

# **International Food Marketing Research Symposium**

Prague, Czech Republic

June 13-15, 2023

## **Proceedings**

# International Food Marketing Research Symposium 2023

## SCIENTIFIC PROGRAM

### Tuesday, June 13

- 14.30-16.30 Pre-conference workshop by COMFOCUS project  
**Enabling future-proof food consumer science: the role of BIG(ger)data from interlinking our efforts**  
Grand Hotel International Prague, Koulova 15, Prague 6, 160 45
- 18.00-20.00 **Welcome Reception and Registration**  
Grand Hotel International Prague, Koulova 15, Prague 6, 160 45

### Wednesday, June 14

Venue: The Faculty of Economics and Management, Czech University of Life Sciences Prague, Kamýcká 129, Prague 6, 165 00

- 08:00-09.00 **Registration**
- 09.00-09.15 **Opening session**  
*PEF EIV*  
*Klaus G. Grunert, Aarhus University, Aarhus, Denmark*  
*Jiří Zelený, University College Prague, Czech Republic*  
*Michal Lošťák, Czech University of Life Sciences Prague, Czech Republic*
- 09.15-10.30 **Session 1: Technology acceptance**  
*PEF EIV*  
**Willingness to pay for partly and fully sustainable organic products: Field research with experimental auction method**  
*Laszlo Bendequz Nagy, Agoston Temesi*  
Hungarian University of Agriculture and Life Sciences, Budapest, Hungary  
*Rodolfo M. Nayga*  
Texas A&M University, College Station, USA
- The role of goal framing and representative heuristics in enhancing consumer acceptance of precision fermentation technology**  
*Marija Banovic, Klaus G. Grunert*  
Aarhus University, Aarhus, Denmark
- Framing food: Unpacking the complexity of attitudes towards novel food technologies**  
*Ekaterina Salnikova, Marija Banovic*  
Aarhus University, Aarhus, Denmark
- 10.30-11.00 **Morning break**

11.00-12.30  
PEF EIV

## Session 2: Consumer behaviour and seafood

### Consumer values and self-identity as a basis for identifying segments of consumers of seaweed in the UK

Florent Govaerts

Nofima, Tromsø, Norway

Svein Ottar Olsen

University of Tromsø, Tromsø, Norway

### Sushi consumption in Croatia: An application of the Theory of Planned Behaviour

Marina Stambuk, Marina Tomic Maksan, Maja Simanovic

University of Zagreb, Zagreb, Croatia

### Factors influencing consumption behaviour towards aquatic food among Asian consumers: A systematic scoping review

Mausam Budhathoki

University of Stirling, Stirling, United Kingdom

### Exploring Swedish consumers' intention to consume sustainable seafood

John Armbrecht

University of Gothenburg, Gothenburg, Sweden

Kåre Skallerud

University of Tromsø, Tromsø, Norway

12.30-13.30

Lunch

13.30-15.00  
PEF EIV

## Parallel session 3-1: Sustainable consumption I

### Can we learn to like sustainable food? The development of taste preferences over time

Klaus G. Grunert

Aarhus University, Aarhus, Denmark

### Perceptions of food carbon footprint among UK consumers: Assessing awareness of environmental impact and implications for sustainable consumption

Andrzej Szymkowiak, Barbara Borusiak, Konstantinos Madias

Poznan University of Economics and Business, Poznan, Poland

### One label to rule them all? Exploring how a new holistic sustainability food label, consumers' attitudes and perceptions affect willingness to pay

George Tsalis, Susanne Pedersen, Jessica Aschemann-Witzel

Aarhus University, Aarhus, Denmark

Maira Dean, Tony Benson

Queens University, Belfast, United Kingdom

Michelle Felton

University of Reading, Reading, United Kingdom

### Consumer behaviour towards low trophic aquaculture products in Europe

Sezgin Tunca, Violeta Stancu, Karen Brunsø

Aarhus University, Aarhus, Denmark

13.30-15.00  
PEF E155

### Parallel session 3-2: Farming and production

**Using the extended technology acceptance model to examine Pakistani paddy farmers' behavioural intentions: Revisit drip irrigation technology**

Nadia Adnan

Prince Mohammad Bin Fahad University, Al-Khobar, Saudi Arabia

**Industrial buyers' food neophobia – a possible barrier to market entry? A study of industrial buyers in South Korea and Vietnam**

Gøril Voldnes

Nofima, Tromsø, Norway

**Seeking new strategic options for promotion of intermodal transport in perishables**

Juan Carlos Perez Mesa, Maria del Carmen Garcia Barranco, Emilio Galdeano Gomez, Laura Piedra Munoz, Jesus Hernandez Rubio

University of Almeria, Almeria, Spain

**Business model shift for sustainability adoption in food supply chains**

Samir Mili

Spanish National Research Council (CSIC), Spain

15.00-15.30

**Afternoon break**

15.30-16.45  
PEF EIV

### Parallel session 4-1: Healthy eating

**Emerging methods as an effective tool for researching the impact of front-of-pack nutritional labelling on consumer decision-making**

Adriana Ruskova, Jakub Bercik, Kristina Igarova, Jana Galova, Elene Horska

Slovak University of Agriculture at Nitra, Nitra, Slovakia

**Social norms and prototypes as factors influencing willingness and intention to consume foods with an unhealthy image**

Pernille Videbæk, Kristina Thomsen, Liisa Lähteenmäki

Aarhus University, Aarhus, Denmark

**Mother or child: The dietary impact of fathers' migration on the left-behind family members in rural China**

Jing Zhu, Xiaoyun Quan, Lijuan Cao

Nanjing University of Agriculture, Nanjing, China

**Driving better choices; Understanding decision-making through the lenses of health, sustainability, naturalness and price in atypical situations**

Tommaso Fantechi, Leonardo Casini, Caterina Contini

University of Florence, Florence, Italy

Liisa Lähteenmäki

Aarhus University, Aarhus, Denmark

15.30-16.45  
PEF E155

#### **Parallel session 4-2: Food marketing and ethics**

**Animal welfare ballot initiatives and the vote-buy-gap: The case of cage-free eggs**

*Giancarlo Moschini*

Iowa State University, Ames, USA

*Sohae Eve Oh*

JDC International, Jeonju, South Korea

*Tomislav Vukina*

North Carolina State University, Raleigh, USA

**Marketing role of CSR engaging consumers' behaviour in the food market**

*Zdenka Kadekova, Kristina Igarova, Ingrida Kosiciarova, Adriana Ruskova*

Slovak University of Agriculture at Nitra, Nitra, Slovakia

**Controversial consumerism: An extension of the Theory of Reasoned Action on behavioural outcomes**

*Jeffrey Campbell*

University of South Carolina, Columbia, USA

*Russell Zwanka*

Western Michigan University, Kalamazoo, USA

**Consumer food choices and perception of sustainability: Has anything changed?**

*Arbindra Rimal*

Missouri State University, Springfield, USA

16.45-18.00  
PEF EIV

#### **Session 5: Online media and consumer decision-making**

**Comprehensive understanding of tourists' online restaurant decision making using user-generated and marketer-generated content**

*Songphon Uthaisar*

Maharakham University, Maha Sarakham, Thailand

*Anita Eves, Lorna Wang*

University of Surrey, Guildford, United Kingdom

**Exploring the relation between content strategies and consumer engagement for plant-based milk posts on instagram**

*Francesca Lemmens, Malaika Brengman, Kim Willems*

Vrije Universiteit Brussel, Brussels, Belgium

**Consumer reactions to social media communication about sustainable aquaculture in Europe – input to a communication campaign across Europe**

*Themistoklis Altintzoglou, Pirjo Honkanen*

Nofima, Tromsø, Norway

## Thursday, June 15

09.00-10.30

PEF EIV

### Session 6: Food quality perception

**Laugh it off or drink it? The effect of humoristic labels on consumer decision-making about wine**

*Lena Pateraki, Chrisnathi Nega, Maria Doukeri, Toula Perrea, Maria Psimouli, Athanasios Krystallis*

American College of Greece, Athens, Greece

**The taste of organic certification: Construction of coffee quality by specialty coffee stakeholders and consumers**

*Marqarita Yelisseyeva*

Masaryk University, Brno, Czech Republic

*Jiri Zeleny*

University College Prague, Prague, Czech Republic

*Michal Lostak*

*Czech University of Life Sciences, Prague, Czech Republic*

**Distaste**

*Maria Frostling*

Stockholm Business School, Stockholm, Sweden

**Dimensions of food freshness – the consumer perspective**

*Morten Heide, Florent Govaerts*

Nofima, Tromsø, Norway

10.30-11.00

*Coffee break*

11.00-12.30

PEF EIV

### Session 7: Sustainable consumption II

**Does “sustainability” in B2B marketing evoke emotions in professional buyers?**

*Ingelinn Eskildsen Pleym*

Nofima, Tromsø, Norway

**Consumer propensity to boycott wine products - The influence of the seven sins of greenwashing and the moderating role of ecological attitudes and wine category involvement**

*Andrzej Szymkowiak, Bartłomiej Pieranski, Barbara Borusiak*

Poznan University of Economics and Business, Poznan, Poland

**Standardized supply vs. differentiated demand – an approach to analyse food waste**

*Funing Zhong*

Nanjing University of Agriculture, Nanjing, China

**Having less but wasting more? The counterintuitive effect of scarcity on food waste**

*Rhiannon Mesler*

University of Lethbridge, Lethbridge, Canada

*Bonnie Simpson*

Western University, London, Canada

*Katherine White*

University of British Columbia, Vancouver, Canada

12.30-13.30

Lunch

13.30-15.00

PEF EIV

### Session 8: Local food

#### Multiple identities: Food ethnocentrism and local foods

Carolina Ferrales Lopez

Aarhus University, Aarhus, Denmark

#### Regional food destination attractiveness: An exploration of food day-tripper preferences

Guljira Manimont, Juliet Memery

Bournemouth University, Bournemouth, United Kingdom

Thilini Alahakoon

Queensland University of Technology, Brisbane, Australia

#### How and why restaurant patrons value locally sourced foods and ingredients

Mark Lang, James Lee, Hemant Rustogi

University of Tampa, Tampa, USA

#### The effect of consideration of future consequences on consumer preferences for sustainable foods

Giovanni Piracci, Fabio Boncinelli, Leonardo Casini

University of Florence, Florence, Italy

15.00-15.30

Afternoon break

15.30-17.00

PEF EIV

### Session 9: Meat reduction, meat alternatives and plant-based food

#### The impact of ethnocentrism on acceptance for plant-based food

Anna Milford

NBIO, Bergen, Norway

Ingunn Berget, Antje Gonera, Paula Tomasco

Nofima, Ås, Norway

#### What determines intention to reduce meat consumption?

Barbara Borusiak, Andrzej Szymkowiak, Bartłomiej Pieranski, Urszula

Garczarek-Bak

Poznan University of Economics and Business, Poznan, Poland

#### How young people react to vegetarian food as a choice or as the only option

Briqitte Schober-Schmutz

Schloss Beilstein, Beilstein, Germany

Klaus G. Grunert

Aarhus University, Aarhus, Denmark

#### Play it safe or stay hated! How are consumers of meat alternatives socially seen, what kind of emotions and behavioural tendencies do they evoke?

Rosa-Maaria Malila, Kyösti Pennanen, Harri Luomala

University of Vaasa, Vaasa, Finland

17.00-17.15  
*PEF EIV*

**Closing session**

*Karen Brunsø*  
Aarhus University, Aarhus, Denmark  
*Kåre Skallerud*  
University of Tromsø, Tromsø, Norway

19.00-21.00

**Closing Reception and Awards**

Restaurant U Matěje, U Matěje 152/1, Prague 6, 160 00



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## **How and why restaurant patrons value locally sourced foods and ingredients**

Mark Lang, James Lee, Hemant Rustogi  
The University of Tampa, Tampa, USA

### **Abstract**

Local foods remain a relevant and interesting topic within food marketing. Consumer attitudes and behaviors towards local foods have been studied in-home and out-of-home in retailing, restaurants, and foodservice. Most local foods research has studied antecedents and factors influencing consumer preference, choice, and willingness to pay as important behaviors. Segmentation is a technique frequently used to examine consumer attitudes and behaviors towards local foods.

