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# Should we extend the EU Eco-label to beef meat? A focus on consumers' purchase intention in Italy.

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  - Discussion concerning EU Eco-label application over food and beverages products
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# Environmental impact of agriculture and beef production

- The EIPRO Project led by IPTS (JRC) in 2006 and Weidema et al. 2008 (IMPRO-meat and dairy Project) identified beef meat and dairy products as those with greatest environmental impact in EU

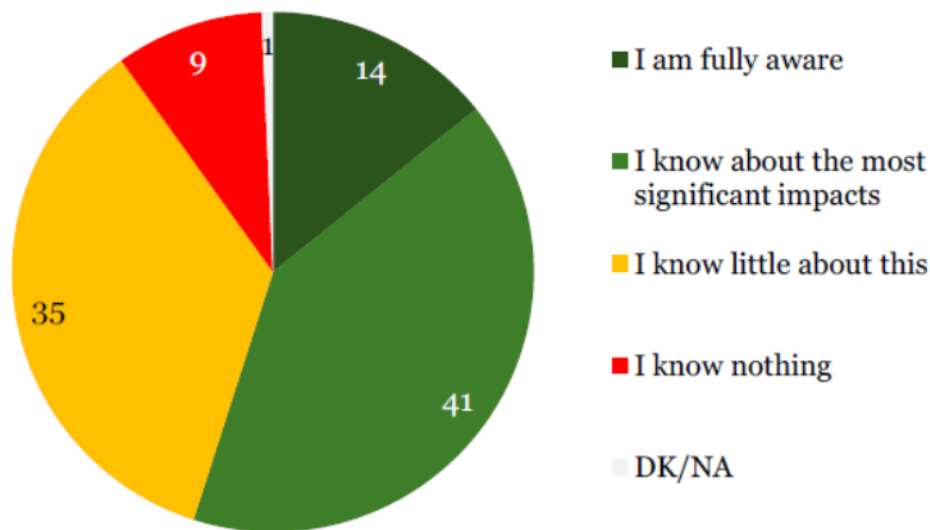
Impact category	Dairy products	Beef	Pork	Poultry	All four product groups
<i>Midpoint categories:</i>					
Eutrophication, aquatic	40	24	28	8	100
Eutrophication, terrestrial	36	31	24	10	100
Global warming	41	28	26	5	100
<i>Endpoint (damage) categories:</i>					
Impact on ecosystems	36	35	22	8	100
Impacts on human well-being	36	31	23	9	100
Impacts on resource productivity	36	31	24	9	100
All impacts	36	34	22	8	100

Source: JRC, 2008



# How much do you know about the environmental impacts of the products you buy or use? (% EU27)

Awareness about the environmental impact of products bought or used



**14%** Fully aware of the total environmental impacts of these products

**41%** Aware of the most significant environmental impacts of these products

**35%** Know little about environmental impacts of the products they buy or use

**9%** know nothing

Source: Eurobarometer, 2009

# Eco-labels

- Voluntary eco-labelling is the result of a business approach which aims to take advantage of market forces to influence the informed consumer  
(Case, 2001)
- Introduced in order to make it possible for the consumers to distinguish products less harmful to the environment from other products  
(Grankvist et al., 2004)
- They act as a certification process that awards a symbol or seal to a manufacturer once a product has been deemed ecologically safe  
(Hassan and Vandermerwe, 1994)
- Industry groups also argue that certification of ecolabels offer some positive benefits such as increased credibility and better forms of communication  
(Sinclair, 1996)



# Determinants of demand for eco-labelled products

- Knowledge of eco-label existence and meaning  
*(Thøgersen, 2002)*
- Consumers' attention for the environment and for own health  
*(Chinnici et al., 2002; Fotopoulos and Kristallin, 2002; Harper and Makatouni, 2002)*
- Ethical, social, political, moral values and beliefs; institutional framework  
*(Berghung and Matti, 2006; Torgler and García-Valiñas, 2007)*
- Trust towards eco-label  
*(Thøgersen, 2000)*



