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consumer perceptions of safety & the issue of trust**

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## The Country of Origin of Food: Consumer Perceptions of Safety and the Issue of Trust

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### Abstract

It is becoming increasingly difficult for the general public to attempt to assess risks using traditional methods such as smell, taste or other physical attributes of food. The existence of extrinsic cues such as the country of origin (COO) of food can help to make food purchase decisions easier for consumers. However, the use of extrinsic cues depends heavily on the extent to which consumers trust such signals to be indicative of quality or safety, which in turn depends on the credibility behind that cue.

Using an ordered probit model, COO is examined as an extrinsic cue for food safety by looking at the relationship between trust in food safety information provided by national food standards agencies (NFSAs) and the EU Food Safety Authority (EFSA) with nationally representative data from 2725 face-to-face interviews across five European countries. Results suggest that COO of food is an extrinsic cue for food safety and as consumers place increasing importance on food safety they are more interested in food produced in their own country. This, coupled with consumer trust in a strong, and independent national food standards agency, suggests the potential exists for the increased consumption of domestically produced foods.

**Keywords:** *origin of food; consumer behaviour; food safety; trust*

### Introduction and background

It is becoming increasingly difficult for the general public to attempt to assess risks using traditional methods such as smell, taste or other physical attributes of food and the safety of food is now commonly recognised as a credence attribute (an attribute which cannot be observed by consumers either before or after buying the good). The existence of extrinsic cues such as brand, price, store name and the country of origin (COO) of food can help to make food purchase decisions easier for consumers. It has been suggested that consumers have a broad, although socially differentiated, knowledge of the origin of foods, and the knowledge of food origin does play a significant role in food choice (Cook et al, 1998).

The COO of food is an increasingly topical issue in both policy and research. Within the EU as a result of the inability to use tariff barriers in order to encourage consumption of domestic products within the EU, regulations were developed to classify and protect products from certain regions. The aim of the regulation was to (i) encourage diversity in agricultural

production, (ii) to protect product names from misuse and imitation, (iii) to help consumers by giving them information concerning the specific character of the product (Ivon *et al.*, 2001). The result is over 640 products protected under the EU's Protected Designation of Origin and Protected Geographical Indication regulations.

The current literature on issues surrounding the consumption of COO products consists of four main focus areas. Two of which are generally more traditional economic studies using techniques such as cost benefit analysis or choice experiments: (1) the concept of food miles (2) price, willingness to pay, labelling and traceability, accessibility and convenience. Two of which are more consumer behaviour (or socio-psychological) oriented research focusing on attitudes and norms: (3) ethical/moral issues including fair trade, animal welfare, the environment and patriotism or food ethnocentrism (culture, religion and politics) (Bruning, 1997) and (4) Information, knowledge and the use of extrinsic cues (Grunert, 1997; Hobbs, 2003).

These last two points, move from the traditional economic studies of COO emphasise the relationship between COO and other product attributes and show how trust is instrumental in ensuring credibility in the information provided to consumers by food standards agencies. COO is often believed to be a cue for quality, dependability, reliability and safety of the product when there is little other information available. However, the use of extrinsic cues depends heavily on the extent to which consumers trust such signals to be indicative of quality or safety, which in turn depends on the credibility behind that cue.

## **Literature review**

Conner (1993) states that the process of making food choices depends on the individuals emotional or affective reactions to food, behaviour tendencies and the individual's thoughts or cognitions prompting an investigation of the socio-psychological and the socio-demographic issues surrounding COO, and provides a brief description of the trust and risk perception issues related to food safety.

Previous research that has focused on consumers' perceptions of the country of origin (COO) of products has generally classified consumer behaviour issues in terms of two key components. These components include COO as an extrinsic indicator of the safety or quality of a product when there is little other information available; and secondly, relate a person's Group identity or national pride (Bruning, 1997).

