

Measuring the Marginal Propensity to Consume out of Income and Real Wealth for Albanian Households using Micro Data



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MOTIVATION

- During the last financial crisis consumption growth dropped in many countries as a response to shocks in income and wealth [see Sordi and Vercelli (2010); Teppa (2014); Reinhart and Rogoff (2009) and similar].
- The implications of how consumers change their behaviour in response to shocks in income and wealth is a key issue nowadays for monetary and fiscal policymakers.
- To the best of our knowledge, this is the first paper that documents in more detail household's consumption behaviour towards income and wealth shocks at the micro level for Albania.



OBJECTIVE

The study uses data on **household-level** income, expenditure, and housing characteristics covering 17,000 households from the Living Standard Measure Survey (LSMS) conducted and administrated by the National Institute of Statistics over the period 2002-2012, examining:

To what extent Albanian household consumption responds to changes in income and real wealth.



To estimate the MPC out of income and real wealth for Albanian households.



METHODOLOGY

- First, we create a **pseudo panel** following the approach of Deaton (1985) based on (i) the year of birth of the head of HH and (ii) on the year of birth and education of the head of HH.
- Second, the **empirical model** is a reference to the methodology used by Teppa (2014) and Cristelis, Gerorgarakos and Jappelli (2014):

$$\Delta \ln C_{ht} = \alpha_{ht} + \beta \Delta \ln RFA_{ht} + \gamma \Delta \ln HHI_{ht} + \eta \Delta \ln Z_{ht} + \epsilon_{ht}$$

where ϵ_{ht} is the error term.

- The empirical model is run for **total consumption and food consumption** (C_{ht}) using **fixed effects** (here cohort effects).
- **Robustness checks:** households whose main income comes from **labour in the public sector**; MPC by **income quantiles**.



DATA

- Data on **household-level** income, expenditure, income, real wealth and housing characteristics covering 17,000 households from the Living Standard Measure Survey (LSMS) over the period **2002-2012**.
 - **Annual total consumption**= Food+ Utilities + Non food (self-reported for 1 month x12) per capita
 - **Annual food consumption**= Food inside home+ Food outside home (self-reported 2 weeks x24) per capita
 - **Annual income (HHI_{ht})**= self-reported total monthly income x12 per capita
 - **Real wealth (RFA_{ht})**= average market price per m² x m² (financial wealth excluded) per capita at time t.
 - **Household characteristics (Z_{ht})**: Δ adults, Δ children, subjective poverty (scale 1-10), condition of house, head education (scale 1-7).
- We have **dropped** all households who's head <25 years old and >85 years old; households who have >8 members; households who fall in the <1p; >99p in terms of consumption and income; households who do not report data on income; consumption and wealth, non-owners (98% own the house they are living in).