Given the importance of willingness to pay as a behavior and the importance of restaurants as a primary venue for the marketing of local foods, further segmentation and sub-group analysis of factors influencing willingness to pay is one of the next best ways to advance the understanding of local foods patrons in restaurant settings. This leads to the research question: How are the restaurant patrons, who are willing to pay more for local foods, different from those who are not?

With much of past segmentation being cluster analysis and profiling based, a simple behavioral segmentation may offer new and interesting results in this line of inquiry. This study divides an online sample of 497 US restaurant patrons into two groups - those who are and who are not willing to pay a premium for local foods in a restaurant setting. It then profiles and contrasts these two groups based on differences in how they define local foods, the benefits they prioritize, their personal values and attitudes, and demographics.

Measures taken from Lang & Lemmerer (2019): willingness to pay items for segmentation and definitional factors, benefit factors, and Schwartz values for profiling. Results show what factors and values are ranked highest for the willingness to pay subgroup and show differences from the non-willing to pay across almost every measure.

The differences resulting from these analyses contribute to theory through expanded descriptions of restaurant patrons who specially are willing to pay a premium for local foods. These findings will also help marketing practice with better understanding and targeting local foods patrons.

## **An analysis of the panel's perceptions on cooking and food delivery services using "Metaverse Kitchen"**

Minsun Kim

Sejong University, Seoul, Korea, Republic of

### **Abstract**

Background: Metaverse can offer huge potential for food brands to interact with consumers in new ways. Augmented reality (AR), an interactive experience, can be defined as a system that incorporates a combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects. Virtual reality (VR) is a simulated experience that uses position tracking and 3D near-eye displays to immerse the viewer in a virtual world, a computer-simulated environment that may be inhabited by multiple users. A mirror world is a representation of the real world in digital form, which offers a utilitarian software model of real human environments and their workings. Mirror worlds can be connected to real models and lie nearer to non-fiction. Thus, mirror worlds can be seen as autonomous manifestations of digitized reality, including virtual elements or other forms where information is embedded. Lifelogging refers to technologies that allow users to record or monitor their internal states and so augment their lives. This study uses the concepts of augmented reality, virtual reality, mirror world, and lifelogging to describe the "Metaverse Kitchen" presented in this study. The "Metaverse Kitchen" is defined as a space in the virtual world where users can cook the dishes they want using the meal kit regardless of location or time. Purpose: This study examined producers' and consumers' perceptions of cooking and food delivery services using "Metaverse Kitchen." Methods: In this study, a consensus opinion on the concept, expected advantages, and disadvantages of "Metaverse Kitchen" was derived from 20 culinary experts through the Delphi technique. The three Delphi rounds were conducted for one month, from December 2022 to January 2023. Results: The consensus concept for Metaverse Kitchen by the panelists is as follows. First, users select and cook food after visiting the "Metaverse Kitchen" in the virtual space. Second, when a user cooks in "Metaverse Kitchen" in AR or VR, the information is transmitted to nearby restaurants. Third, the platform operating the "Metaverse Kitchen" assigns the order to the restaurant that can provide the meal kit cooked by the user in the virtual space first in the same way among these restaurants. Fourth, the user pays for the "Metaverse Kitchen", and the restaurant delivers the cooked meal kit to the user and then receives payment for the user's meal and delivery fee from the platform. Fifth, the platform company that operates the mirror world "Metaverse Kitchen" uses lifelogging to manage customers. They receive commissions from users and affiliated restaurants and operate virtual restaurant businesses using meal kits. Among the selection attributes for meal kits provided in "Metaverse Kitchen", the panelists suggested convenience, quality, and reliability as advantages, and predicted relatively high price as a disadvantage. Conclusion: "Metaverse Kitchen" using meal kits is expected to form a new food supply system in the future society. In follow-up studies, an empirical analysis is required targeting producers and consumers. Keywords: metaverse, meal kits, Delphi technique

## Animal Welfare Ballot Initiatives and the Vote-Buy Gap: The Case of Cage-Free Eggs

Giancarlo Moschini<sup>1</sup>, Sohae Eve Oh<sup>2</sup>, Tomislav Vukina<sup>3</sup>

<sup>1</sup>Iowa State University, Ames, USA. <sup>2</sup>JDC International, Jeonju, Korea, Republic of. <sup>3</sup>North Carolina State University, Raleigh, USA

### Abstract

We provide empirical evidence to explain the apparent discrepancy between consumption choices and voting outcomes for a recent high-profile animal welfare case: California's ban of eggs produced with caged hens. Our model juxtaposes the private good aspect of buying decisions with the public good aspect of voting and yields testable propositions for the so-called vote-buy gap. The model, based on stylized facts reflective of an animal welfare referendum, predicts that the vote-buy gap would increase with the size of the market and the price premium for a regulated product over an unregulated product, and would decrease with a population's aversion to cruelty to animals, consumers' heterogeneity with respect to their aversion to caged hens, and the fraction of consumers who do not care about animal welfare at all. These implications are then tested with a unique precinct-level dataset that combines voting outcomes on the proposal to ban the sales of conventional eggs and the actual purchases of egg products.

The findings suggest that, indeed, the magnitude of the vote-buy gap positively depends on the number of registered voters in the precinct and the price differential between cage-free and conventional eggs. This vote-buy gap is negatively correlated with the voter turnout, the fraction of consumers affiliated with right-of-center political parties, and the heterogeneity of people's preferences regarding animal welfare. Unlike other agricultural economics literature which found no support for explanations rooted in more traditional economics and public choice theory, this paper hinges squarely on the core economics of the problem: consumption decisions are influenced mostly by the private good attributes of the choice, whereas voting decisions account for the public good aspects of the choice.

The extent to which one can invoke the public-good explanation for the observed vote-buy gap has remained an open question. Indeed, behavioral factors are often offered as alternative explanations. Insofar as the rationalization of the vote-buy gap phenomenon is generally applicable, concerns about mandating restrictive production practices via the ballot box may need to be carefully qualified. Whereas it remains true that misguided initiatives may risk imposing unwarranted inefficiencies in the food supply chain, other controversial proposals may well be consistent with maximizing social welfare. Just because historically observed buyer behavior has not favored certain products with friendly animal-welfare attributes, that is not by itself a sufficient reason to dismiss the desirability of animal welfare regulatory proposal.

## Comprehensive Understanding of Tourists' Online Restaurant Decision Making using User-generated and Marketer-generated Content

Songphon Uthaisar<sup>1</sup>, [Anita Eves](#)<sup>2</sup>, Lorna Wang<sup>2</sup>

<sup>1</sup>Maharakham University, Maha Sarakham, Thailand. <sup>2</sup>University of Surrey, Guildford, United Kingdom

### Abstract

Food consumption in tourism destinations is a necessary activity. Choosing a restaurant in destinations, however, is challenging because of the unfamiliarity of the settings, and possibly the food, and the intangibility of the foodservice product (Mak, Lumbers & Eves, 2012; Fuentes-Moraledo et al, 2022), making such decisions inherently riskier. Information search is one of the most important ways to mitigate risk and much of the information used is now on-line, in the form of both marketer-generated content (MGC) and user-generated content (UGC). Previous studies (e.g., Liu & Hu, 2021; Yang et al., 2017) have tended to focus on UGC as opposed to investigating or comparing the influence of UGC and MGC combined. This study employs eye-tracking, which has had limited application in foodservice studies, combined with retrospective think-aloud (RTA) interviews to examine the influence of both UGC and MGC on tourists' in-destination restaurant choice.

Data were collected from 28 participants, who had previously used on-line information to select restaurants, in a laboratory-based study. Participants' eye movements were recorded whilst they engaged in selecting a Thai restaurant in Thailand from three simulated restaurant websites and associated consumer review sites. Following the choice experiment, participants were played the recording, to aid recall, and interviewed to establish the underlying reasons for the observed behaviours. Qualitative data were analysed using thematic analysis.

Findings indicated that MGC and UGC were complementary. MGC sites were perceived to contain more intensive, useful, information, such as menu and outlet pictures (showing the nature and atmosphere of the restaurant) and descriptions, price and promotions, and contact information. UGC sites were beneficial when MGC provided insufficient information, especially for inexperienced 'tourists'. Participants attended to both positive and negative reviews, in the latter case evaluating both review content and reviewer characteristics to assess if the stated concerns were relevant to them. Personal factors and composition of traveling party also affected information source utility factors. For instance, those who had specific food requirements (e.g., food intolerance, or being a vegan), paid careful attention to menu descriptions.

Use of combined methods provided a unique and holistic understanding of the impact of different sources of on-line information on tourists' restaurant selection, advancing the literature and providing practical contributions to marketing practice.

### Keywords

Eye tracking, Visual attention, MGC, UGC, Information search, Decision-making, Tourist restaurant selection

### References

- Fuentes-Moraleda, L., Muñoz-Mazón, A., Santiago-Rincón, C., & Orea-Giner, A. (2022). Defining risk reduction strategies for tourists with specific food needs: a qualitative approach. *British Food Journal*, 124(2), 590–612.
- Liu, Y., & Hu, H. fen. (2021). Online review helpfulness: the moderating effects of review comprehensiveness. *International Journal of Contemporary Hospitality Management*, 33(2), 534–556.
- Mak, A. H. N., Lumbers, M., & Eves, A. (2012). Globalisation and food consumption in tourism. *Annals of Tourism Research*, 39(1), 171–196.
- Yang, S. B., Hlee, S., Lee, J., & Koo, C. (2017). An empirical examination of online restaurant reviews on Yelp.com. *International Journal of Contemporary Hospitality Management*, 29(2), 817–839



## **Bang for the buck: when consumers stop feeling guilty of overconsumption and food waste**

Asim Qazi<sup>1</sup>, Ruqia Shaikh<sup>2</sup>

<sup>1</sup>IBA Karachi, Karachi, Pakistan. <sup>2</sup>IoBM, Karachi, Pakistan

### **Abstract**

Supersized pricing (nonlinear unit price increases based on weight/volume) is often used in items of dubious health value. Thus, this research highlights the role of supersized pricing in creating conflict between two relevant and distinctive consumer goals (health and value) which pushes consumers to pick products that are larger in size and extends it around the world to areas such as France and Pakistan. A series of 2 studies demonstrates that supersized pricing not only encourage consumers to purchase and consume more but also waste more food. Moreover, it also decreases the anticipated consumption guilt (ACG) often associated with hedonic products by providing a value-based justification for the purchase of more hedonic products. Carefully designed nutritional labels containing full portion nutritional information can enhance ACG and allow consumers to make less hedonic choices. This research also discusses the marketing and public policy implications for the obesity epidemic and the common use of supersizing strategies for unhealthy products.

## **Business Model Shift for Sustainability Adoption in Food Supply Chains**

Samir Mili

Spanish National Research Council (CSIC), Madrid, Spain

### **Abstract**

Developing more sustainable business models (BM) has become increasingly crucial for the survival of food industries as environmental and social pressures from all kinds of stakeholders are escalating. Public opinion reveals growing propensity to reward food companies that act in a responsible manner toward environmental and social impacts. However, sustainable business modelling is still poorly understood despite its importance to managers, scientists and policymakers confronting the complexities of business environment changes. There is a clear lack of knowledge about how sustainability objectives are virtually implemented in BM of food supply chains to deliver value on a triple bottom line of economic profit, environmental protection and social fairness.

This study aims at contributing to literature in this topical area through exploring new approaches for the transition toward more sustainable BM in food supply chains, taking the Spanish fruit and vegetable (F&V) sector as illustrative example. We use the Triple Layered Business Model Canvas (TLBMC) proposed by Joyce and Paquin (2016) and data gathered from different sources to elucidate how sustainability concerns are integrated in BM for F&V, focusing on the whole sector as a functional unit of analysis. Our study intends to test the applicability and the pertinence of this model in the Spanish F&V sector, in order to portray the main business areas in the sector and identify those suited for potential innovations and improvements in terms of sustainable value creation, capture and delivery.

Results indicate that, overall, sustainability goals can be represented appropriately within the TLBMC framework at sector level. This is despite the challenges encountered in terms of complexity of the sector and limited data for several areas especially in the environmental and social layers. The sectoral perspective also helps to get the whole picture of the impacts associated with F&V production and marketing, which can be a prior step that supports companies to embed sustainability concerns in their BM. It is shown that sustainable practices in the Spanish F&V sector generate sustainable value with positive impacts not only on the environment but also on the economic and social status of the sector participants. Indeed, sustainable practices can lead to growth in sales and profits since many consumers are increasingly oriented towards sustainably produced products (e.g. organic and other eco-friendly products), while environmental benefits can create further value for F&V businesses, stakeholders and society as a whole. Likewise, social benefits can be generated in several areas such as employment, working conditions, engagement with societal concerns, trust, and transparency. Sustainability actions also increase reliability and reputation which are key levers for value creation and competitive advantage.