## **Socio-psychological issues**

Nes and Bilkey (1993) noted that COO should not be discussed as the sole issue regarding product purchase as it is merely one of several attributes which may influence purchase decisions, and in order to compare and measure, the importance of locality of production of the food needs to be placed alongside other attributes which may influence purchase. These related attributes, which may impact with and on COO in the decision making process include: the importance of political and moral motives; cultural influences; and ethnocentrism and can

be described in terms of cognitive, affective and normative terms. These dimensions can be defined as cognitive – representing the perceived characteristics of the nation and its products; affective – the attitude of an individual towards a country likes and dislikes (neophobia); normative – the ‘appropriate’ or proper actions conveyed with regards to a country and its people (Groves, 2000).

Political and ethical motives may include issues relating to a person’s attitude to a specific country or region and encompass fair and free trade as well as labour laws, human rights issues and animal welfare or environmental concerns (Wirthgen et al, 1998). A country’s image will often act as a ‘halo’, or a reason to trust, especially for those consumers with limited awareness, exposure or knowledge. The influence of COO on purchasing behaviour has been shown to be stronger for countries or cultures that differ widely from the consumer’s own country (Han, 1990). Further political factors include trade embargos or conflicts which may encourage propaganda against the purchase of products from a specific country, and immigration which may alter peoples’ attitudes (positively or negatively) towards food from other countries through exposure to new types of foods and the availability of different products. Cultural issues are particularly important with relation to food and have been widely investigated in the literature (Fischler, 1988; Askegard and Madsen, 1995; Bell and Valentine, 1997; James, 1996 and 1997).

The normative concept of doing what is right may influence consumers’ buying, for example the ethnocentric attitude of consumers’ buying from their home country’s produce as it is ‘the best’, economically or socially, for their country, or buying local to ensure higher ethical/moral/cultural standards as a trade-off with price or variety (Groves, 2000). Work by Groves, 2001 looks at an ‘authenticity indicator’, to examine the benefits of retaining certain food products within a culture and the importance of (food) culture/s considered to be unique to a geographical region.

### **Socio-demographic issues**

In conjunction with these socio-psychological influences on food purchasing behaviour there are several important socio-demographic issues to be addressed. This could be done by investigating the purchasing behaviour of different socio-economic groups. Several studies have been undertaken which indicate that the importance of country of origin, although generally low, decreases as the importance of price increases (Johansson, 1993; Heslop, 1993; Ohmae, 1989). A previous UK study also indicates that older consumers (older than 45) associate regional foods with those from areas within the UK where younger (younger than 35) consumers broaden this term ‘regional’ to include international foods which are associated within certain areas in the UK e.g. Indian food from Brick Lane, an area of London with a large Indian community (Kuznesof et al, 1997).

## **Trust and risk perception**

The application of trust to risk and food safety issues has been widely investigated in media and information related studies (Slovic, 1992; Frewer et al, 1996; Liu et al, 1998; Lobb 2005.). From an economic view point, it is also important to look at the interaction of trust in 'institutions' or individuals (suppliers of food or government/regulators) on consumers purchasing behaviour (Bocker and Hanf, 2000; Eiser et al, 2003). Determining who, how and why a consumer trusts certain information sources or suppliers is an important component for food safety projects. A consumer's trust in the 'institution' or individual they purchase from, to some extent, must be unconditional as consumers are fully reliant on a provider's reputation and a regulator's competence.

A more structured and operational definition of trust in communication is given by Renn and Levine (1991). Five different components for trust are identified and they include the degree of perceived expertise of the source, lack of biases in information, fairness, consistency over time and good faith. A similar breakdown is proposed in Frewer et al. (1996), where the identification of trust dimensions is supported by factor analysis. In their studies Frewer et al. found to be relevant across cultures only two dimensions, defined as perceived expertise (i.e. competence) and trustworthiness (i.e. honesty).

It is widely agreed that risk perception can be altered depending on a person's trust in the information, or the source of that information. For example, if a consumer were to read a food safety related article in a newspaper considered by that person to be trustworthy quoting from a credible, and hence trusted, sources, the consumer's risk perception is likely to alter to reflect the information as a result of their trust (See McGuire, 1985 or Johnson and Slovic, 1995). Eiser et al (2003) note that controlling for the acceptance of technology decreases the positive correlation between trust and risk perception (Eiser et al, 2003). This suggests that any erosion of public trust, or an increase in perceived risks, in response to some specific hazard is likely to decline the general acceptance towards the related technology e.g. distrust in nuclear power following the 1986 Chernobyl incident, which may in turn have influence on the purchasing behaviour of the consumer.

