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A greater share of the stomach? Role of provenance and ethical standards on consumers' food choices and purchasing intentions

Abstract

Purpose: Provenance and ethical standards reflect foods that are traceable and are supportive of the environment, sustainability and justice in the food supply chain. The aim of this study was to understand higher education consumers' food choices and to examine the predictors of purchasing intention of food with provenance and ethical standards.

Methodology: An online questionnaire was completed by 296 students and staff members of University of Central Lancashire. The questionnaire collected information on sociodemographic profiles; food choices, provenance and ethical standards; ethical purchasing and sourcing requirements and purchasing intention of food products with provenance and ethical standards. Descriptive statistics were used to determine the frequency of distribution of all sociodemographic characteristics. Multiple regression was used to examine if attitude, perceived behavioural control and subjective norms of the Theory of Planned Behaviour (TPB) significantly predict the consumers' purchasing intention (step 1). Exploratory factor analysis was conducted on the behavioural items using principal components estimation and varimax rotation. Multiple regression on the expanded TPB (step 2) using the obtained factor scores were conducted to determine if the factors were significant predictors of purchasing intention of food with provenance and ethical standards.

Findings: Multiple regression on the expanded TPB model revealed that only attitude and perceived behavioural control were significant predictors of purchasing intention of food with provenance and ethical standards. The regression model explained about 50% of the variance of the intent to purchase food with provenance and ethical standards where $R^2 = 0.50$, (Adjusted $R^2 = 0.47$). This was significantly different from zero $F(5, 89) = 17.77$, $p < 0.001$. The incorporation of 'Preference for ethically sourced food and 'Perceived knowledge and status of provenance standards' did not increase the prediction of purchasing behaviour.

Originality: Two broad themes were identified from the factor analysis where the first factor prioritises 'Preference for ethically sourced food' and the second factor conceptualises 'Perceived knowledge and status of provenance standards'. The Theory of Planned Behaviour (TPB) was expanded to incorporate both factors but did not increase the prediction of purchasing intention. The authors recommend that other potential predictors e.g. moral concerns or perceived value of food with provenance and/or ethical standards to

be tested using an extended TPB framework. The study is of value to higher and further education catering services to encourage more sustainable and local food consumption.

Keywords: animal welfare; ethics; origin; sustainability; Theory of Planned Behaviour

Introduction

Place of provenance refers to any place where a food is indicated to come from (EEC 2913/92). The significance attached to food provenance by consumers will impact the economic development of local or international economies, transport systems, relation between urban and rural areas and social welfare consequences on farmers and workers (Morgan *et al.*, 2006). Food provenance is very much driven by geographical indications (Gangjee, in press) and traceability (Mattevi and Jones, 2016). Previous studies on food provenance among US and Canadian consumers found that only 2.2% of 1248 consumers indicated that their knowledge of the product's country of origin might have influenced their product choice (Liefeld, 2005) while Kemp *et al.* (2010) reported that 5.6% of 251 UK consumers in a revealed preference survey selected country of origin as one of the reasons when purchasing fresh food items. Only 3.6% indicated that they had consciously selected British produce as they were less harmful for the environment (Kemp *et al.* 2010). In a separate study, rural consumers were found to place more importance on British and locally produced food. The majority of the rural consumers also expressed positive attitudes towards farming and food provisioning issues compared to urbanites (Weatherell *et al.*, 2003). The emergence of Farmers' Markets in the UK since 1997 also emphasised the concept of provenance, creation of face-to-face interaction between producers and customers, linking locality to quality, ethical and environmental qualities (Holloway and Kneafsey, 2000; Ramsingh and Wallace, 2015). Other crucial examples include the Campaign to Protect Rural England (CPRE) which initiated the 'Mapping the Local Food Web toolkit' (CPRE, 2012) and Sustainable Food Cities Network by Soil Association, Food Matters and Sustain (Soil Association, 2017). Local and sustainable food projects help to increase awareness of food origins, create new jobs and small businesses and develop best practices from farm to fork (CPRE, 2012; Sustainable Food Cities, n.d.). There may exist a link between provenance and ethical standards as Lazzarini *et al.* (2017) revealed that consumers rated locally produced food products more positively. This was influenced by both environmental impact and sustainability of food (Lazzarini *et al.* 2017; Sims 2009). Order processing time and uniqueness of local food products were also found to significantly influence restaurants' purchasing decision (Sharma *et al.*, 2014).