## **Using the Extended Technology Acceptance Model to examine Pakistani paddy farmers' behavioural intentions: Revisit drip irrigation technology**

Nadia adnan

ALKHOBAR, ALKHOBAR, Saudi Arabia

### **Abstract**

This study aimed to examine Pakistani paddy farmers' willingness to accept drip irrigation using an extended version of the Technology Acceptance Model (TAM). The primary aims of this research study were to introduce the existing acceptance behavioural models, critically compare those theories to know the knowledge gap areas amongst the Pakistani paddy farmers with the presentation of a theoretical framework based on TAM and DOI, for testing the indirect relationship amongst the variables incorporated. The descriptive-correlational research has been carried out based on a cross-sectional survey. Pakistani paddy farmers were the study's statistical population, and a purposive sampling method was used to pick 150 farmers to be included in the study's sample. The results of this research support the hypothesized model stated in the theoretical framework. Specifically, the results revealed that the variables of Socio-psychological attribute i.e. attitude and perceived usefulness have significantly positive impacts on farmers' behavioral intentions towards drip irrigation adoption. However, perceived ease of use was found "not supported in this study. It has also been observed that the innovation attributes also indirectly influenced farmers' behavioral intentions. Farmers' attitudes towards drip irrigation significantly affect Drip irrigation adoption intentions, which suggests that reinforcing farmers' attitudes will enhance the probability of stimulating behavioral intentions towards these modern irrigation methods among paddy farmers. The overall findings of this study come up with the establishment of such kind of more cohesive and widespread models in the field of farmer's acceptance behaviors. It also gives agricultural and water sector practitioners and policymakers some important insights into the factors and techniques of behavioral changes.

Keywords: Behavioral Intentions, Paddy Farmers, TAM, Diffusion Innovation Theory, Drip irrigation

## The role of goal framing and representative heuristics in enhancing consumer acceptance of precision fermentation technology

Marija Banovic, Klaus Grunert  
Aarhus University, Aarhus, Denmark

### Abstract

#### 1. Introduction

Decreasing adverse environmental, social and economic externalities related to the agricultural production of foods are one of the main focal points of sustainable development (see e.g. Capozzi et al., 2021; UN, 2022). Yet, the modern agricultural production of food is facing many challenges, as the decrease of agricultural land, continuous increase of the global population, and rise in need for more nutrients (FAO, 2022). Technological innovations that could warrant more robust and resourceful food production systems with the least harm to the environment, are now more pressing than ever (McClements, 2020). Recently, the potential of novel biotechnology called precision fermentation for manufacturing of food ingredients and products has been unlocked (Terefe, 2022). Nevertheless, even though this technology have the potential to transform the food system, its market success is still dependent on the warranting successful consumers' acceptance of this technology for food production (Frewer et al., 2011; Siegrist & Hartmann, 2020).

To our knowledge the present research is a first exploration of the consumer acceptance of this novel biotechnology that is assessed through two studies: Study 1 investigated role of goal framing (see e.g. Lee & Pounders, 2019) on consumer acceptance of precision fermentation technology; Study 2 tested use of a representativeness heuristic (Kahneman & Tversky, 1972) on consumer acceptance.

#### 2. Background

The novelty of precision fermentation technology suggests that the features prompting consumers' acceptance are still not adequately understood. The communication strategies can have a critical effect on consumers' acceptance of novel technology (Conroy & Errmann, 2023; Just & Goddard, 2023; Siegrist & Hartmann, 2020). Communicating about a technology as natural could induce constructive evaluations (Evans et al., 2010). That could lead to a downstream perceptions of produced foods as being healthier and tastier, and even better for the environment (Banovic et al., 2018; Roman et al., 2017). Then again, a novel technology could just be communicated as being good for the environment, as it can impact consumers' attitude positively (Banovic & Barone, 2021; Lee & Pounders, 2019), and further improve consumer favourability (Olsen et al., 2014). Further, heuristics relying on comparison of a novel technology to a conventional one could rise trust and acceptance of the novel technology (Siegrist, 2019). Thus, the features of the novel technology, as precision fermentation, could be associated to the typical features of the conventional fermentation technology, like traditional fermentation, and based on this representativeness heuristics (Kahneman & Tversky, 1972). While there has been some significant research regarding novel food technologies (Frewer et al., 2011; Siegrist, 2008; Siegrist & Hartmann, 2020), there has been surprisingly little research on the role of goal framing and representativeness heuristics on consumer acceptance of novel food biotechnologies, as precision fermentation. The present research fills-in above gap.

#### 2. Method

We experimentally examined the role of goal framing and representativeness heuristics in enhancing

consumer acceptance of precision fermentation technology through three studies. Study 1 investigated how framing focusing on natural vs. sustainable goals affect consumers' attitudes towards precision fermentation technology. A between-subjects experimental design was applied and goal framing manipulated in two conditions: natural (i.e. 'natural and wholesome') vs. sustainable ('sustainable and environmentally-friendly'). Study 2 explored the effect of representativeness heuristics inducing similarity of novel precision fermentation technology to the conventional technology. The procedure for Study 1 and Study 2 was similar. Before the experimental conditions as explained above, participants were first exposed to a message inducing similarity of precision fermentation technology to the conventional technology (i.e. representativeness heuristic), after which were randomly assigned to one of the two experimental conditions (as in Study 1). The stimuli were all pretested.

### 3. Results

#### Study 1: The role of goal framing on consumer acceptance of precision fermentation technology

Study 1 sample comprised 308 Danish participants ( $N_{\text{natural}} = 161$ ;  $N_{\text{sustainable}} = 147$ ), with 50% of males in the 20-70 age range ( $M = 37.1$ ,  $SD = 14.33$ ). No significant differences have been found between the two conditions in terms of age ( $\chi^2 = 1.72$ ,  $p = 0.423$ ) and gender ( $t = 0.923$ ,  $p = 0.357$ ). The manipulation check was done by using two-tailed independent sample t-test, which showed successful manipulation where individuals in the natural condition agreed that their message focused on the technology being more natural ( $N = 161$ ,  $M = 2.90$ ,  $SD = 1.59$ ), while participants in the sustainable condition agreed that message focused on the technology being more sustainable ( $N = 147$ ,  $M = 4.88$ ,  $SD = 1.54$ ;  $t(306) = 11.02$ ,  $p < .001$ ). The final effect of goal framing on attitude towards technology was conducted through ANCOVA, and the results showed a significant direct influence of goal condition on attitude ( $F(1, 301) = 32.76$ ,  $p < 0.001$ ). Individuals in the natural condition reported more positive attitude levels towards technology ( $M = 5.19$ ,  $SD = 1.20$ ) than participants in the sustainable condition ( $M = 4.52$ ,  $SD = 1.29$ ). This formed foundation for the Study 2, looking to suppress the role of goal framing.

#### Study 2: The role of representativeness heuristics on consumer acceptance of precision fermentation technology

Study 2 sample consisted of 300 Danish participants with 51% of females in age range of 20-70 years ( $M = 47.1$ ,  $SD = 14.78$ ). They were first exposed to the introductory message (i.e. representativeness heuristics) and then randomly assigned to two experimental conditions (i.e. natural vs. sustainable;  $N = 150$  per condition). Again no significant differences have been found between the two experimental conditions in terms of age ( $\chi^2 = 0.340$ ,  $p = 0.844$ ) and gender ( $t = 0.047$ ,  $p = 0.963$ ). In Study 2 it was assumed that the influence of goal framing on attitude will be suppressed if representativeness heuristics introduced exciting similarity between the novel and the conventional technology and that any following evaluations will be rather established on the base of this heuristics than goal framing. ANCOVA was conducted to examine this effect. Indeed, no significant effect of goal framing on attitude was found ( $F(1, 299) = 0.687$ ,  $p = 0.408$ ), as well as between natural and sustainable condition ( $MN = 4.71$ ,  $SDN = 1.24$ ;  $MS = 4.59$ ,  $SDS = 1.36$ ), confirming postulated expectations. Consequently, as assumed the initial effect of goal framing has been suppressed by the representativeness heuristic.

### 4. Conclusion

This study is a first research on consumer acceptance of precision fermentation technology. It demonstrated that using natural (vs. sustainable) goal framing proliferates consumer acceptance, and that by evoking naturalness prompts further more positive evaluations among consumers, in line with previous research (Roman et al., 2017; Rozin et al., 2012). Furthermore, it demonstrated the role of simple representativeness heuristics that depend on similarity aspects and can further intensify

consumer acceptance, as proposed in some reviews (Siegrist, 2019). The present research furthermore showed communication strategies that can bolster acceptance of precision fermentation technology, and at the same time provide understandings on how consumer acceptance can be increased through use of simple heuristics.

## Acknowledgments

This study has received funding from EIT Food (<https://www.eitfood.eu/>) through the project “Precision Fermentation: From Biotechnology to Sustainable Nutrition” (<https://www.eitfood.eu/projects/precision-fermentation-from-biotechnology-to-sustainable-nutrition>; grant number: 21063, EIT Food Business Plan 2021/22).

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## Seeking new strategic options for promotion of intermodal transport in perishables

JUAN CARLOS PEREZ MESA, MARIA DEL CARMEN GARCIA BARRANCO, EMILIO GALDEANO GOMEZ, LAURA PIEDRA MUÑOZ, JESUS HERNANDEZ RUBIO  
UNIVERSIDAD DE ALMERIA, ALMERIA, Spain

### Abstract

The aim of the present study is to find new options for the promotion of intermodality, based on short sea shipping, as applied to perishable products. Currently, refrigerated trucks are the most common option in international transport for ensuring that perishables are preserved in order to meet customer expectations. Its combination of flexibility, speed, transparency and ease of use makes competing difficult for other alternatives. In theory, this change would bring about positive environmental effects and could even reduce transit costs, yet companies are still hesitant to implement this practice. To illustrate the need to change the standard method in international transport of perishables, this work examines the exportation of highly perishable horticultural products from southeast Spain to all the countries in the European Union. By delving into this context, this investigation seeks to determine whether other aspects exist, apart from operational considerations (e.g., times, cost, quality or environmental aspects) which condition the modal shift.

As for the methodology, this work will first conduct a literature review that attempts to identify both the strengths and weaknesses of intermodality in the transport of perishables. This review will serve as the basis for the elaboration of a questionnaire as applied to members of the fruit and vegetable export chain from the southeast of Spain. The information collected is used to collect the direct opinions, but also to determine the possible drivers that would favor a modal shift, applying a correlation analysis using structural equations. Finally, solutions are proposed which optimize the international logistics management of this type of product.

A modal shift from road transport to intermodality using SSS is a complex problem which involves both operational variables and other, more strategic considerations. As for the former, there is a predisposition among horticultural commercialization companies to a modal shift, as long as it can ensure that the times, costs and quality at destination are the same as those of road transport. However, although intermodal lines are significantly more sustainable, in general they fail to match land transport in cost and transit time, which results in customer claims. In this light, it would be useful to find new options that help to favor the modal shift. The creation of redistribution centers at destination, optimized by ICTs within a framework of digitalization of the entire chain, stands out as a key factor. These centers would provide important advantages: development of agile supply strategies, cargo groupage with different origins, and the reuse of returned products from complaints.

What is more, from a more customer-oriented approach, the creation of redistribution centers could help to redefine the concept of "short", in terms of logistics, as the process that optimizes the sustainability of the supply chain, as well as price and product variety available to customers. In this context, a modal shift will ultimately be the customer's decision. Therefore, commercialization organizations must make it a priority to become essential and agile within the supply chain they share with customers and other horizontal suppliers.

## Controversial Consumerism: An Extension of the Theory of Reasoned Action on Behavioral Outcomes

Jeffrey Campbell<sup>1</sup>, Russell Zwanka<sup>2</sup>

<sup>1</sup>University of South Carolina, Columbia, USA. <sup>2</sup>Western Michigan University, Kalamazoo, USA

### Abstract

#### Introduction

As the world becomes more globalized, many factors affect how consumers select various products and services. These can include religious factors (Fam, Waller, and Erdogan, 2004), ethical factors (Kjærnes, 2012), and attitudinal/social factors (Xu, Summers, and Belleau, 2004). For products deemed “controversial”, consumers also consider social factors as well as risk and trust issues in selecting these product options (Summers, Belleau, and Xu, 2006; Frewer et al., 2004).