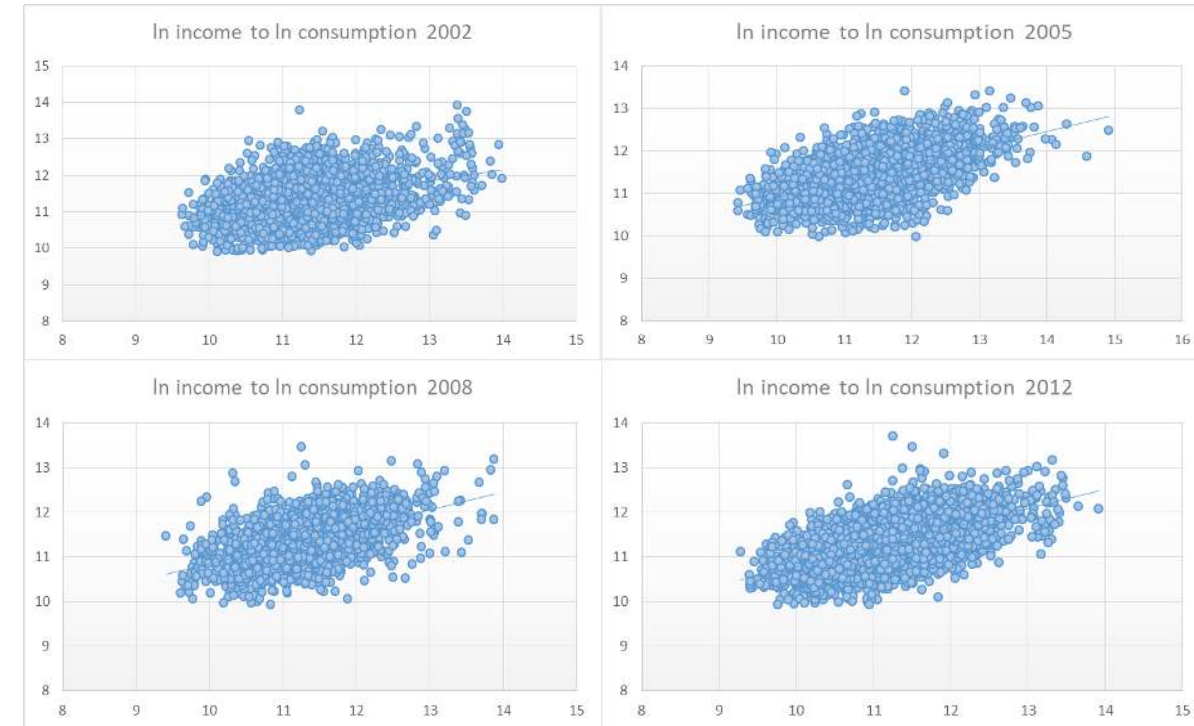
DESCRIPTIVE AND PRELIMINARY STATISTICS

Table 1: Descriptive Statistics (All obs., cross-section)

	Mean	St.Dev	Min	Max
HH Annual Total Consumption	131300.9	68232.56	20402.8	1114161
HH Annual Food Consumption	32044.92	28868.89	12004.18	433379.9
HH Annual Total Income	135561.4	126924.6	18692.98	3003072
HH Real Wealth	1141833	913952.7	53905.55	1.73e+07
HH Members	4.012	1.578	1	8
HH Adults	3.001	1.176	1	8
HH Children	1.013	1.149	0	6
Head Age	52.43	12.05	25	85
Head Education	3.45	0.876	1	6
Subjective Poverty	4.244	1.83	1	10
House Conditions	3.098	0.762	1	4

Source: author's calculations

*monetary variables are in per capita ALL



Graph 1: Cross-section relationship between income and consumption

We want to see whether the relationship of income and consumption has changed throughout the years. As one may notice, the pattern is very similar (in 2002 the relationship is slightly flatter).

Therefore, we can assume that the MPC is stable throughout our sample.



MAIN RESULTS

Table 2. Results of the main empirical model

Variable	Dependent Variable: ΔLn HH Annual Consumption				Cohort: Year Birth & Education of Head of HH			
	Cohort: Year Birth of Head of HH		Cohort: Year Birth & Education of Head of HH		Cohort: Year Birth & Education of Head of HH		Cohort: Year Birth & Education of Head of HH	
	Total (1)	Total (2)	Food (3)	Food (4)	Total (5)	Total (6)	Food(7)	Food (8)
Constant	0.025 (0.416)	-0.398 (0.325)	-0.041 (0.077)	0.016 (0.416)	-0.001 (0.201)	0.155 (0.085)	0.113* (0.313)	-0.008 (0.114)
ΔLn HH Annual Income	0.873** * (0.086)	0.849*** (0.085)	0.634** (0.159)	0.569** (0.156)	0.876*** (0.044)	0.84*** (0.042)	0.638* (0.067)	0.572** (0.058)
ΔLn HH real wealth	0.364** * (0.0468)	0.313*** (0.0489)	0.656*** (0.087)	0.546*** (0.09)	0.32*** (0.021)	0.26*** (0.022)	0.672*** (0.031)	0.477*** (0.029)
ΔHH Adults		-0.055* (0.026)		-0.095 (0.049)		-0.051** (0.0132)		-0.244*** (0.018)
ΔHH Children		-0.053 (0.035)		-0.205** (0.064)		-0.098*** (0.015)		-0.226*** (0.021)
Subjective Poverty		0.012 (0.022)		0.042 (0.041)		0.043** (0.011)		0.001 (0.015)
House Conditions		-0.001 (0.057)		-0.117 (0.106)		-0.016 (0.027)		-0.051 (0.037)
Head Education		0.108* (0.047)		0.042 (0.087)		-		-
MPC out of Income	0.794	0.774	0.513	0.461	0.771	0.745	0.593	0.449
MPC out of Real Wealth	0.06	0.052	0.016	0.013	0.048	0.04	0.016	0.011
Adjusted R ²	0.508	0.545	0.312	0.377	0.277	0.331	0.374	0.537
Obs.	167	167	167	167	924	924	924	924