Ethical values are also reflected in food sustainability which comprises promotion of good health (although provenance is not necessarily an indicator of healthy products), social inclusion and affordability. It is also supportive of the local economy, promotes animal welfare and fair trade, encourages sustainable farming with high environmental standards and reduced energy consumption (Sustainable Development Commission, 2011). According to Koster (2009), these ethical, environmental, integrity and sustainability values represent the extrinsic characteristics of the food products. In fact, the environmental and ethical production can be represented as the two main dimensions in sustainable food (Grunert *et al.* 2014). On the other hand, the intrinsic characteristics of food choices are represented by food safety, nutrition and price (Lusk, 2008), sensory appeal (Steptoe *et al.*, 1995), taste and availability (Lusk, 2008; Honkanen and Frewer, 2009), familiarity, natural content of food (Pieniak *et al.*, 2009) and weight control (Steptoe *et al.*, 1995).

Previous studies identified the gap between attitudes towards sustainable behaviour and purchasing intention of sustainable food products. Being involved in sustainability, certainty of information about products and perceived consumer effectiveness influenced consumers' attitudes towards purchasing of sustainable products (Vermeir and Verbeke 2006). Shaw *et al.* (2000) described control, ethical obligation and self-identify as influential factors among UK consumers when purchasing Fairtrade grocery products. Similarly, McEachern *et al.* (2007) found moral obligations influence consumers' attitudes and purchasing behaviour towards Freedom Food branded meat. Consumers' location also influenced their ethical brand choice. Meanwhile, a positive moral attitude had stronger influence in purchasing of organic foods in UK and Italy (Arvola *et al.*, 2008). Similarly, positive moral attitude significantly affects consumers' purchasing intention of sustainably sourced food (Dowd and Burke, 2013). Animal welfare, social welfare of farm workers and support for family farms were the top three additional ethical attributes in purchasing of organic food in the UK (Zander and Hamm, 2010) while support for sustainable food production was prominent in Australia (Dowd and Burke, 2013). Consumers were also willing to pay more for organic food with additional ethical attributes (Zander and Hamm, 2010). An investigation in selected countries in Asia and Asia Pacific revealed that ethical concern was not considered an important influence of food choice by all countries except Japan (Prescott *et al.*, 2002).

Within the food service supply chain i.e. food procurement, storage, preparation, cooking and service, Baldwin *et al.* (2011) reported that food procurement contributed the highest environmental impact. Food procurement here includes purchasing of food and beverages from other food processors, agricultural producers and brokers/foodservice suppliers. Public and private food services are in a strong position to support their local economy and

sustainable food production (Wahlen *et al.*, 2012). For example, the UK food service sector is set to reach a value of US\$ 68.8 billion by 2019 (Horizons, 2015) while the food service industry in the US represents more than US\$ 782 billion (National Restaurant Association, 2016). The value of food procurement in selected UK universities was US\$27 million per annum (Rimington *et al.* 2006) while the university and college foodservice settings in US represent more than US\$33 billion in revenue (Technomics, 2016). Food services in higher education institutions play a significant role in sourcing for local food and providing food with additional ethical values. In the UK, the University Caterers Organisation (TUCO) is committed to ensure sustainability best practices and the health and wellbeing of consumers (TUCO, 2016). Previous studies within university settings had looked at reducing food waste behaviours (Harvard University Sustainability, 2016; Painter *et al.*, 2016; Whitehair *et al.* 2013), sustainable food consumption (Vermeir and Verbeke, 2006), campus sustainable food projects (Barlett, 2011), using locally sourced fresh organic foods (Fien, 2002), community-supported agriculture programmes on campus (Wharton and Harmon, 2009) and behaviour towards locally sourced food (Campbell *et al.*, 2014). Despite studies on importance of sustainable food, ethical food consumption and country of product's origin, there is a gap in understanding of the influence of food provenance and ethical standards towards consumers' purchasing behaviour within the higher education sector.

