Green Purchasing: the Effect of Parenthood and Gender

Matteo MIGHELI (University of Torino and CeRP)

XX AISSEC Conference – Torino, 5th October 2018

Dipartimento
Economia e Statistica
Cognetti de Martiis

Campus Luigi Einaudi ■ Lungo Dora Siena 100/A, 10153 Torino, Italy ■ www.est.unito.it

UNIVERSITÀ DEGLI STUDI DI TORINO

Aims

- Purchasing green goods is more and more relevant to help the sustainability of economies.
- Green goods are more and more present in shops, markets and supermarkets.
- Yet, they generally cost more than their brown substitutes
- Therefore consumers may tend to prefer brown goods to the green, because of budget constraints.

Aims

- The birth of a child is an event in one's life, which tightens the budget constraints of a household.
- However, having children means also caring for their future.
- Therefore, parents should desire a sustainable world more than non-parents.
- This paper analyses which of these two forces prevails in a sample of 61 countries.

Related literature

- A brief summary of the extant literature suggests that:
  - More educated people are more concerned with the environment and buy more green products
  - More altruistic people buy more green products
  - Women are more concerned with the environment than men -> women tend to buy more green products than men. However this piece of evidence is not definitive
  - After parenting, people are more budget-constrained and tend to consume less-expensive goods

Data

- Data are from the last 5 waves of the *World Values Survey*.
- They cover 61 countries (the WVS has more, but data on green consumption are not available for all).
- The WVS asks the interviewees whether they purchased green goods in the past 12 months -> trade-off between generality and genericity
- Previous studies focused on less countries, though based on more specific questions.

Data

- The main variables of interest are:
  - Having children
  - The number of children
- Unfortunately, the WVS does not report the children's age.
- Other controls:
  - Household income, employment status (of the responder), education, age, gender, marital status.
  - A series of country-specific variables: GDP per capita, population density, %of protected areas, CO_2 emissions, urbanisation, per capita consumption of electricity and economic gorwth in 2002.

Methodology

- Two main models are estimated:
  - One for the effect of having children on green purchasing
  - One for the effect of the number of children on green purchasing
- Both are estimated using MLE
  - The first using probit
  - The second using Heckman selection, to account for selection bias between parents and non-parents.

Descriptive statistics

Table 1. Descriptive statistics of the variables used in the econometric analyses.

	Mean	Standard deviation
Purchased green goods in the last 12 months (%)	47,74	49.94
Male	48.45	49.98
Has children	73.04	44.37
Children	1.97	1.82
GDP per capita (USD 2002)	7,300.59	10,110.31
Population density (log)	4.208	1.268
CO_2 emissions (tons per capita) in 1998	5.27	4.76
Protected areas (log km^2) in 2002	8.91	8.48
Urbanisation (% of people living in urban areas)	62.97	19.75
Economic growth in 2002 (% values)	1.09	1.10
Consumption of electricity (Kwh per capita) in 200	3,828	4,316
Age	40.31	15.91
Part-time employees (%)	7.50	26.33
Self-employed (%)	10.94	31.22
Unemployed (%)	9.42	29.21
Retired (%)	11.45	31.84
Married (%)	58.34	49.30
Widows (%)	5.89	23.53
Divorced (%)	3.09	17.30
Secondary education (%)	44.49	37.69
Tertiary education (%)	14.34	35.04
Generalised trust (average on 0 - 1 scale)	0.268	0.443
Size of town (average on 9 size classes)	5.049	2.524

Results: parenting

Table 2. Effect of having children on green purchasing. Probit estimates, standard errors between parentheses.

Specification	(1)		(2)		(3)		(4)	
	Coefficients	Marginal effects	Coefficients	Marginal effects	Coefficients	Marginal effects	Coefficients	Marginal effects
Male	-0.196	-0.0778	-0.234	-0.0929	-0.235	-0.0936	-0.234	-0.0932
	(0.0373)***	(0.0149)***	(0.0349)***	(0.0138)***	(0.0319)***	(0.0127)***	(0.0390)***	(0.0154)***
Male x having children	0.0680	0.0271	0.101	0.0401	0.0610	0.0243	0.0216	0.00862
	(0.0346)**	(0.0138)**	(0.0309)***	(0.0123)***	(0.0328)*	(0.0131)*	(0.0396)	(0.0158)
Having children (yes = 1)	-0.0289	-0.0115	-0.0226	-0.00901	-0.115	-0.0460	-0.0978	-0.0390
	(0.0438)	(0.0175)	(0.0333)	(0.0133)	(0.0353)***	(0.0141)***	(0.0385)**	(0.0154)**
Constant	0.767		2.236		-4.423		-4.412	
	(0.0358)***		(1.428)		(1.813)**		(1.807)**	
Country-specific controls	No		Yes		Yes		Yes	
Marital status	No		No		Yes		Yes	
Education	No		No		Yes		Yes	
Employment status	No		No		Yes		Yes	
Income	No		No		Yes		Yes	
Age	No		No		Yes		Yes	
Male x education	No		No		No		Yes	
Male x marital status	No		No		No		Yes	
Generalised trust	No		No		No		No	
Size of town	No		No		No		No	
Observations	172,848		172,848		172,848		172,848	

Results: number of children (second step)

Table 3. Effect of the number of children and gender on green purchasing. Heckman selection estimates; s.e. in parentheses.

	Green purchase (yes = 1)	Selection equation	Green purchase (yes = 1)	Selection equation	Green purchase (yes = 1)	Selection equation
Male	-0.0740	-0.00306	-0.0804	0.000681	-0.0801	0.000932
	(0.0162)***	(0.0183)	(0.0111)***	(0.0181)	(0.00980)***	(0.0182)
Male x number of children	0.00771		0.00698		0.00821	
	(0.00412)*		(0.00387)*		(0.00301)***	
Number of children	-0.00870		-0.00867		-0.0138	
	(0.00568)*		(0.00680)		(0.00442)***	
Constant	1.008	-0.915	-1.784	-0.837	-1.161	-0.834
	(0.235)***	(0.142)***	(0.599)***	(0.145)***	(0.778)	(0.147)***
Income	Yes		Yes		Yes	
Education	Yes		Yes		Yes	
Employment status	Yes		Yes		Yes	
Marital status	No		Yes		Yes	
Age	No		Yes		Yes	
Country-specific variables	No		No		Yes	
Observations	172,848	172,848	172,848	172,848	172,848	172,848

Results: effects of age

- Additional regressions for both parenting and the number of children show that:
  - For parenting the negative effect decreases with age and disappears for people aged 65 and more
  - For the number of children the negative effect increases with age, but is then null for people aged 65 and more.

Conclusions

- The presence of children correlates negatively with the probability of purchasing green goods.
- As the number of children increases, the probability of buying green goods decreases, suggesting that budget contraints prevail on the desire of leaving a sustainable environment to the children.
- Specifi aids should therefore be designed to help parents to purchase green goods

THANK YOU FOR YOUR ATTENTION!

matteo.migheli@unito.it

Dipartimento di
Economia e Statistica
Cognetti de Martiis