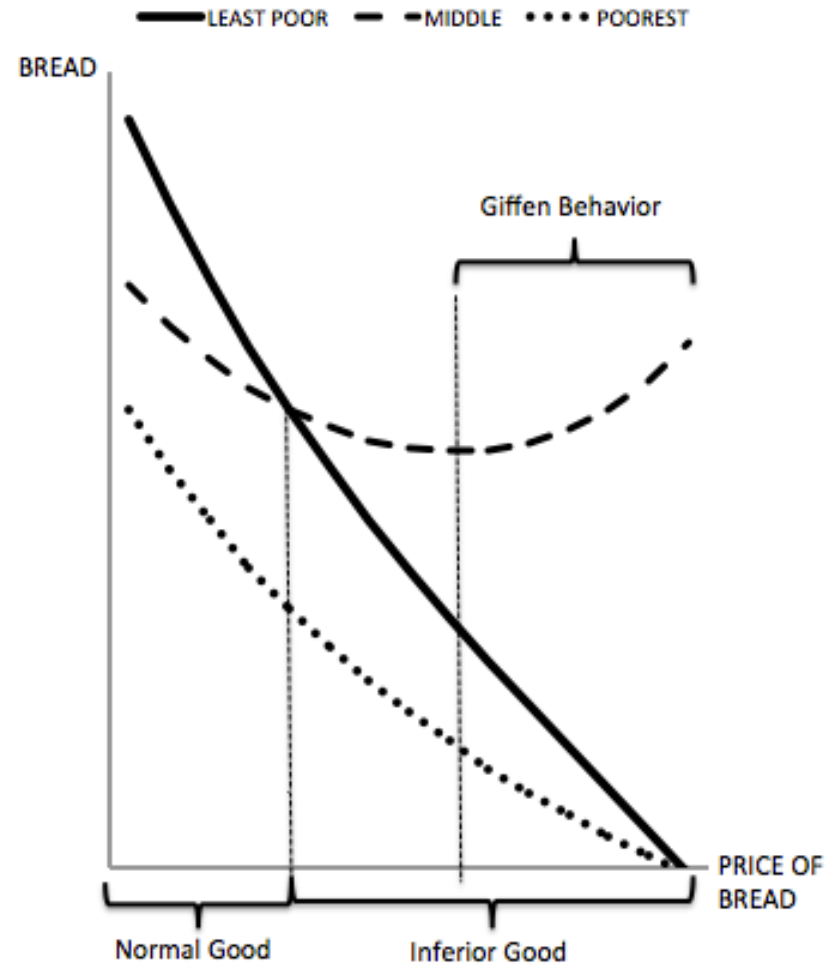
A theory of food consumption and hunger

- The following is the Cobb-Douglas version of Armendariz (2016).
- It embeds the feeling of hunger as a behavioral aspect of food consumption.

$$u(b, m) = [\alpha_b b + \alpha_m m - \bar{c}]^{\frac{1}{2}} [\delta m]^{\frac{1}{2}}$$

- α_b : Amount of calories that each unit of the cheap source provides.
- α_m : Amount of calories that each unit of the expensive source provides.
- δ : Amount of *flavor* that the expensive source provides.
 - This value is irrelevant for the Cobb-Douglas case.
- \bar{c} : Amount of calories that makes the feeling of hunger be unbearable.

Example of demands for the cheap source



Work in progress... Feedback VERY welcome.