Thus, the aim of this study is to understand higher education consumers' food choices and to examine the predictors of purchasing intention of food with provenance and ethical standards using the TPB framework. This is followed by exploring other potential variables to be included as additional constructs in the extended TPB framework. The Theory of Planned Behaviour is one of the most useful framework in explaining human behaviour (Ajzen 1991) and is often used in studies to examine food choices. TPB has successfully predicted consumers' purchasing decisions of Fair Trade food products (O'Connor *et al.*, 2017), buying sustainable seafood (Honkanen and Young, 2015) and purchasing local food (Sharma *et al.*, 2014) whilst other studies found benefits in expanding TPB by adding new constructs. For example, additional constructs such as moral attitude and health concern improved the predictive power of TPB in purchasing organic food (Yadav and Pathak, 2016) while perceived value and willingness increased the predictive power of consumer green purchase intention (Yadav and Pathak, 2017).

Methodology

An online survey was conducted among students and staff from University of Central Lancashire. The online questionnaire was developed using Survey Monkey® (Survey Monkey®, Palo Alto, CA, USA) after reviewing the current literature and discussion with the

catering and hospitality department. A questionnaire consisting of 4 sections: i) demographics; (ii) food choices, provenance and ethical standards; (iii) ethical purchasing and sourcing policy and (iv) purchasing intention of food products with provenance standards was developed. The TPB section assessed participants' purchasing intention and is divided into attitudes, subjective norms and perceived behavioural control. Behavioural intention is influenced by: a person's attitudes; beliefs about whether individuals who are important to the person approve or disapprove of the behaviour; and perceived control over performing the behaviour. The more positive the attitude, the higher the social expectations and control an individual feel about performing a behaviour, the more likely it is that the individual will do so (Ajzen, 1985).

A pilot test was carried out among students and staff (n=12) who provided recommendations to add and rephrase some questions. This helped to maximise clarity, interpretation of questions and to ensure reliability. The internal consistency of the questionnaire was evaluated using Cronbach's alpha. The ICC values range between 0 and 1, with values above 0.8 considered excellent reliability, 0.6 – 0.8 good, 0.4 – 0.6 moderate, and less than 0.4 as poor reliability (Landis and Koch 1977). The survey took 15 minutes to complete and was only available in English. Participants were provided with information regarding the survey and informed consent was given prior to answering the questions. Adverts regarding the survey were posted in both student and staff online information boards and 2 reminders were sent out during the survey period.

Descriptive statistics were used to determine the frequency of distribution of all sociodemographic characteristics. Exploratory factor analysis was conducted on the behavioural items using principal components estimation and varimax rotation. Using the TPB as a guide, the authors predicted that positive attitudes towards food provenance and ethical standards, strong subjective norms and greater perceived control will result in stronger purchasing intention behaviour. Further analyses on the obtained factor scores were conducted to determine if the factors were significant predictors of purchasing intention of food with provenance and ethical standards.

Results and Discussion 296 participants responded to the online survey with a good balance between staff and students, but heavily skewed to female respondents. None of the food provenance and ethical standards in Table 1 were recognised by more than 50% of the respondents.

Insert Table 1

Overall, this is similar to Ellis *et al.* (2009) who found that recognition of individual quality assurance logos was poor, although in this study only the names of standards were provided. RSPCA Assured (previously Freedom Food) was most recognised followed by Rainforest Alliance and Red Tractor. RSPCA Assured places importance on animal welfare, compassion and respect in the food supply chain (RSPCA Assured, 2016). McEachern *et al.* (2007) revealed in a previous study that although 20% of the respondents were strongly concerned about animal welfare, only 5% were attracted to the Freedom Food brand. Enhanced marketing communications on the ethical value of Freedom Food brand was recommended by McEachern *et al.* (2007). Similarly, Grunert *et al.* (2014) identified that consumers have better understanding of labels such as animal welfare, Rainforest Alliance, Fairtrade and Carbon Footprint as these labels seemed to be self-explanatory. The image of British farming is often communicated to consumers through the Red Tractor logo which represents the British Farm Standards and help consumers to identify UK produce. Red Tractor differs from other value-based scheme as it is specifically a British scheme, certifying British produce and represents a flavour of 'buy British' (Richards *et al.*, 2011). Promotion of the logo to consumers has been limited and there have been efforts to reconnect farmers and consumers (Duffy *et al.* 2003; Dowler *et al.*, 2009; Kirwan *et al.*, 2013; Morris and Kirwan, 2010).