To date, the focus of inquiry related to controversial consumerism has been on legal, ethical, public policy and/or medical affects from such choices for certain products. Particularly within the cannabis and CBD product lines within the United States, there is a strong projected demand by consumers. Cannabis has a projected sales market of \$31.8B by the end of 2023 (Dorbian, 2023), while CBD has a projected U.S. market of \$20B by 2024 (Dorbian, 2019). Yet, while the market numbers suggest strong opportunities to research demand drivers, there has been a lack of academic focus on the consumers and a lack of understanding regarding consumer risk, knowledge, trust by consumers, attitudes and social norms, and the effect on purchase intentions. The aim and purpose of this project is to explore factors that impact consumer purchase intentions for controversial products and subsequently word-of-mouth marketing behavior. We specifically seek to address the following research question:

RQ: What are the key antecedent factors that lead to the purchase intentions of controversial products by consumers and subsequently word-of-mouth marketing?

#### Literature Review

Luedicke (2011) first conceptualized the idea of consumer controversy in the context of social behavior by which consumers rate and contest other’s purchasing behavior. For marketers, this allows the opportunity to provide resources necessary to defend or critique purchase behaviors of consumers that may be deemed socially questionable by some. Specific to the products themselves, “Controversial products are products that are perceived to be too offensive to be discussed openly by some consumers” (Kusuma, 2014, p.4; Wilson and West, 1981). Controversial products have been conceptualized in previous literature using terms such as unhealthy products (Katsanis, 1994), harmful (Jones and Middleton, 2007), legally restricted products (Shao and Hill, 1994a; 1994b), and/or addictive products (Fam and Waller, 2003). The adoption of products, however, has been linked to more socio-cultural factors (Kusuma, 2014; Cavusgil, Zou, and Naidu, 1993). Combining both of these perspectives, we suggest that, for the purpose of this study, controversial consumerism is: the collection of people who purchase and adopt products or services that are considered socially questionable, legally restrictive, harmful, religiously questionable, unhealthy or addictive for the purpose of personal consumption.

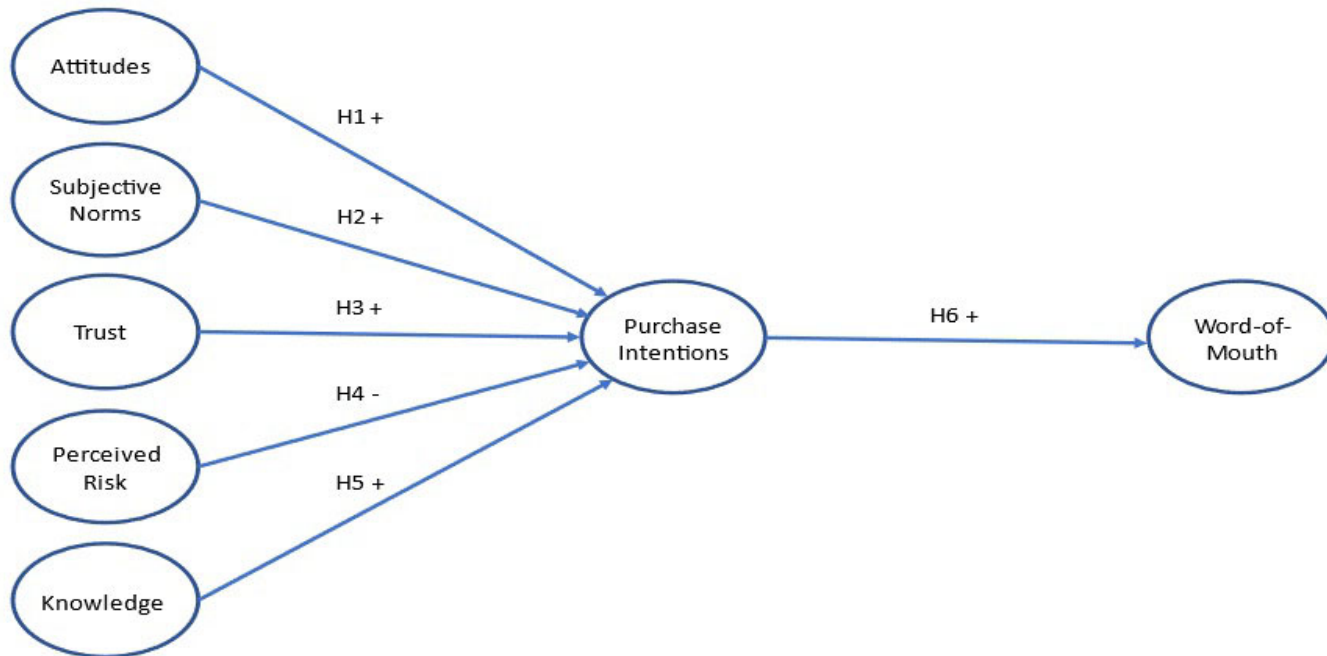
Attitude-to-behavior relations have been well studied in the literature, with seminal work by Ajzen (1980) and Fishbein and Ajzen (1977) establishing the link between attitudes, beliefs, subjective norms and intentions with the theory of reasoned action (TRA) as our primary foundation. For risk and product knowledge/information, government regulations and increased information to consumers has been shown to reduce risk for consumer behaviors in food safety research (Waldman and Kerr, 2018). In a crisis situation, research has also supported that while knowledge itself will not directly impact purchase intentions, the inclusion of trust creates a stronger relationship on purchase intentions than does

perceived knowledge or perceived risk (Hoque and Alam, 2018). Risk, knowledge, information and trust are often cited as factors that influence decision making in health-related decision situations (e.g., Togle, 2020; Ward et al., 2017), and these factors are central to our study as antecedents to purchase intentions and ultimately word-of-mouth behavior.

### Research Methodology, Sample, & Construct Measurement

Research was collected during a three-month period using panelists via a Qualtrics online survey platform. Respondents were asked using a Likert Scale (e.g., 'Strongly Disagree/Strongly Agree') their views on various controversial products (e.g., tobacco, marijuana-based, CBD, illegal, unethical) which were borrowed from previous literature. U.S.-based respondents were ages 18 and over. A total of n=614 completed surveys were available for analysis (40.3% completion rate). Ages 25-34 years of age (n=127) and 55-64 years (n=123) were most reported. 69% of the respondents were female (n=422) and white (approximately 74%). Educationally, 17.8% reported attaining a 4-year degree, with 65% reporting some college but no degree. Of the respondents, 40.7% are married and 32.6% never married. Regarding employment, 38.9% are full-time employed (n = 239). Finally, 78.7% reported income of less than \$69,999 (n = 483).

A total of 32 measurement items were used to create 7 distinct constructs used for analysis using the theory of reasoned action and research on trust, risk and information as foundational building blocks. Attitudes (e.g., "Controversial products are bad/good") and subjective norms (e.g., "My family thinks I should try controversial products") were measured with 5 items each (10 total) while purchase intentions were measured with 3 items (e.g., "I will buy controversial products in the future when the need arises"). Perceived risk was measured by 5 items (e.g., "I am afraid the products will not meet my expectations"), knowledge measured by 3 items (e.g., "I have enough knowledge about the benefits and drawbacks of these products") and trust (6 items; "Controversial products will work as described"). Finally, word-of-mouth marketing (5 items; "I openly share my purchasing behavior with others") completed the model shown in Figure 1 below with six proposed hypotheses:



### Measurement Reliability and Validity

Reliability and validity of the measures were tested through creation of Cronbach's alpha statistic and analysis of the average variance extracted (AVE) and squared correlations of the model factors. Composite reliability measures ranged from .774 attitudes to .912 for purchase intentions, thereby suggesting good model measurement reliability (Kline 2005; Cortina 1993). All AVE values were above

the .50 threshold which suggests convergent validity of the items (Fornell and Larcker 1981).

Discriminant validity, suggested by Kline (2005) as variables not reflecting high intercorrelations, was also tested and was inferred from the data (Kline, 2005; Fornell and Larcker 1981).

### Confirmatory Factor Analysis and Hypothesis Testing

A two-step approach to structural equations modeling (Anderson and Gerbing 1988) was utilized to test the proposed relationships utilizing IBM SPSS AMOS 28.0. Results of the final measurement model ( $\chi^2 = 872.43$ ,  $df = 455$ ,  $\chi^2/df = 2.15$ , CFI = .96, RMSEA = .04), reflected a good fitting model (Chen et al., 2008; Kline 2005; Browne and Cudeck, 1993; Bentler 1992). Step two included testing of the structural model hypothesized paths. The overall structural model reflected good fit ( $\chi^2 = 1054.32$ ,  $df = 410$ ,  $\chi^2/df = 2.57$ , CFI = .95, RMSEA = .05). Five of the six hypothesized paths were found significant, with only the path between perceived risk and purchase intentions (H4-) as non-significant. Results are in Table 1 below:

Table 1. Structural Path Results

Parameter Relationship	Hypothesis	Standardized Estimate	Standard Error	t-value	p-value
Attitudes → Intentions	H1(+)	.299	.049	5.727	< .001*
Subjective Norms → Intentions	H2(+)	.247	.052	4.740	< .001*
Trust → Intentions	H3(+)	.228	.060	4.535	< .001*
Perceived Risk → Intentions	H4(-)	-.043	.050	-1.045	.296**
Knowledge → Intentions	H5(+)	.209	.041	5.198	< .001*
Intentions → Word-of-Mouth	H6(+)	.632	.042	13.151	< .001*

( $\chi^2 = 1054.32$ ,  $df = 410$ ,  $\chi^2/df = 2.57$ , CFI = .95, RMSEA = .05)

\*Significant @  $p < .001$ ; \*\*NS

### Discussion

Prior research on the theory of reasoned action suggested that attitudes, beliefs, and subjective norms have an important impact on behavioral outcomes. Our exploratory study considers additional factors such as trust, perceived risk and knowledge on purchase intentions, leading to word-of-mouth behaviors for products considered as controversial. We find that the relationship of attitudes → intentions is positive and strong (H1:  $\beta = .299$ ,  $p < .001$ ) as is the relationship of intentions → word-of-mouth (H6:  $\beta = .632$ ,  $p < .001$ ). As once controversial products become more mainstream and overall attitudes change, the likelihood of future purchase intentions will remain high and people will market to others. Normative influences from friends and family (H2:  $\beta = .247$ ,  $p < .001$ ) also suggest a strong relationship to purchase intentions as consumers look to others in helping evaluate controversial products. If a consumer can trust that the controversial products will work as described, show accuracy in labeling, and the manufacturer and retailer are trustworthy, this will lead to purchase intentions (H3;  $\beta = .228$ ,  $p = <.001$ ). Similarly, personal knowledge had a significant relationship with purchase intentions (H5;  $\beta = .209$ ,  $p < .001$ ), suggesting to marketers that if consumers can investigate and learn about the benefits of these products, they are more likely to purchase them in the future. Unique to the study, perceived risk did not have a significant relationship with purchase intentions (H4;  $\beta = -.043$ ,  $p = .296$ ). One might think that the higher the perceived risk for controversial products, the lower the purchase intentions. This was not the case, however, which allows for future research into whether these types of products are considered risky in today's society and whether risk can be mitigated through educational and advertising efforts in retail stores or via marketing campaigns. The study provides a first step in the understanding of how consumers view products that may be considered as controversial and what factors can influence their purchase intention outcomes. It will also provide a foundation for a more

detailed review into subsegments of products, and whether demographic or cultural differences may exist in the model for newly developed products such as marijuana-based, hemp, and CBD versus more traditional controversial products such as tobacco, unethical products, or those not approved by the U.S. government (Food and Drug Administration).

### Limitations & Future Research

Given the definition created by the researchers, we acknowledge that other factors could be included in the definition for “controversial” and were not included. With the difficulty in determining controversial products around the world, the authors narrowed the focus to a specific set of those products within the United States once thought (or currently considered) as controversial. We suggest that other products and factors may also be included in future studies as well as other antecedents to purchase intentions.