# Constraints in consumer purchase decision

## Knowledge

- A precondition for the choice of an eco-label product is the knowledge of its existence (*Palm and Jarlbo, 1999*)
- Even if consumers find some environmental information on a product, they are not always able to interpret it (*Brécard et al., 2009*)
- It's important to acknowledge the (mis-) perception that eco-labelling may create (*Galarraga Gallastegui, 2002*)

# Constraints in consumer purchase decision

## Price

- “When consumers cannot determine the environmental performance of product, the price must be distorted upward to signal a clean product” (*Mahenc, 2008*)
- “If two products have similar environmental seals, consumers assume that the environmental characteristic of the higher priced product are better” (*Teisl, 2003*)
- Consumers may prefer eco-label product but they purchase less expensive standard ones because their low income (*Brècard et al., 2009*) which limit their willingness to purchase (*Torgler, 2007*)





# Eu-Ecolabel

- Institutional voluntary scheme, part of the EU policy to encourage more sustainable consumption and production
- Certification that can already be found on some products (detergents, textile, paints, etc.) and services (campings, hotels...)
- Established in 1992 and reformed with the EU Reg. 66/2010:
  - Focus on most significant environmental impacts throughout the product/service lifecycle
  - Market orientated
  - Environmental criteria defined to ensure that the top 10-20% performers could meet it
  - Evaluate the possibility to include food (feasibility study)



# Why and EU Ecolabel for foodstuff?

## Feasibility study

Source: JRC, 2008

- Most of current labels only concentrate on primary production instead of lifecycle
  - Organic is based on farming principles and not on environmental impact
- Stakeholders expectations is that an environmental label for food should cover also social and ethical issues
  - For meat and dairy products, animal welfare is a key issue
- 20% of Italian consumers look at eco-labeling in purchasing decision
- 28% have already seen Eu-Ecolabel logo.
- EU Ecolabel Board concluded in March 2012 that it would be valuable to extend the EU Ecolabel to food and feed products.
- Currently though, the board agreed it was not feasible from a methodological and technical point of view. Synergies with other existing labels (e.g. EU Organic logo) should also be analysed further.



# Research Question

- The opportunity to develop an Eco-label to foodstuff is evaluated by hypothetical institutional certification.
- Thus, is it possible to describe the intention to buy EU-Ecolabel food product?
  - Case study: Beef meat
  - Type of consumer: young Italian meat consumers
  - Methodology: Structural Equation Model (SEM) based on Theory of Planned Behavior (TPB)