Table 2 shows the perceived importance of ethical and provenance food standards. Animal welfare received the highest mean score for importance. This is similar to previous studies where the majority of consumers value the importance of purchasing meat that has been produced with high animal welfare standards (Clonan *et al.*, 2010; Defra, 2012; Schroder and McEachern, 2004). Support for local businesses and sustainable purchasing were also considered important. This reflects Chambers *et al.* (2007) and Weatherell *et al.* (2003) who reported widespread enthusiasm for local foods and like the idea of supporting local farmers and their own national economy. Interestingly Fairtrade was perceived as important by the respondents but this is contradictory to the % of recognition of Fairtrade brand in Table 2. Fairtrade was listed under 'Other types of certification' and respondents were given the option to provide their own answers. This may have reduced the actual amount of recognition by the respondents. However, Fairtrade is important, as the UK has one of the largest markets for Fairtrade products such as tea, coffee, chocolate and bananas and also in brewed coffee and tea in cafes such as Starbucks (Pierrot *et al.*, 2011) and McDonalds (Ladhari and Tchegnna, 2015; Murphy *et al.*, 2011). The Fairtrade scheme addresses equity and justice in international commodity markets and aims to reduce poverty, increases participation and empowerment of producers and workers in developing countries (Melo *et*

al., 2014; Philips, 2014; Smith, 2010). Fairtrade-labelled products were more influential compared to organic labels in Belgium (Rousseau, 2015), similar to these findings, while consumers claimed that food and drinks tasted better with FairTrade logo (Lotz *et al.*, 2013; Tang *et al.*, 2016).

Insert Table 2

TPB model for purchasing intention of food with provenance and ethical standards
Multiple linear regression was performed to evaluate the TPB model for purchasing intention behaviour (Step 1). Cronbach alpha analyses of their responses revealed moderate to high reliability (Table 3) demonstrating consistency between subjects when answering the questions. Intention to perform the behaviour was predicted from direct attitudes, subjective norms (SN) and perceived behavioural control (PBC). The regression model explained about 50% of the variance of the intent to purchase food with provenance and ethical standards where $R^2 = 0.50$, (Adjusted $R^2 = 0.47$). This was significantly different from zero $F(5, 89) = 17.77$, $p < 0.001$. Two predictors (attitude and PBC) contributed significantly to the prediction of purchasing behaviour. This suggests that participants with positive attitudes ($\beta = 0.67$) towards ethical products were more likely to purchase them. This is in line with Michaelidou and Hassan (2016) who found that attitude and purchase intention towards organic and free-range produce were driven by ethical lifestyle. Usage of food products labelled with environmental and ethical values were also related to positive motivation (Grunert *et al.*, 2014). It is suggested that purchasing of local and ethically-labelled food products can be increased by relating consumers' positive attitude and motivation with their moral and ethical lifestyle.

Insert Table 3

There is a negative relationship between perceived behavioural control (i.e. availability of food with provenance and ethical standards and ease of differentiation) and purchasing behaviour ($\beta = -0.22$). The lack of such food and difficulty to differentiate conventional with ethically labelled food products reduce the likelihood of purchase behaviour. This behaviour is reflected in Table 4 i.e. 'I have access to a wide selection of ethically sourced food on campus' which received 3.06 ± 0.91 mean scoring ($n=210$). Respondents were largely undecided about the availability of such food on-campus. However, respondents scored 3.61 ± 0.91 on 'I have access to a wide selection of ethically sourced food off-campus'. This suggests a higher availability of ethically-labelled food products from off-campus shops and cafes. Finally, most of the respondents somewhat agreed that they 'will choose to buy

ethically sourced food from campus in future' (3.52 ± 0.90). Hjelm (2011) described that convenience behaviours will influence purchasing behaviour of organic food products. In this case, organic foods should be made available and they have to be clearly visible with an eco-label to promote purchasing behaviour. Provision of ethical and local food can be improved by increasing the availability and displaying the products more prominently in university's cafes and refectories. This can potentially increase consumers' convenience behaviour to purchase the products. There were no significant relation between subjective norms and purchasing intention of food with provenance and ethical standards. This contradicts Kimura *et al.* (2012) findings where extrinsic social factors were found to influence buyer's motives.