Religious and cultural aspects should be further considered. A cross-cultural study may also be necessary to better understand the concept of “controversial” and we also note that longitudinal research may provide rich data as more acceptance for these products continues within the U.S. and globally.

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## **Driving Better Choices: Understanding the Decision-Making Through the Lenses of Health, Sustainability, Naturalness, and Price in Atypical Situations.**

Tommaso Fantechi<sup>1</sup>, Leonardo Casini<sup>1</sup>, Caterina Contini<sup>1</sup>, Liisa Lähteenmäki<sup>2</sup>

<sup>1</sup>Department of Agricultural, Food and Forestry Systems, University of Florence, Florence, Italy. <sup>2</sup>MAPP Centre, Department of Management, Aarhus BSS, Aarhus, Denmark

### **Abstract**

Current consumption patterns are neither sustainable nor healthy. Therefore, one of the most significant challenges for researchers and policymakers is understanding the triggers for changing dietary habits. This challenge is complicated by the fact that consumers are generally hesitant to change their habits. While different behaviours can be observed, especially when consumers face atypical situations that require them to make different choices, the resulting change may not necessarily lead to more virtuous, sustainable, and healthy product choices.

Therefore, it is essential to investigate consumer behaviour in contexts that differ from their typical ones. In recent years, there has been growing attention paid to the healthiness of products, which is a sensitive issue due to the increase in non-communicable diseases such as cancer or cardiovascular disorders, in which dietary habits play a fundamental role. At the same time, there is a growing trend among consumers to adopt more sustainable behavioural patterns due to concerns about environmental issues. In fact, interest in products that have a lesser impact on the environment has grown exponentially in recent years. Additionally, dietary choices are increasingly guided by a focus on naturalness. Foods that are produced without additives and grown in a traditional manner have a strong appeal to some consumers. Finally, food product prices currently play a predominant role in driving people's choices, particularly with increasing prices.

Although healthiness, sustainability, and naturalness are recognized by the literature as three important drivers of modern dietary choices, few studies have examined their interaction. It is not yet known whether these aspects work in synergy or whether there is a trade-off between them. Understanding consumer choices in this "new" context and identifying trade-offs among these drivers are essential for developing new policies and products. It is also crucial to understand the role of price in these trade-offs.

Consumer choices are known to be heterogeneous, so it is interesting to investigate whether there are different trade-offs for different groups of consumers. To investigate the existence of trade-offs between health, sustainability, naturalness, and price in a non-habitual choice context, we administered a questionnaire to a representative sample of 600 Italians and Danes. The questionnaire included a discrete choice experiment that forced respondents to choose between two yoghurts.

After collecting the data, a latent class analysis was conducted to identify groups of consumers with similar preferences. These groups were then profiled based on the psychographics and sociodemographic characteristics of the respondents. The results will enable policymakers and producers to target homogeneous consumer groups with similar preferences for specific policies and products.

## **Framing foods: Unpacking the complexity of attitudes towards the novel food technologies**

Ekaterina Salnikova, Marija Banovic  
Aarhus University, Aarhus, Denmark

### **Abstract**

The relationship between consumer attitudes and novel food processing technologies is an important topic given the potential implications for food production and consumption. In this study, we sought to investigate the role of health perceptions and locavorism in mediating the effect of message framing (positive vs. negative) on attitudes towards novel processing technologies. We hypothesized that positive message framing would evoke greater health perceptions, which in turn would improve attitudes towards these technologies. We also hypothesized that health perceptions and three dimensions of locavorism (lionization, opposition, and communization) would serially mediate the effect of message framing on attitudes. Our study involved a total of 1526 consumers from six European countries, who were randomly assigned to either positive or negative framing condition. Regression analysis revealed a significant indirect effect of the health perceptions through three dimensions of locavorism and of standalone health perceptions, providing evidence for the hypothesized mediations. Our findings suggest that framing plays a significant role in shaping consumer attitudes towards novel processing technologies and that these attitudes are multi-layered and complex, with factors such as health perceptions and locavorism playing important mediating roles.

Introduction and Hypothesis Development. Framing can influence people's perceptions of the risks and benefits associated with technology, as well as their emotional responses to it (Shah et al. 2022). Positive content frames were suggested to be linked to a greater benefit perceptions and lower risk perceptions of the new technologies (Delisa and Aresa 2018; Siegrist 2008).

The perceived health benefits of food produced with novel technologies is an important consideration for consumers, as these could become an aversion factor when such technologies are perceived to be the opposite of healthy (Siegrist and Hartmann 2020). The health benefit is a credence attribute (that can only be inferred and cannot be ascertained during consumption), therefore, the importance of framing of the message providing the information about health benefits of these technologies to consumers cannot be overstated. Drawing from this, health perceptions can also play a significant role in shaping attitudes towards novel technologies. Health perceptions may arise from interests about the safety of new technologies, as well as from concerns about the impact of these technologies on personal health and well-being (Siegrist 2008).

We hypothesize that a positive message framing with imagery will evoke greater positive health perceptions about the food, which in turn will increase the attitude towards the novel technologies.

Furthermore, the heightened health perceptions can affect the attitude towards new technologies by activating consumer's internalized preference for locally grown food, i.e., locavorism (Reich et al. 2018). Preference for local food has been found to be associated with a number of food attributes, including perceptions of quality, healthfulness, and sustainability (Born & Purcell, 2006; Feldman & Hamm, 2015). Specifically, we assume that health perceptions can affect the attitude toward the novel technologies. This effect could be first mediated through the belief in the intrinsic superiority of local foods (i.e., lionization), particularly if consumers view locally sourced food as healthier and of higher quality than food produced through globalized system. Further, lionization can successively provoke the desire for food produced on a small scale activating the belief in supporting one's local community (i.e., communalization), which again in turn can affect the attitude towards the novel technology.



H1: Health perceptions and locavorism (lionization, opposition, and communalization) serially mediate the effect of message framing on attitudes toward novel processing technologies.

H2: Health perceptions mediate the effect of message framing on attitudes towards novel processing technologies in a way that positively (vs. negatively) framed message content evokes greater health perceptions which in turn improve attitudes towards novel processing technologies.

Overall, we aim to provide a better understanding of how message framing, health perceptions, and locavorism dimensions are related to attitudes towards novel processing technologies, which can have important implications for promoting the acceptance and adoption of novel technologies in the food industry.

Methods. A total sample of 1526 consumers (Mage = 45, male 49%) from Netherlands, Germany, Spain, France, Poland, and Czech Republic were randomly assigned to one of the two experimental conditions, i.e., positive vs. negative framing. The message text was describing a food production system where local farmers utilize novel processing technologies. Manipulation was done through imagery depicting positive (i.e., bountiful harvest of fresh produce) versus negative content (i.e., waste and harvest loss). Then, participants' attitudes towards novel food technologies described in the text were recorded, followed by the manipulation check (whether the picture conveyed negative or positive emotions). After the message and the imagery exposure, participants stated their food health perceptions (from the Food Choice Questionnaire (FCQ; Steptoe et al. 1995), locavore tendencies (Locavorism scale; Reich et al. 2018), and socio-demographic questions (e.g., age, gender).

Results. Regression analysis (PROGRESS, Model 6) was used to investigate the hypothesis that health perception and three dimensions of locavorism serially mediate the effect of message framing on attitudes toward the novel processing technology.

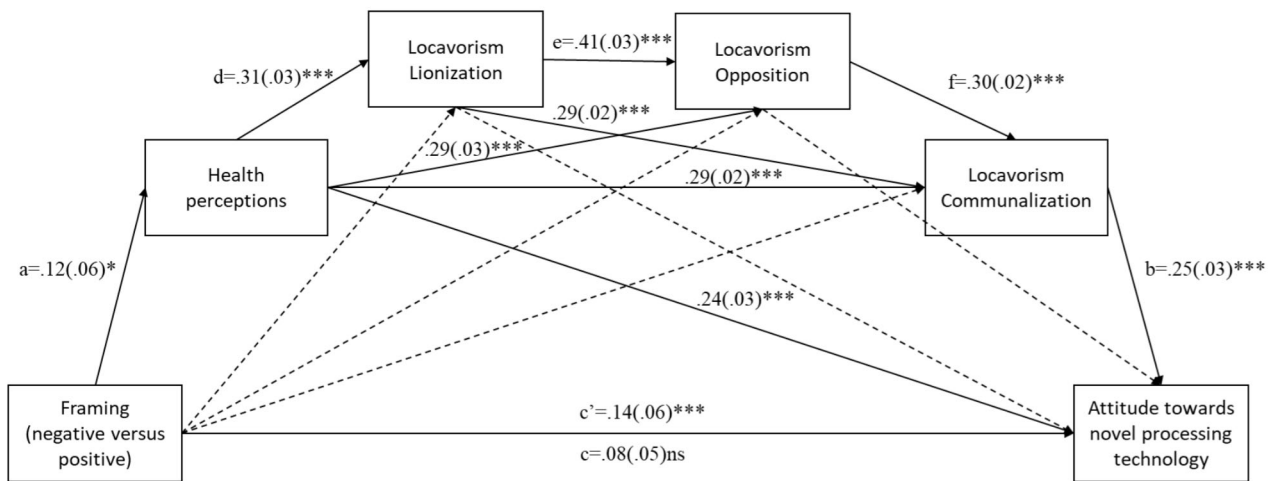
The analysis revealed a significant indirect effect ( $a\text{def}b = .0011$ ,  $SE = .0006$ ,  $95\%CI [.0000 .0022]$ )

providing evidence for the hypothesized serial mediation. Framing (positive vs. negative) had a significant positive effect on health perceptions, which had a positive effect on lionization. Further, lionization had a positive effect on opposition, while opposition positively affected communalization (Figure 1). Communalization was a significant predictor of the attitudes towards novel processing technologies.

Next, the results show that framing is a significant predictor of health perceptions with positive imagery having a higher effect on health perceptions (Figure 1). We also found a significant direct effect of health perceptions on attitudes toward novel processing technologies (Figure 1). The framing was not a significant predictor of attitudes when controlling for health perceptions, consistent with the full mediation. In addition, the indirect effect of framing on attitudes was also significant (Figure 1).

We further examined the indirect effects testing the mediating roles of locavorism's lionization, opposition, and communalization dimensions individually (Figure 1), and found no evidence for individual mediation of these dimensions.

Figure 1. Serial mediation model (PROCESS v4.0, Model 6).



<p>Regression coefficients are shown and standard errors are presented in parentheses</p> <p>Solid lines represent significant paths and dashed lines represent paths that are not significantly different from zero</p> <p>*<math>p &lt; .05</math>, ** <math>p &lt; .01</math>, ***<math>p &lt; .001</math></p> <p>The coefficient above the path from framing to the attitude represents the total effect with no mediators in the model; the coefficient below the path represents the direct effect when the three mediators are included in the model</p> <p>Indirect effects highlighted in red have confidence intervals that do not cross zero, therefore, are significant</p>	<p>Indirect effect 1: Framing -&gt; Health concerns -&gt; Attitudes toward novel technologies (+)</p> <p>Indirect effect 2: Framing -&gt; Lionization -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 3: Framing -&gt; Opposition -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 4: Framing -&gt; Communalization -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 5: Framing -&gt; Health concerns -&gt; Lionization -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 6: Framing -&gt; Health concerns -&gt; Opposition -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 7: Framing -&gt; Health concerns -&gt; Communalization -&gt; Attitudes toward novel technologies (+)</p> <p>Indirect effect 8: Framing -&gt; Lionization -&gt; Opposition -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 9: Framing -&gt; Lionization -&gt; Communalization -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 10: Framing -&gt; Opposition -&gt; Communalization -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 11: Framing -&gt; Health concerns -&gt; Lionization -&gt; Opposition -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 12: Framing -&gt; Health concerns -&gt; Lionization -&gt; Communalization -&gt; Attitudes toward novel technologies (+)</p> <p>Indirect effect 13: Framing -&gt; Health concerns -&gt; Opposition -&gt; Communalization -&gt; Attitudes toward novel technologies (+)</p> <p>Indirect effect 14: Framing -&gt; Lionization -&gt; Opposition -&gt; Communalization -&gt; Attitudes toward novel technologies (-)</p> <p>Indirect effect 15: Framing -&gt; Health concerns -&gt; Lionization -&gt; Opposition -&gt; Communalization -&gt; Attitudes toward novel technologies (+)</p>
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Implications for theory and practice. This study adds to the literature on the complexity and the multi-layered nature of consumers' attitudes towards the novel food technologies. By examining the role of health perceptions and locavorism in mediating the effect of framing on attitudes towards novel food processing technologies, this study sheds light on how these factors can influence consumer attitudes towards new products and technologies.