# Theory of Planned Behaviour - TPB

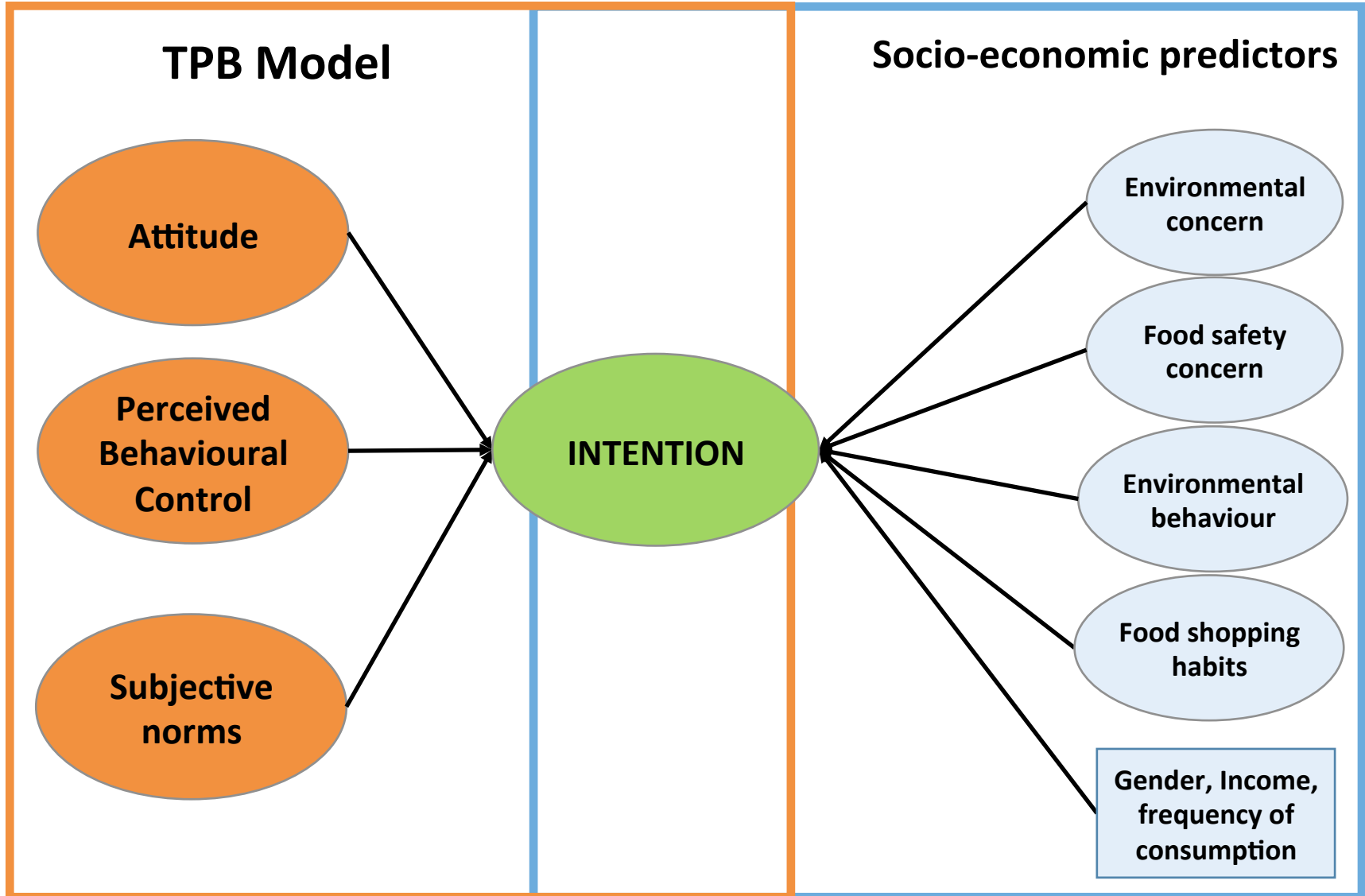
- Ajzen (1985) assumes that people intention to perform a certain behaviour depends on three main determinants:
  - Attitude towards the behaviour: attitude towards the introduction EU-Ecolabel on beef meat
  - Subjective norms: social pressure related to the behaviour of purchasing EU Ecolabel beef meat
  - Perceived behavioural control : consumers' perception of their ability to perform a certain behaviour



# Additional predictor

- Latent Variables
  - Food shopping habits (*Menozzi and Mora, 2012*)
  - Environmental concern (*Ignatow and De Groot, 2007*)
  - Food safety concern (*Verhoef, 2005*)
  - Environmental attitude (*Steg and Vleg, 2009*)
- Observed Variables
  - Frequency of purchase
  - Gender
  - Income

# Conceptual framework



# Data and Methodology

- Questionnaire arranged on the basis of the TPB framework extended with other variables relevant for food choices
- Data collection by means of web survey → n=1240
  - 1148 meat eaters (92.6%)
  - 92 non meat eaters (7.4%)
- Methodology
  - CFA (confirmatory factor analysis)
  - SEM (structural equation model)

# Descriptive variables

<b>Variable</b>		<b>n.</b>	<b>%</b>
<i>Gender</i>	Male	518	45,1
	Female	630	54,9
<i>Education</i>	Secondary School	73	6,4
	High School	319	27,8
	University or higher	756	65,9
<i>Employment</i>	Student	394	34,3
	Employed	417	36,3
	Self employed	204	17,8
	Unemployed	81	7,1
	Pensioner	52	4,5
<i>Income</i>	below average	258	22,5
	on the average	529	46,1
	above average	361	31,4
<i>Age</i>	up to 35	717	62,5
	over 35	431	37,5
<b>Total</b>		<b>1148</b>	<b>100,0</b>