Insert Table 4

Exploratory factor analysis and extended TPB model

Table 5 summarises the results of the factor analysis. Kaiser-Meyer-Olkin (KMO) = 0.88 and Bartlett's test of sphericity $\chi^2 (136) = 1466.11, p < 0.001$. Principal component analysis of 14 variables yielded 5 components with eigenvalues ≥ 1 together accounting for 73.58% of the variance. However, based on eigenvalue ≥ 1 criterion and inspection of the scree plot and interpretability, only two factor loadings were selected (Conway and Huffcutt, 2003). The two factors explained 39.31% of the item variance. All items that are loaded higher than 0.5 are considered in the interpretation of the factors. When factors are loaded higher than 0.5, this is considered significant (Hair *et al.*, 2006; Verain *et al.*, 2015). Factor 1 consisted of 7 items relating to purchasing and consumption of ethically sourced food and is labelled 'Preference for ethically sourced food'. The findings reflected previous studies where consumers preferred ethical attributes such as animal welfare, regional or local production, organic products and fair prices to farmers (Zander and Hamm, 2010; Zander *et al.*, 2013) and preference for local food (Niva *et al.*, 2014). Factor 2 composed of 3 items concerning understanding and influence of provenance standards and is labelled 'Perceived knowledge and status of provenance standards'. Grunert *et al.* (2014) revealed that usage of food products with sustainability labels were related to understanding of the labels. This has led to further analyses of the factor scores where 'Preference for ethically sourced food' and 'Perceived knowledge and status of provenance standards' were regressed to predict purchasing behaviour.

Insert Table 5

Insert Figure 1

The Theory of Planned Behaviour was expanded to incorporate the two factor scores derived from principal component analysis (Step 2). Preference for ethically sourced food and perceived knowledge of provenance standards were found to be underlying factors derived from the 14 food choices, provenance and ethical purchasing variables. Further regression of both factors (preference for ethically sourced food and perceived knowledge of provenance standards) were not significant predictors of purchasing intention of food with provenance and ethical standards (Figure 1). Attitude and perceived behavioural control remain the two significant predictors of the consumers' purchasing intention of food with provenance and ethical standards. This is dissimilar to Bahm *et al.* (2009) who found significant positive relationship in knowledge of organic food products and recognition of organic seal with attitude and purchasing of organic products. Previous empirical studies investigating the impact of nutrition and food safety knowledge have also produced mixed results. Although there is general consensus that knowledge is necessary, however, nutrition and food safety knowledge were not translated into healthy eating (Grunert and Wills, 2007; Verbeke, 2008) and food safety behaviours (Asiegbu *et al.*, 2016; Baser *et al.*, 2016; Lim *et al.*, 2016). The lack of relation between perceived knowledge of provenance standards and purchasing behaviour may also be due to contradiction among consumers e.g. in supporting either local food and/or Fairtrade products imported from other countries. Consumers may struggle when making ethical choices whilst considering to support British products or international food products (Adams and Raisborough, 2010). Vermeir and Verbeke (2006) also found that limited information and/or more complex or contradictory information may result in uncertainty among consumers on what products to purchase.

Limitations and future research

The results from this study cannot be generalise to other populations due to the small sample size and setting. The survey was based on self-reporting, hence findings should be interpreted with caution. Clayton and Griffith (2004) suggested that observational approach would produce higher reliability and accuracy. The implication for future studies is to carry out observational studies of consumers selecting and purchasing food with or without provenance and ethical standards. Similarly, caterers can measure the sales and/or demand for such food. Other factors can be explored to improve prediction power of purchasing intention of food with provenance and ethical standards. Price was not included as a factor in the theory of planned behaviour and the authors strongly recommend it be analysed in future prediction. Price may be a significant factor in consumers' purchasing behaviour as noted in Bondy and Talwar (2011). During recession periods, consumers who occasionally purchase Fairtrade products were found to decrease their purchases as they became more price