The study further provides insights into the complexities of consumer attitudes towards food processing technologies adding to the literature on the relationship between message framing, health perceptions, and food choices. Thus, these findings contribute to the literature on attitude formation and attitude change by showing the underlying mechanism of attitude formation, i.e. the role message framing, health perceptions, and locavorism play in shaping attitudes towards novel food technologies. It furthermore highlights the need to take into account multiple factors when developing and promoting new technologies suggesting that a one-size-fits-all approach may not be effective.

Moreover, this study also add to the literature on the relationship between message framing, health perceptions, and food choices. The findings suggest that positive framing heightens perceived health benefits that play an important role in shaping attitudes towards novel food processing technologies. This further highlights the potential for public messages about local food to influence consumer attitudes and behavior. Positive framing can help marketers and policymakers to convey the healthiness of the local food produced using novel processing technologies.

Finally, the study highlights several outcomes and show potential for novel food processing technologies to promote sustainable food systems. Indeed, the findings suggest that three dimensions of locavorism, such as lionization, opposition, and communalization, can act as mediators between health perceptions and attitudes towards these technologies. This on the other hand suggests that promoting local food production covering the superior quality of local foods, the benefits of small-scale food production, and community involvement can be an effective way to increase the acceptance of novel food processing technologies that support sustainable food systems.

Conclusions. The way in which information is framed can greatly affect people's attitudes towards novel processing technologies in food production. This study aimed to examine the mediating effects of health perceptions and locavorism (lionization, opposition, and communalization) on the relationship between message framing and attitudes towards these technologies. The results showed that health perceptions

and the three dimensions of locavorism serially mediate the effect of framing on attitudes towards the novel processing technology.

The framing induces lower-order perceptions related to the food products - that is perceived benefits in terms of health. These perceptions are further explained on a higher perceptual level where these perceptions are connected to the quality superiority of the local foods (i.e., lionization dimension of locavorism). Furthermore, the perceived quality superiority of local foods is seen as something to be preferred, opposing the global food systems (i.e., opposition dimension of locavorism). This is further perceived as contributing to a higher prosperity of the local community (i.e., communalization dimension of locavorism) supporting the local food economy. Ultimately, all this brings forth the complex structure of the attitude towards novel technologies showing its multi-layered nature, evoked by content framing.

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## Consumer food choices and perception of sustainability: Has anything changed?

Arbindra Rimal

Missouri State University, Springfield, USA

### Abstract

**Background:** Increasing number of food companies are realizing that consumers are key to transition to more environmentally sustainable food system. There is an abundant amount of research establishing the link between food choices and food prices, convenience, taste, and socio-cultural attributes (Mosier and Rimal, 2019; Muriel et al., 2016;). However, little is known about the link between consumer perception of sustainability and their food choices. There are currently a multitude of suggested definitions of “sustainability” as perceived by the consumers (Van Bussel, et al., 2022). Phrases like “sustainable development”, “sustainable growth” and “longevity” are reported in a variety of contexts. Marshall and Toffel (2005) suggest that all-encompassing definitions of sustainability have rendered the word meaningless. However, individuals continue to assign meaning to the term ‘sustainable’.

**Objectives:** This research seeks to examine and classify reported definition of sustainability using conceptual frameworks. It evaluates a shift in perception of sustainability. Finally, it identifies connection between an individual’s food choices and their definition of sustainability and their social demographics background using the data collected in the United States. By analyzing perceived sustainability in the context of food choices and demographics, the research will contribute to a coherent food policy and marketing program.

**Data and Methodology:** The study is based on data collected in 2016 and 2019 surveys by the National Marketing Institute (NMI), a research company that specializes in health and wellness marketing research. The data was collected online by surveying more than 4,000 U.S. consumers from a panel of more than 60,000, accurate at a 95% confidence level, to +/- 1.2%. Participants were asked to provide a short definition of sustainability in open ended format. These answers were analyzed for word frequencies and further refined using content analysis. A different set of sample households drawn from the same panel were asked exactly the same questions in a follow-up survey in 2019 to identify changes in their reported definition as well as their food choices.

**Analysis and Expected Results:** Basiago (1995) identified four components of sustainability: futurity, equity, global environmentalism, and biodiversity. A modified framework (Vos, 2007; Trudel, 2018) includes eight categories including longevity/Futurity, Environment, and Production. The study assigned one or more of the eight components to each of the self-reported definitions. Preliminary results of data from 2016 survey showed that more than a third of the respondents associated sustainability with longevity/futurity, about 25% of the respondents with production and more than 60% of the respondents with resource use including their management and renewability. A significant shift in definition of sustainability was found in 2019 survey data. Other key findings include 1) definition of sustainability varied with age, gender, geographical location, household income, ethnic group, and educational level, 2) women were more likely to define sustainability in the context of futurity/longevity and resource use than men, 3) People with differing political partisanship were equally unsure or skeptical about the definition of sustainability.

## Willingness to pay for partly and fully sustainable organic products: field research with experimental auction method

László Bendegúz Nagy<sup>1</sup>, Rodolfo M. Nayga<sup>2</sup>, Ágoston Temesi<sup>1</sup>

<sup>1</sup>Hungarian University of Agriculture and Life Sciences, Budapest, Hungary. <sup>2</sup>Texas A&M University, College Station, USA

### Abstract

#### 1. Introduction

Sustainability is a major focus of the food industry, with the 2030 Agenda for Sustainable Development setting targets to reduce waste generation and encourage companies to report sustainability performances (United Nations, 2015). To reach these goals, the European Union developed the Farm to Fork strategy to support the green transition of the European agriculture and food industry (European Commission, 2020). However, consumers are generally not able to assess the real environmental impact of the food products they are buying due to information asymmetry (Fernqvist & Ekelund, 2014). For instance, greenwashing is a phenomenon when a company with a poor environmental performance communicates it in a positive way (Delmas & Burbano, 2011). In the case of food products, the concern of greenwashing occurs through the packaging and labels (Montero-Navarro et al. 2021).

Plastic is widely used for food packaging since the 1950s, responsible for more than third of the global plastic production (UNEP, 2018). Besides the many advantages of plastic packaging, now it became clear, that single-used plastic waste cause vast environmental degradation, as it cannot degrade to natural substances, but to microscopical parts, known as microplastics (Hale et al., 2020). Biodegradable plastics on the other hand can be converted into organic material, which makes it a more sustainable alternative to regular plastic packaging (Flury & Narayan, 2021).

Steenis (2022) pointed out that sustainability of a product depends on the content and packaging of the product, and consumers tend to perceive it deceptive if only one attribute is sustainable. It is difficult for consumers to assess the sustainability of packaging, but if they perceive it as sustainable, their willingness to pay could be higher (Herrmann et al. 2022). Research has shown that lack of knowledge about the packaging material and environmental friendliness can lead to misleading practices in the food industry (Ketelsen et al. 2020).

The European Commission developed the Product Environmental Footprint (PEF) methodology to assess a product's environmental effect in the whole life cycle (European Union, 2013). Between 2013 and 2016, the European Commission ran pilots to develop product category specific rules for beer, coffee, dairy, marine fish, meat, olive oil, packed water, pasta, and wine.

However, the food industry, academia and NGOs are concerned about the applicability of the PEF method, as it does not consider externalities such as animal welfare, soil fertility, and biodiversity (Pedersen & Remmen, 2022). Only a few research have been done on consumer acceptance of this new labeling, and no previous non-hypothetical research has been conducted on the WTP for PEF labelled products and biodegradable food packaging.

Given the importance of sustainable labels and reducing plastic pollution, the objective of this study is to assess consumers' valuation for the PEF label and biodegradable packaging using an experimental auction methodology. As consumers' knowledge about sustainable packaging is low, we tested the effect of information about the negative environmental impact of microplastics, as it might increase consumers' awareness towards the importance of biodegradable packaging.

#### 2. Methodology

An experimental setup was developed to assess the effect of information about the negative environmental impact of microplastics on consumers' WTP for four products (see Fig. 1). Pasta was chosen for the experimental purposes, as pasta is a widely used ingredient in many households, and the PEF calculation method is already available for pasta products (Cimini et al., 2019)

All the products in the experiment were certified as organic. Product A served as the benchmark, as it is a commercially available organic product in the Hungarian market. Product B was packaged in biodegradable packaging made from PLA (polylactic acid). Product C was packaged in normal plastic packaging as product A, although it had a PEF logo on the label, which showed that this product was produced in a more sustainable way than the average pasta product. Product D was packaged in biodegradable packaging and has the "better" PEF logo as well.

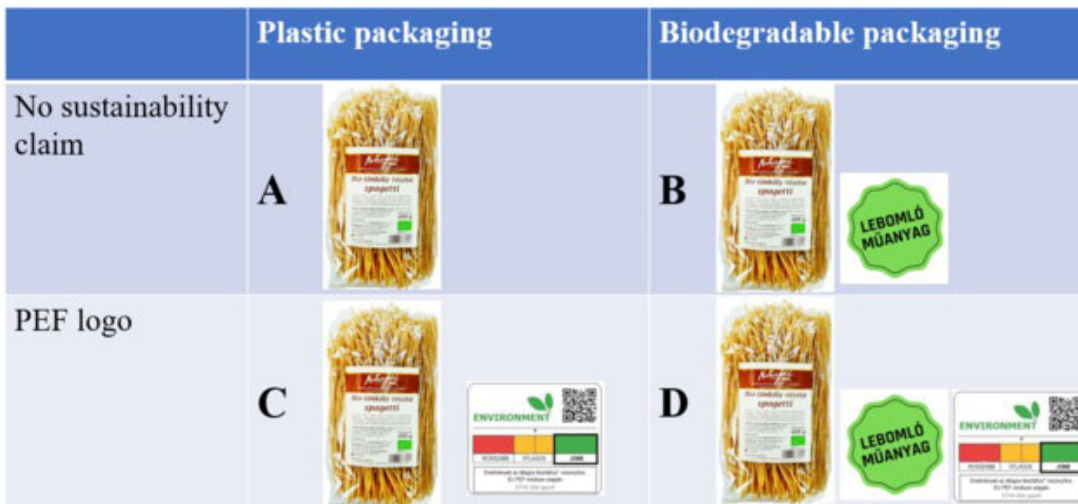


Fig. 1. Experimental setup

To elicit WTP, Becker-DeGroot-Marschak (BDM) experimental auction method was adopted (Becker et al., 1964). The experiment was run in one of the biggest organic farmers' markets in Budapest, Hungary on 25 February and 4 March, 2023, reaching 105 participants, who regularly buy organic products. Participants were seated in groups of 1-3 people, where the experimental method was explained to them. A test run was made with chocolate to make sure that all participants understand the BDM experimental method.

Participants were randomly assigned to control and treatment groups. Both of the groups received information on the PEF logo, as it is unknown to consumers yet. Participants in the treatment group received extra information on the negative environmental impact of microplastics.

After expressing the WTP values, participants were asked about their level of trust in the products, and the perceived sustainability of the products. After filling out the survey, participants received 2000 HUF (approximately 5 EUR) reward.

As BDM mechanism dictates, a product and a price were randomly drawn from an urn after participants finished with filling out the survey. The prices in the urn ranged between 300 and 1000 HUF (0.8 and 2.6 EUR) in 50 HUF (around 12 cents) increment. If the given WTP of the randomly drawn product was higher than the randomly drawn price, the participant had to buy the product. If not, then no transaction happened.

Table 1. Socio-demographic characteristics of the participants

	Control (n=53)	Treatment (n=52)	Full sample (n=105)
Gender			

Male	18	20	38
Female	35	32	67
Age group			
18-25	3	4	7
26-35	9	4	13
36-45	5	10	15
46-55	14	10	24
56+	22	24	46
Education			
Elementary	1	0	1
Vocational	1	0	1
Highschool	7	13	20
College	44	39	83
Income			
Low	8	5	13
Average	18	26	44
High	27	21	48

Table 1 shows that older, higher educated women participants were overrepresented, which is correspond to the socio-demographic characteristic of regular organic buyers' (Ökobaronometer, 2019).