*Bootstrapped standard errors in parenthesis. *, **, *** denote 10%, 5%, 1% significance level

$$MPC_{income} = elasticity_{income} * consumption_{ht} / income_{ht}$$

$$MPC_{wealth} = elasticity_{wealth} * consumption_{ht} / real\ wealth_{ht}$$

RESULTS (ROBUSTNESS CHECK)

Graph 2. Comparison of the behaviour of consumption between all obs. and the control group



Source: author's calculations

Table 3. Comparison of the MPC out of income and real between all obs. and the control group

	TOTAL		FOOD	
	All obs.	Public	All obs.	Public
MPC out of income	0.774**	0.623*	0.513**	0.478*
Mpc out of real wealth	0.052***	0.061***	0.016***	0.022**

Source: author's calculations



RESULTS (ROBUSTNESS CHECK)

Table 4. Results of the model by income quantile groups.

Cohort: Year Birth & Education of Head of HH				
Variable	Total (1)	Total (2)	Food (3)	Food (4)
$\Delta \ln$ HH Annual Income Q1	1.089*** (0.144)	0.988*** (0.152)	1.255** (0.238)	1.125** (0.258)
$\Delta \ln$ HH Annual Income Q2	0.903** (0.188)	0.862** (0.187)	1.031* (0.437)	0.881* (0.407)
$\Delta \ln$ HH Annual Income Q3	0.878** (0.268)	0.951 (0.501)	-0.082 (0.459)	0.048 (0.499)
$\Delta \ln$ HH Annual Income Q4	0.803* (0.189)	0.842** (0.208)	0.569 (0.333)	0.338 (0.311)
<i>Constant</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Controls</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
MPC out of Income Q1	1.036***	0.943***	0.577**	0.526**
MPC out of Income Q2	0.865**	0.826**	0.481*	0.455*
MPC out of Income Q3	0.774**	0.815	-0.013	0.007
MPC out of Income Q4	0.647*	0.678**	0.094	0.051
MPC out of Real Wealth incQ1	0.044*	0.04*	0.008	0.008
MPC out of Real Wealth incQ2	0.055	0.038	0.021	0.011
MPC out of Real Wealth incQ3	0.045	0.047	0.013*	0.013*
MPC out of Real Wealth incQ4	0.092**	0.081*	0.03**	0.022**
Adjusted R ²	0.399-0.785	0.326-0.882	0.311-0.578	0.285-0.655
Obs.	924	924	924	924

*Bootstrapped standard errors in parenthesis. *, **, *** denote 10%, 5%, 1% significance level.

We have estimated the MPC out of income and real wealth using only the pseudo-panel “birth-year & education” in order to have sufficient obs. in each model.

$$MPC_{income} = elasticity_{income} * consumption_{ht} / income_{ht}$$

$$MPC_{wealth} = elasticity_{wealth} * consumption_{ht} / real\ wealth_{ht}$$



FINDINGS

- Estimates suggest for a positive relationship between income and real wealth shocks and consumption: MPC falls into the **0.74-0.79** range and the MPC out of real wealth falls into the **0.04- 0.05** range.
- MPC calculations for food consumption show lower estimates for both metrics (**0.4-0.5** and **0.011-0.016** respectively).
- Running the model for households whose main income comes from labour in the public sector we find lower values of the MPC out of income (0.623) and higher values of the MPC out of real wealth (0.06).
- In line with the theoretical literature, the MPC out of income (total consumption) is higher for lower income groups and lower for higher income groups; we can not find here enough significant estimates for food consumption and the MPCs out of real wealth.