aware. Future research should also look into barriers that prevent consumers from purchasing more local and ethically produced food. It will also be interesting to stratify the consumers according to generations i.e. Generation X, Y and baby boomers. The foodservice sector in higher education caters for one of the most influential consumer segments today – the Generation Y or millennials (individuals born between 1980s and 2000) make up 26% of the UK population (Countrywide, 2015) and 25% of the US population (Apresley, 2016). This group is also more ethnically diverse and socially conscious and spends more on food and drinks (Apresley, 2016; Jang *et al.*, 2011). Previous research revealed that only a small segment of generation Y or millennials strongly supported ethical products (Young and McCoy, 2016). The authors also recommend further studies to determine the association between local or imported food (in relation to food provenance standards) with ethical standards. As provenance deals with country of origin, is there a possibility that consumers may associate local foods with as being more sustainable? Moral concerns and perceived value of food with provenance and ethical standards can be used as additional constructs to improve the predictive power of an extended TPB.

Conclusion

The aim of the study was to achieve a better understanding of consumers' food choices, and purchasing intention of food with provenance and ethical standards. Consumers recognised a good selection of provenance and ethical standards and perceived animal welfare as the most important in ethical food products. A majority of the consumers also support local economies and sustainable purchasing of food products but were undecided about reducing food miles. Two broad underlying factors were identified from a factor analysis of 14 variables on consumption of ethically and regionally produced food products. Both factors were incorporated into TPB to predict purchasing intention but did not increase the prediction power. The expanded TPB found that only attitude and perceived behavioural control are significant predictors of purchasing behaviour. This study is of value to food catering services particularly higher and further education caterers to improve consumption of local and ethically-produced food. The provision of sustainable, safe, quality food products is the commitment of the University Caterers Organisation in the UK. This can be done by increasing the availability and/or displaying the products more prominently. Food catering services can utilise social media, university's internal communication and marketing strategies to further orientate consumers' attitude in purchasing sustainably sourced food products. Similarly, positive attitudes of consumers can be improved by linking their motivation to purchase the products with their moral principles and ethical lifestyle.

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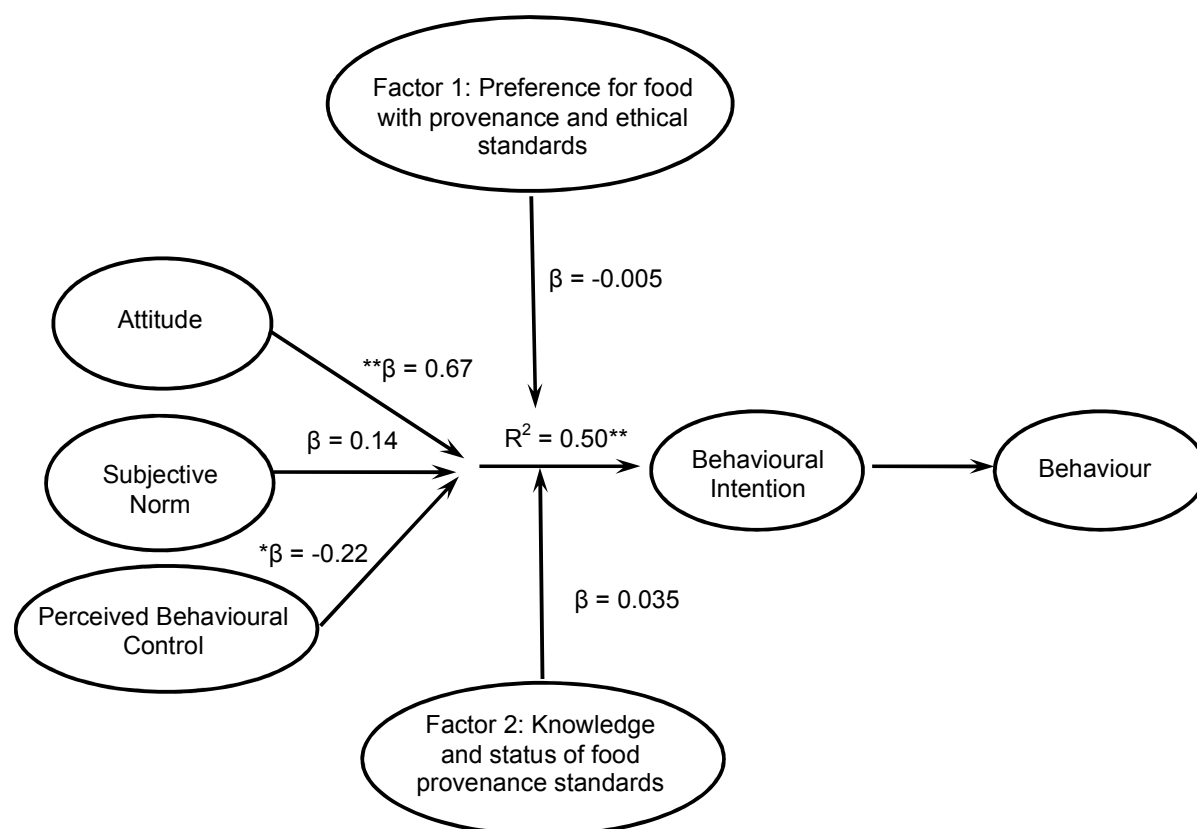