### 3. Results

Table 2 shows the WTPs for the four different products used in the experiment in the full sample and within the control and the treatment groups. In general, product in plastic packaging without PEF logo had the lowest WTP value in both the control and the treatment group. Product in plastic packaging with PEF logo reached an average of 18% price premium in the whole sample. Biodegradable packaging without PEF logo reached a very similar, 20% price premium compared to the plastic packaging pasta. The price premium of the PEF logo and the biodegradable packaging added together, reaching a 36% value increase compared to the benchmark product.

Table 2. Mean WTPs for different pasta products

	Full sample (n=105)	Control (n=53)	Treatment (n=52)
Plastic	524.6 (285.6)	536.8 (293.5)	512.3 (279.7)
Biodegradable	631.9 (319.7)	630.7 (332.4)	633.2 (309.5)
Plastic + PEF	619.9 (330.6)	635.8 (336.8)	603.6 (326.6)
Biodegradable + PEF	713.1 (387.1)	726.8 (416.8)	699.1 (357.8)

Note: Values are displayed in Hungarian Forint (HUF). 1 HUF is appr. 0.0025 EUR. Mean WTPs are significantly different according to Kolmogorov-Smirnov tests (at  $p < 0.005$ ). Standard deviations are given in brackets

Focusing on the difference between the control and treatment group, the biggest deviation can be seen at the biodegradable packaging. Participants in the control group paid an extra 18% on average for the biodegradable packaging, while participants with information treatment about the negative impact of microplastics paid 24% extra for the same product. Information treatment had no significant impact on the price premium of the other products.

The level of trust and the perceived sustainability of the product shows similar pattern as the WTP values. Both trust and sustainability scored the lowest with the plastic packaging product, and reached

highest with the biodegradable packaging and PEF logo. The score varies greater at sustainability compared to organic trust.

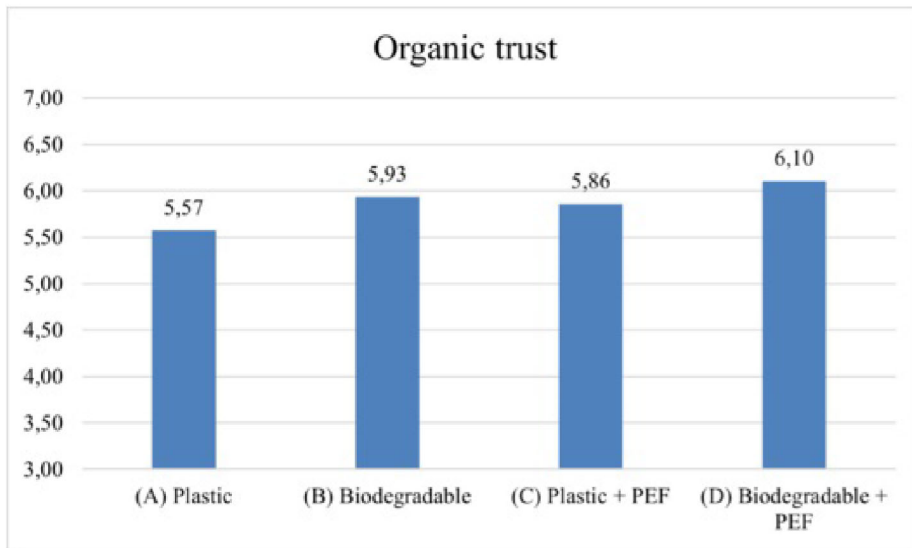


Fig 2. Organic trust of the products used in the experiment within the full sample (n=105)

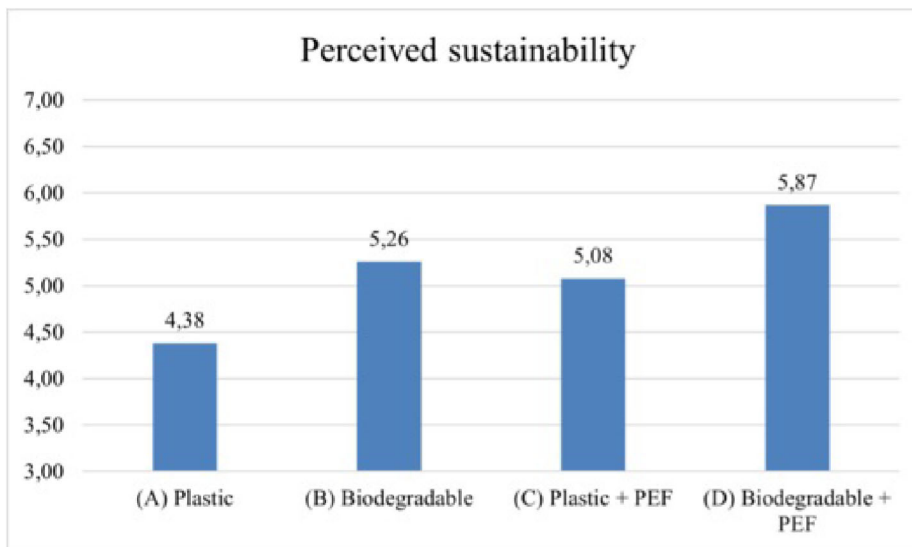


Fig 3. Perceived sustainability of the products within the full sample (n=105)

#### 4. Conclusions

Preliminary results of the experiment shows that substantiated green claims can increase both WTP, trust and perceived sustainability of organic products. Participants valued biodegradable packaging similar to PEF logo, although PEF calculation is taking into account the products' whole environmental impact, including packaging as well. Information treatment further increased the price premium of the biodegradable packaging, but it did not influence the PEF logo's evaluation. This result implies that the environmental impact of the packaging is still plays an important role when consumers evaluate the whole product's environmental footprint. Even though the environmental impact of the packaging is calculated in the PEF method, an additional claim about the environmental friendliness of the packaging can almost double the price premium.

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## **Consumer reactions to social media communication about Sustainable aquaculture in Europe; Input to a communication campaign across Europe.**

Themistoklis Altintzoglou, Pirjo Honkanen  
Nofima, Tromsø, Norway

### **Abstract**

#### Introduction

Stakeholders believe that consumers play an important role in the promotion of aquaculture, especially regarding organic production (Lembo et al., 2018). Scholars have identified a general low awareness concerning aquaculture (Zander et al., 2018), which varies according to the species (Garza-Gil et al., 2016) and location (Froehlich et al., 2017). This low awareness persists despite media exposure (Papacek, 2018). However, consumers report some concern and awareness about general issues associated with seafood production, such as how it affects the environment (Jacobs et al., 2015a), its impact on the sustainability of fish populations (Bacher, 2016) and its influence on people's health (Jacobs et al., 2015b). Yet, there is lack of awareness about specific production methods, such as integrated multi-trophic aquaculture (IMTA) (Alexander et al., 2016) and labels associated with sustainable production in general (Feucht & Zander, 2015). The main objective of this study was to develop recommendations for social media communication strategies for increasing consumer awareness, perception and acceptance of European aquaculture. The recommendations were based on scientific literature, evaluations of the effectiveness of previous and current communication campaigns, the consumer survey results in previous stages of the FutureEUaqua project and experimental testing of the types of messages in social media that are preferred by consumers. The FutureEUaqua project focuses on social media as the preferred communication channel to influence consumers. Social media is considered to be the most appropriate channel to reach young consumers, who are a challenging group with falling seafood consumption levels.

#### Methods

After the evaluation of already available insights, a total sample of 2500 participants was recruited in the UK, France, Germany, Spain and Italy that were at least 50% responsible for the purchase and preparation of seafood in their household. They participated in an experimental survey and were randomly assigned to balanced groups that were exposed to one of five experimental social media posts that varied in tone (factual vs emotional) and visual representation (text vs text and image). Participants were then asked to evaluate the posts on comprehension, liking and willingness to repost. Participants also responded to explanatory topics, such as open-ended questions and consumer characteristics in terms of global innovativeness, attitudes towards nature, food technology neophobia, health concerns, as well as seafood purchasing and consumption behaviour. The last part of the survey focused on social and demographic characteristics, including region and country, coastal and inland location, occupation, education, household situation, gender, age and income.

#### Results

The main results from the experiment showed a clear consumer preference for emotional content in social media posts (figure 1). Female participants seemed to report higher scores in general in this study. Age did not seem to have a major effect on the experiment. However, younger participants in the study seemed to like the control message less than other age groups, while they preferred the emotional message without a picture the most.

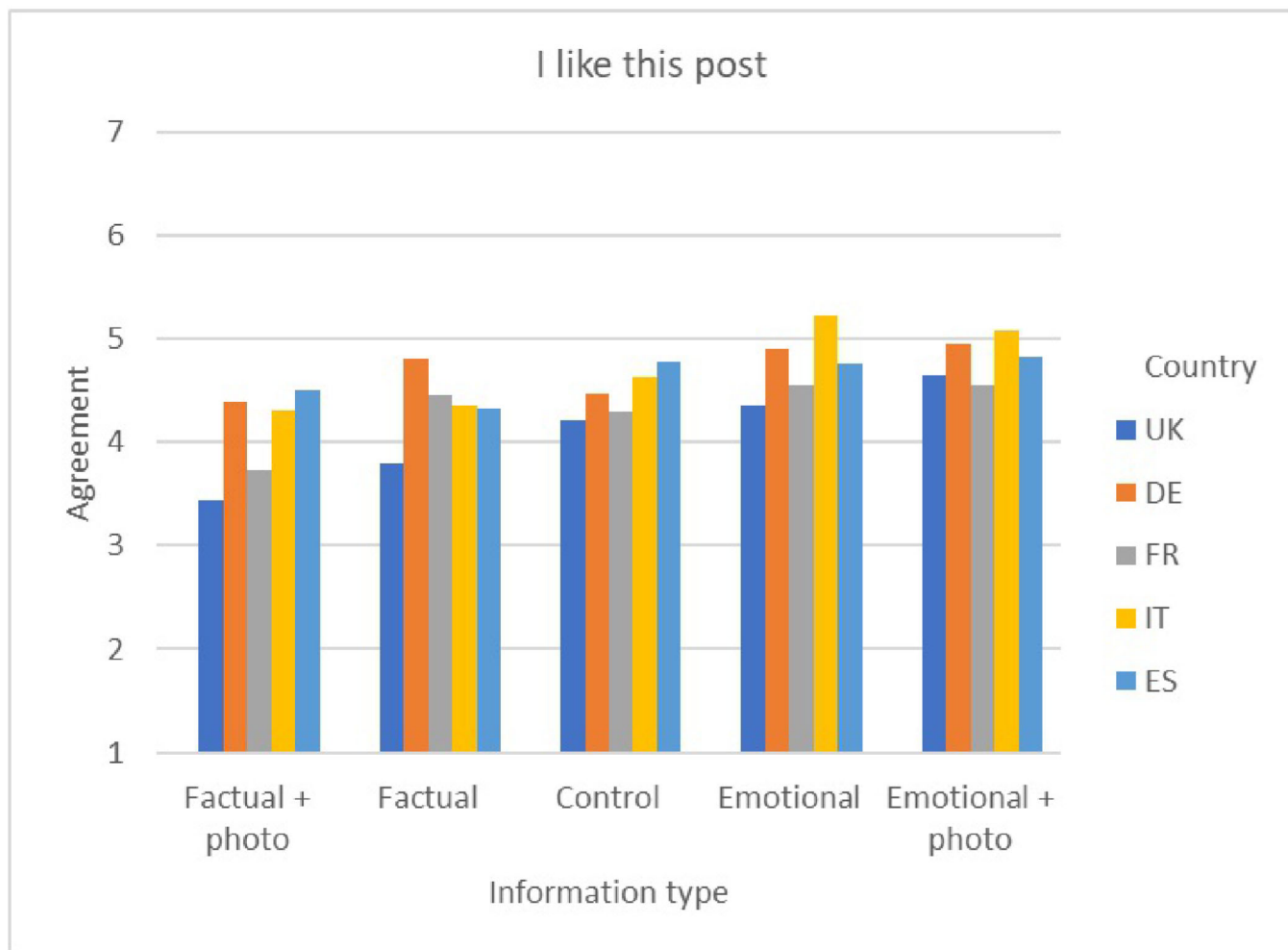


Figure 1 Country differences for liking of the five social media posts

## Conclusion

Based on the results, the FutureEUAqua communication strategy will use short, visually attractive and emotionally engaging social media posts to improve perceptions and increase awareness of and acceptance for aquaculture in Europe.