## **Data**

Data was from a nationally representative survey with a total of 2725 face-to-face interview across five European countries: France, Germany, Italy, Netherlands and the United Kingdom, in May 2004. The adopted sampling method was Random Location Sampling, which provides a country-representative subdivision into locations; the locations are selected randomly across potential locations to give national representativeness (i.e. probability of extraction proportional to population). The sampling unit was the household and the respondent the person responsible for the actual purchase of food. The questionnaire took approximately 30 minutes to complete with 'prompts' on certain questions from the interviewer when required by the respondent. Data were subject to a 10% validation.

Most questions were based on a 7-point Likert scale. Chicken was chosen as the product to be investigated in the survey as it is a widely consumed food and is not usually associated with extreme risks despite being potentially subject to a number of hazards. The dependent variable was phrased in the following way :

Safe chicken is...						
Produced in your home country:						
Completely Disagree			Neither			Completely Agree
1	2	3	4	5	6	7

Questions measuring perceived risk were adaptations of previously used questions (e.g. Slovic, 1992), again posed as 7-point Likert scales. The trust questions were measured as 7-point Likert scales based on a set of food safety information sources (including food safety agencies) in relation to the risks of salmonella in food. Other questions relating to the degree of importance placed on food safety in general, animal welfare and ethical food production (fair trade etc), the importance of local community livelihood, the value for money with relation to food and general socio-demographics (age category, education levels, gender and income brackets) were also used <sup>1</sup>.

## Methodology

Using an ordered probit model, we examine COO as an extrinsic cue for food safety by looking at the relationship between trust in food safety information provided by national food standards agencies (NFSAs) and the EU Food Safety Authority (EFSA). Given a dependent variable that is discrete, nominal, ordered and non-continuous, the ordered probit model is an appropriate technique (Liao, 1994). This model belongs to the class of discrete choice probability models widely used in the analysis of attitudes, behaviours and choices and the likelihood of their occurrence. The ordered probit model is estimated by the BFGS (Broyden-Fletcher-Goldfarb-Shannon) maximum likelihood algorithm in the LimDep package. Two main outputs are produced: estimates of the coefficient for the ordered probit equation, i.e. the relative weight of each intention determinant, and a table of marginal effects. The latter measures the change in probability for a given value of the dependent variable induced by a unit change in one of the determinants<sup>2</sup>.

The model is tested on consumer preference for purchase of chicken produced nationally versus imported chicken from other European countries - the relationship between trust in information provided by the NFSA and the EFSA versus the degree of safety envisaged if buying chicken produced nationally versus imported from other countries within the EU.

1. The choice of independent variables was based the literature review above and on some preliminary qualitative data gathered from a set of 4 focus groups conducted in June 2005 which looked at consumer behaviour towards, and willingness to pay for local national and imported foods.

2. A detailed discussion of the ordered probit model is provided by Greene (2003, pp. 736-740).

## Results

As discussed before the idea is to investigate the nature of the COO as an extrinsic cue for food safety by looking at the relationship between trust in information provided by the NFSA and the EUFSA as trust is instrumental in ensuring credibility in both the information provided by food safety agencies as well as the potential ability for the increased consumption of nationally produced foods if this trust exists. Although the dependent variable looks at chicken specifically, it is hoped that the results can be extended to fresh food in general.

The marginal effects, which measure the change in probability for a given value of the dependent variable induced by a unit change in one of the determinants, are presented in Table 1.1. These focus specifically on those consumers that completely agree with the statement that safe chicken is produced in your home country.