Figure 1. Expanded Theory of Planned Behaviour model to predict purchasing intention of food with provenance and ethical standards (* $p < 0.05$; ** $p < 0.001$) ($n=95$). Using multiple regression, the model explained about 50% of the variance of the intent to purchase food with provenance and ethical standards where $R^2 = 0.50$, (Adjusted $R^2 = 0.47$). This was significantly different from zero $F(5, 89) = 17.77$, $p < 0.001$. The Theory of Planned Behaviour was expanded to incorporate two factor scores derived from principal component analysis. Both factors were not significant predictors of purchasing intention of food with provenance and ethical standards.

Table 1 Recognition of food provenance and ethical standards (n=296)

| Food provenance or ethical standards | % |
|---|----------|
| Royal Society for the Prevention of Cruelty to Animals (RSPCA Assured [Previously Freedom Food]) | 41.55 |
| Rainforest Alliance | 38.18 |
| Red Tractor | 37.16 |
| Soil Association | 32.09 |
| Compassion in World Farming (e.g. Good Dairy; Good Egg; Good Meat) | 29.05 |
| Marine Conservation Society | 25.68 |
| A Taste of Britain | 24.32 |
| Marine Stewardship Council Certified Sustainable Seafood | 13.51 |
| Linking Environment and Farming (LEAF) | 8.45 |
| Others (Fairtrade, Vegetarian and Vegan Society approved, Coeliac UK Crossed Grain Symbol) | 3.04 |

*Note: Results are presented as number of respondents (%). Respondents can select more than 1 certification body or standards (n=296). RSPCA Assured (previously Freedom Food) received the highest recognition followed by Rainforest Alliance and Red Tractor.

Table 2 Importance of ethical and provenance food standards (mean, standard deviations [SD] (all on 5-point scale: not important at all – very important) and correlations (n=227)

| Ethical and provenance food standards | Mean | SD |
|--|-------------|-----------|
| Animal Welfare | 4.43 | 0.82 |
| Fairtrade | 4.02 | 1.03 |
| Organic | 3.27 | 1.15 |
| Reducing food miles | 3.60 | 1.03 |
| Support for local businesses | 4.19 | 0.88 |
| Sustainable purchasing | 4.03 | 0.91 |

Results are presented as mean \pm sd. Items are measured on a 5-point scale ranging from not important at all (1) to very important (5) using descriptive statistics. Animal welfare received the highest mean score for importance. Support for local businesses and sustainable purchasing were also considered important.