# Descriptive variables

- How well do you think you know the EU Ecolabel represented below?
  - Among values between 1-7 the average value is 2,8 with only 3% answering 7 (very well) and 17% ranked 5 or more
- 80% of interviewed has been able to identify the correct meaning of EU-Ecolabel
- 16% rank 5 or more to the declaration to buy non-food product with EU-Ecolabel
- 75% of interviewed declare to be willing to buy food and beef with EU-Ecolabel

# Model Estimates - confirmatory factor analysis

Variable	Alpha	Factor loading	Variable	Alpha	Factor loading
<b>Intention</b>	0.93		<b>Environmental concern</b>	0.67	
Intention to purchase ecolabelled beef		0.865	Investments in environmental programmes		0.808
Intention to look for ecolabel symbol on beef		0.897	Control activities on food production		0.704
Importance of ecolabel symbol on beef		0.938	Food production environmental pollution		0.737
Importance of purchasing ecolabelled beef		0.945			
Willingness to buy ecolabelled beef		0.793	<b>Food safety concern</b>	0.54	
Willingness to buy ecolabelled products		0.811	Safety		0.771
			Controls		0.755
<b>Attitude</b>	0.83		Traceability		0.400
Taste		0.725			
Quality		0.838	<b>Food shopping habits</b>	0.68	
Animal welfare		0.709	Brand		0.508
Environmentally sustainable		0.772	Price		0.332
			Expiry date		0.440
<b>Perceived behavioural control</b>	0.59		Environmentally sustainable practices		0.736
Easiness to buy		0.248	Organic logo		0.763
Recognizability of symbol		0.845	Other ecolabelled products		0.529
Easiness to comprehend		0.721			
			<b>Environmental behaviour</b>	0.82	
<b>Subjective norm</b>	0.93		Recyclable products or with recyclable packaging		0.630
Friend's approval		0.916	Non environmental friendly firms		0.744
Family's approval		0.923	Plastic and glass recycling		0.905
Colleagues' approval		0.884	Paper recycling		0.805
Doctor's approval		0.856	Compost		0.535
			Water use		0.534
			Carrier bags		0.340
			Public transport		0.572
			Bio-degradable soaps		0.523



# Model Estimates - confirmatory factor analysis

Variable	Alpha
<b>TPB</b>	
Intention	0,93
Attitude	0,83
Perceived behavior control	0,59
Subjective norms	0,93
<b>Socio-economic</b>	
Environmental concern	0,67
Food safety concern	0,54
Food Shopping habits	0,68
Environmental behavior	0,84



# Structural Equation Model Estimates

Variable	Model 1 (Classic TPB)		Model 2 (TPB + other variables)	
	Estimate		Estimate	
Attitude	0.340***		0.195***	
Perceived behavioral control	0.714***		0.608***	
Subjective norm	0.419***		0.394***	
Environmental concern			0.067**	
Food safety concern			0.072*	
Food shopping habits			0.095**	
Environmental behavior			0.071**	
Frequency of beef consumption			-0.055*	
Gender (female)			0.161***	
Income			0.059*	
<i>Model fit indices</i>	<i>DWLS</i>	<i>Robust</i>	<i>DWLS</i>	<i>Robust</i>
CFI	0.990	0.945	0.978	0.931
TLI	0.988	0.934	0.975	0.925
RMSEA	0.129	0.160	0.087	0.079
RMSEA C.I.	0.125-0.134	0.155-0.164	0.085-0.089	0.077-0.081
R2 FOR INTENTION	0.651		0.674	

Significance levels: \*\*\*  $p \leq 0.01$ ; \*\*  $0.01 < p \leq 0.05$ ; \*  $0.05 < p < 0.1$



# Discussion

- TPB model construct has been validated in the case of the intention to buy EU-Ecolabel beef meat.

- The significant role of PBC variable could suggest that the improvement of the awareness of Ecolabels could play an important role in Italian market

- Among other variables
  - Coherence with the effect of Income and female gender (positive)
  - Interesting the negative effect related with the “frequency of consumption”



- Beef meat products could find market space by less involved consumers thank to Ecolabel strategy

# Thank you

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