**Table 1.**

Safe chicken is...produced in your home country

	Completely Disagree			Neither			Completely Agree	
<b>AGE</b>	-0.0053 **	-0.003 **	-0.0032	-0.0143 ***	-0.0048 ***	0.0045 *	0.0261 **	
<b>EDU</b>	0.0055 ***	0.0031 ***	0.0033	0.0149 ***	0.005 ***	-0.0047 **	-0.0271 ***	
<b>GEN</b>	-0.0011	-0.0006	-0.0006	-0.0029	-0.001	0.0009	0.0053	
<b>INC</b>	0.0012	0.0007	0.0007	0.0033	0.0011	-0.001	-0.006 ***	
<b>RP</b>	0.0042 ***	0.0024 ***	0.0025	0.0114 **	0.0038 **	-0.0036 **	-0.0207 ***	
<b>TRUST</b>	-0.0064 ***	-0.0036 ***	-0.0038	-0.0173 **	-0.0058 ***	0.0055 **	0.0316 ***	
<b>ETHIC</b>	0.0037 **	0.0021 **	0.0022	0.01 **	0.0034 **	-0.0032 *	-0.0182 **	
<b>COMM</b>	-0.0069 ***	-0.0039 ***	-0.0041	-0.0186 **	-0.0063 ***	0.0059 **	0.0339 ***	
<b>AWELF</b>	0.0002	0.0001	0.0001	0.0005	0.0002	-0.0002	-0.0009	
<b>SAFE</b>	-0.008 ***	-0.0045 ***	-0.0048	-0.0217 **	-0.0073 ***	0.0069 **	0.0395 ***	
<b>VFM</b>	-0.0012	-0.0007	-0.0007	-0.0032	-0.0011	0.001	0.0059	

Chi-Squared 279.12

Significant at 1% = \*\*\*; 5% = \*\*; 10% = \*

Predictive Power 0.36 (7 categories)

Predictive Power 0.81 (3 categories)

The predictive power, a good indicator of robustness for the ordered probit model, is reported as 36% and 81% for 3 and 5 categories respectively. The independent variables include: age category (AGE), education levels (EDU), gender (GEN), income by category (INC), risk perception (RP), trust in the national food safety agency (TRUST), importance of ethical food production (ETHIC), local community livelihood (COMM), animal welfare (AWELF), the importance of food safety in general (SAFE) and the importance of value for money (VFM).

These results indicate that older people are more likely to believe that safe food is produced in their home countries – this follows from previous studies, and fits with general perceptions of consumer behaviour, as it is generally believed that older generations are more likely to be attached to traditional values. Those people with lower levels of education and from lower socio-economic groups are also likely to believe that safe food is produced in their home countries.

With respect to trust issues, a 1% increase in trust in the national food safety agency will lead to a 3% increase in people being in complete agreement that safe food is produced at home.



The importance of local community livelihood has a positive relationship as would be expected. Those who believe that safe chicken is produced in their home country are possibly more likely to recognise the importance of their local community livelihood. Interestingly ethical production methods are negative which although unexpected, could be explained by observations that people who believe in the importance of how food is produced may believe this to be more important than where the food origin<sup>1</sup>.

The importance of food safety in general can also be influential in a positive manner suggesting perhaps that COO of food is indeed a strong extrinsic cue for food safety. As people place increasing importance on food safety then they are more interested in 'safe' food produced in their own country.

## Conclusion

The results from this investigation imply that COO of food is indeed an extrinsic cue for food safety, and, as consumers place increasing importance on food safety they are more interested in food produced in their own country, and the importance of socio-demographic characteristics in food marketing through use of COO. The nature of COO as an extrinsic cue for food safety coupled with consumer trust in a strong, and independent national food standards agency, suggests the potential exists for the increased consumption of domestically produced foods.

These findings are interesting from a policy perspective in two distinct ways. First, the use of COO labelling to encourage consumption of domestic produce and second, by increasing the public's trust in their national food safety agency, countries may potentially increase the profile of their national food safety agency in general which may lead to a better trust relationship with respect to food safety information and communication.

Further research should focus on cultural issues and investigate differences across European countries, as well as examining the influences of lifestyle variables such as food neophobia and how these issues influence purchasing behaviour through COO.

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1. Correlation was used to check that there was no relationship between ethics, age and education.

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