Table 3 Descriptive statistics of Theory of Planned Behaviour (TPB) components for purchasing intention of food with provenance and ethical standards (n=95)

| TPB variables [§] | Composition of items | Mean | SD | Cronbach's alpha | β |
|-------------------------------------|----------------------|------|------|------------------|---------|
| Attitudes | Mean of 2 items | 3.37 | 0.78 | 0.54 | 0.67** |
| Subjective Norms | Mean of 3 items | 2.01 | 0.99 | 0.91 | 0.14 |
| Perceived Behavioural Control (PBC) | Mean of 2 items | 2.94 | 0.82 | 0.73 | -0.22* |
| Behavioural Intention | | 3.31 | 1.02 | | |

Results are presented as mean \pm sd. [§]The attitudes, subjective norms, perceived behavioural control and intention items were measured on a 5-point scale ranging from 1 strongly disagree (1) to strongly agree (5) using descriptive statistics and multiple regression (*p < 0.05 and **p < 0.0001). Cronbach alpha analyses revealed moderate to high reliability. Attitude and PBC contributed significantly to the prediction of purchasing behaviour. This suggests that participants with positive attitudes towards ethical products were more likely to purchase them. There is a negative relationship between perceived behavioural control (i.e. availability of food with provenance and ethical standards and ease of differentiation) and purchasing behaviour.

Table 4 Food provenance and ethical standards (n=210)

| No. | Items | Mean | SD |
|-----|---|------|------|
| 1 | I understand the concept of provenance standards | 3.69 | 1.15 |
| 2 | The provenance and ethical status of food influences where I purchase my meals | 3.43 | 1.16 |
| 3 | Provenance is concerned about sourcing food locally and responsibly | 3.81 | 0.87 |
| 4 | Ethically sourced food is safe and quality food | 3.51 | 0.89 |
| 5 | The quality of ethically sourced food is more important than price | 3.53 | 0.94 |
| 6 | Ethically sourced food is healthy food | 3.17 | 0.93 |
| 7 | I prefer to eat ethically sourced food products | 3.73 | 0.97 |
| 8 | My ethics always influence my purchasing intention | 3.57 | 1.13 |
| 9 | Eating non-ethically sourced food products is against my moral principles | 3.29 | 1.06 |
| 10 | Understanding of food provenance labels and standards influence my purchasing intention | 3.64 | 0.95 |
| 11 | I will purchase foods labelled with food provenance standards | 3.69 | 0.98 |
| 12 | I have access to a wide selection of ethically sourced food on campus | 3.06 | 0.91 |
| 13 | I have access to a wide selection of ethically sourced food off campus | 3.61 | 0.91 |
| 14 | I will choose to buy ethically sourced foods on campus in future | 3.52 | 0.90 |

Results are presented as mean \pm sd measured on a 5-point scale ranging from 1 strongly disagree (1) to strongly agree (5) using descriptive statistics. The results are mostly positive suggesting that consumers prefer to purchase and consume ethically sourced food products.

Table 5 Exploratory factor analysis of food provenance and ethical standards (n=161)

| Factor 1 – Preference for ethically sourced food | Component 1 | Component 2 |
|---|--------------------|--------------------|
| Eating non-ethically sourced food products is against my moral principles | .83 | |
| My ethics always influence my purchasing intention | .82 | |
| Understanding of food provenance labels and standards influence my purchasing intention | .70 | .44 |
| I will choose to buy ethically sourced foods on campus in future | .65 | |
| I prefer to eat ethically sourced food products | .60 | .49 |
| I will purchase foods labelled with food provenance standards | .60 | .47 |
| The quality of ethically sourced food is more important than price | .55 | |
| Factor 2 – Perceived knowledge and status of provenance standards | | |
| I understand the concept of provenance standards | | .82 |
| Provenance is concerned about sourcing food locally and responsibly | | .79 |
| The provenance and ethical status of food influences where I purchase my meals | .46 | .71 |
| % of variance | 22.95 | 16.36 |
| Eigenvalues | 7.04 | 1.69 |
| Cronbach's α | 0.91 | 0.88 |

Exploratory factor analysis was conducted on the behavioural items using principal components estimation and varimax rotation. Kaiser-Meyer-Olkin (KMO) = 0.88 and Bartlett's test of sphericity $\chi^2 (136) = 1466.11, p < 0.001$. The two factors explained 39.31% of the item variance. All items that are loaded higher than 0.5 are considered in the interpretation of the factors. Factor 1 consisted of 7 items relating to purchasing and consumption of ethically sourced food and is labelled 'Preference for ethically sourced food'. Factor 2 composed of 3 items concerning understanding and influence of provenance standards and is labelled 'Perceived knowledge and status of provenance standards'.