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## The impact of ethnocentrism on acceptance for plant-based food

Anna Milford<sup>1</sup>, Ingunn Berget<sup>2</sup>, Antje Gonera<sup>2</sup>, Paula Tomasco<sup>2</sup>

<sup>1</sup>NIBIO, Bergen, Norway. <sup>2</sup>NOFIMA, Ås, Norway

### Abstract

A sustainable dietary transition requires knowledge on drivers and barriers for increased acceptance for new plant-based food items, particularly among those who have a high consumption of red meat. We investigate the role of ethnocentrism, meaning preference for domestically produced products, as well as environmental and health concerns, as drivers for different food choices. We also explore the opportunities of using food packaging design to influence preferences and create incentives for increased consumption of food products containing pulses. Fictitious food products based on fava beans and peas produced in Norway were created, and concepts and designs centring around either Norwegian origin, environment or health were developed. A survey with 1000 consumers was conducted in Norway, with questions about food attitudes and preferences for the different designs. Results show that ethnocentric attitudes are correlated with a higher consumption of red meat and a lower consumption of plant-based food, whereas environmental concern has the opposite effect. Furthermore, we find that consumers with strong environmental or health concerns generally have higher acceptance for the plant-based product concepts and respective packaging designs/prototypes, and the liking does not depend on the design. For consumers with strong ethnocentric attitudes on the other hand, the design emphasising Norwegian origin, had a clear positive effect on the liking. The results indicate that creating plant-based products based on domestic ingredients and emphasise this in marketing can increase acceptance among consumer groups with an initial low interest in plant-based food.

## Exploring Swedish consumers' intention to consume sustainable seafood

John Armbrecht<sup>1</sup>, [Kåre Skallerud](#)<sup>2</sup>

<sup>1</sup>School of Business, Economics and Law at University of Gothenburg, Gothenburg, Sweden. <sup>2</sup>School of Business and Economics at UiT—The Arctic University of Norway, Tromsø, Norway

### Abstract

#### Background

Taking the theory of planned behavior (TPB) view, this study validates the relationships between the original constructs (i.e., attitude, social norm, and perceived behavioral control) and the added constructs of conscious consumption in the context of Swedish consumers' intention to consume seafood in general and sustainably produced seafood products in particular.

Environmentally conscious consumption has intrigued academicians, and several studies on consumption have appeared recently (see, e.g., Lau et al., 2007, for a review). Seafood consumption has positive effects on greenhouse emissions (Nijdam et al., 2012). Aleksandrowicz et al. (2016) estimated that 70% reductions in greenhouse gas emissions and land use are possible if current Western diets shift to more environmentally sustainable diets. Evidence suggests that consumer behavior constitutes a potential demand-driven lever for sustainable use of marine bioresources (Dietz et al., 2009; Hallstein & Villas-Boas, 2013; Vázquez-Rowe et al., 2013), which highlights a need for a better understanding of seafood consumption and consumption of sustainable seafood in particular (Richter et al., 2017).

TPB models are widely used in psychology and marketing to structure and understand conditions influencing behavior such as consumption. This study uses an extended TPB model to explain intentions to consume seafood in general and more sustainably produced seafood. Along with other studies, this study uses behavioral intent as the dependent variable and proxy for behavior (Macintosh & Lockshin, 1997; Sheeran, 2002). Attitude refer to the extent to which a person evaluates a product (e.g. seafood) as favorable or unfavorable. The more positive consumer attitude towards seafood are, the more likely it is that people will consume seafood (e.g. Birch & Lawley, 2014; Honkanen, Olsen, & Verplanken, 2005; Olsen, 2001, 2003; Verbeke & Vackier, 2005). Another predictor within the TPB framework—social norm—describes the social pressures a person perceives when performing a particular behavior (Ajzen, 1991). Social norm thus comprise normative beliefs representing a perceived social pressure from others with which they want to comply. Ajzen (2015) points out that attitude and norm may not always be sufficient to predict behavioral intentions. For instance, a study by Conner et al. (2002) found control mechanisms (perceived behavioral control—PBC) to be the strongest predictor of behavioral intentions in the context of healthy diets. The existence of control/regulatory mechanisms suggests that consumption may not always be under volitional control. PBC specifies the extent to which a person perceives a choice as under his or her control. Consequently, the more control an individual has over his or her action (e.g. seafood consumption), the more likely it is that consumption will occur.

TPB is the theoretical backbone of this study, but like many other studies, we have included an additional construct, namely conscious consumption, to give a broader understanding of intention to consume more seafood in general and sustainably produced seafood in particular. Conscious consumption refers to the act of purchasing or consumption being motivated by the choice of products, services, and companies that contribute to environmentally sustainable, ethical, and socially fair living conditions (Eberle et al., 2022; Lira et al., 2022). The role of preferences regarding, for example, packaging techniques and eco-labelled food may help explain variations in fish consumption (Carlucci et al., 2015). Eco-labels are a strategy and decision criterion to activate purchase behavior among environmentally or ecologically conscious consumers and captures an important dimension related to fish consumption—conscious consumption. Accordingly, in relation to awareness about the importance of a more sustainable diet, conscious consumption is hypothesized as a determinant of intention to

consume both more seafood in general and sustainably produced seafood (Kriwy & Mecking, 2012).

Based on the above, this study will explore how the extended TPB model helps explain Swedish seafood consumers' behavioral intent.

## Methodology

All constructs are assessed by adopting validated scales from the literature and adjusting the wording to the context of food and seafood products. Attitude, PBC, and social norm are framed towards seafood in general. Conscious consumption is framed towards food in general. Intention to consume more seafood in general and sustainably produced seafood is framed within the coming month. All scales are measured on a seven-point Likert type scale (1 = completely disagree; 7 = completely agree).

The Laboratory of Opinion Research (LORE) at Gothenburg University collected all data. The research is based on The Citizen Panel. In total, the panel includes more than 60,000 active participants. A probability sample (n = 3,600) stratified according to age, gender, and education is used, of which 2,207 participants (61.3%) completed the survey. The sample consists of 48.2% female and 51.8% male participants. The research model is tested using IBM SPSS Statistics 28 and IBM SPSS Amos 28 Graphics.

## Findings

We used the ML simultaneous estimation procedures (Amos v.26) to validate the hypothesized structure among the constructs. The unidimensionality of the different constructs was evaluated. One indicator of attitude towards seafood and one of PBC were deleted based on modification indices and standardized residuals. The fit of the final model was good [ $\chi^2 = 144.27$ ,  $df = 48$  ( $p < .001$ ),  $RMSEA = .031$ ,  $GFI = .99$ ,  $AGFI = .98$ , and  $CFI = .99$ ]. The individual item loadings on the constructs were all highly significant, with values ranging from 0.67 to 0.97, which satisfied the criteria for construct validity. All scales also exceeded the recommended minimum standards with composite reliability greater than .73. Average variances extracted (AVE) were greater than 0.64, except for PBC, which had an AVE equal to .48. None of the correlations  $\pm 2$  standard errors included 1; thus, the discriminant validity of the constructs was considered satisfactory.

Having obtained a satisfactory measurement model, we tested the effect of attitude, social norm, PBC, and conscious consumption on 1) intention to consume more seafood in the coming month and 2) intention to consume more sustainably produced fish in the coming month. The fit of the structural model was satisfactory [ $\chi^2 = 182.45$ ,  $df = 65$  ( $p < .001$ ),  $RMSEA = .054$ , and  $CFI = .97$ ]. The regression weights and levels of significance indicated the existence of significant effects between the independent and dependent variables.

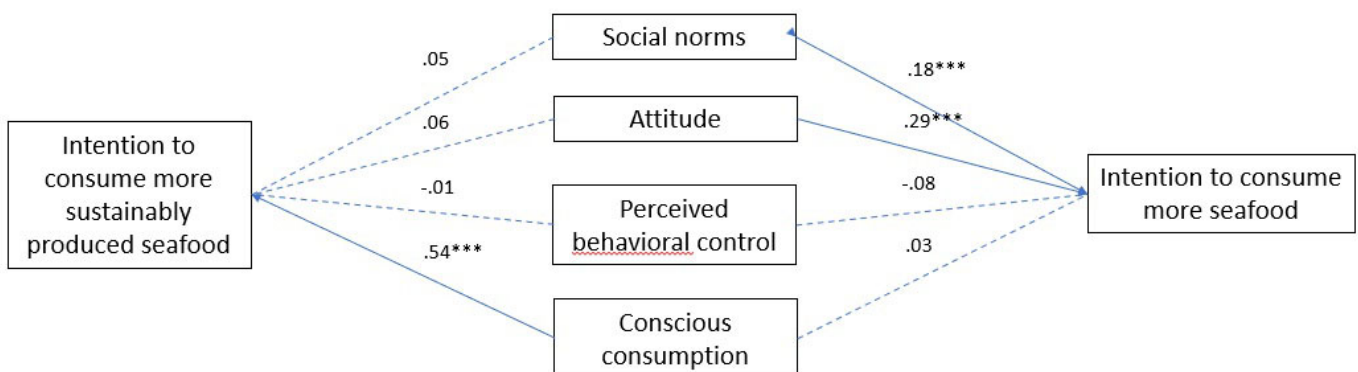


Figure 1: The extended TPB model

Roughly 30% of the variance in intention to consume more sustainably produced seafood is explained

( $R^2 = 32\%$ ) and 14% of the variance in intention to consume more seafood is explained. The effect of attitude and social norm on intention to consume more seafood in general is significant and positive. PBC and conscious consumption have no significant effect. Intention to consume more sustainably produced seafood is not explained by the original TPB constructs. Attitude, social norm, and PBC have no significant effect. Instead, conscious consumption turns out to be the only significant and strong predictor.

### **Contributions to Theory and Practice**

The purpose of this study was to contribute with insights on drivers of Swedish consumer behavior related to seafood consumption using the TPB conceptual framework. The original TPB model including attitude, perceived behavioral control, and social norm was extended by incorporating conscious consumption. Both intention to consume more seafood in general and intention to consume more sustainably produced seafood were predicted.

The results support the application of TPB in the context of regular seafood consumption. A strong effect of attitude towards seafood on intention to consume more seafood is in line with previous research (e.g., Jonell, et al., 2016; Paul, et. al., 2016). Social norm related to seafood consumption turn out to be a significant predictor, similar to the findings of, for example, Chen and Peng (2012) and Chen and Tung (2014), indicating that “significant others” are important in consumer decision making regarding seafood consumption in general. It seems that the recommendation to increase consumption of fish has turned into a socially desirable norm constituting a path to increase consumption of seafood. Contrary to previous research (e.g, Chen & Tung, 2014; Paul et al., 2016), this study finds no significant effect of PCB on intention to consume more seafood. This indicates that there are no perceived difficulties in finding, acquiring, and consuming seafood in Sweden, which may be explained by the good availability and affordability of seafood products and familiarity with these products.

The application of the TPB model with constructs framed towards seafood in general does not contribute to explaining the extent to which a person has an intention to consume more sustainably produced seafood. In other words, it seems that consumers make a clear distinction between seafood in general and sustainably produced seafood. In our extended TPB model, only conscious food consumption predicts a positive intention to consume more sustainably produced seafood.

Previous literature has paid attention to seafood consumption behavior but has not focused on distinguishing pro-environmental consumption as compared to regular consumption. The results indicate that traditional constructs within the TPB framework which explain the consumer behavior of regular fish consumption are suitable in the Swedish context. Similarly to previous applications, attitude plays a central role when predicting intentions (Paul et al., 2016). It is evident, however, that people’s environmental awareness plays a much stronger role when trying to understand the determinants of sustainable fish consumption. This supports the notion that pro-environmental attitude are likely to translate into pro-environmental behavior (Dunlap & Van Liere, 1978; Verain et al., 2012).

From a marketing perspective, the results indicate that companies as well as other seafood advocates need to prepare different strategies depending on whether they want to market regular seafood products or sustainably produced ones. National strategies in Sweden and around Europe exist to increase fish consumption in general, for health reasons and as a way to substitute red meat consumption. These strategies should focus on the attitude of consumers as well as social norm. Increasingly, however, sustainable seafood consumption is promoted to reduce anthropogenic impacts on the environment. The results support strategies where conscious consumption and environmental awareness are central drivers of sustainable fish consumption.

### **References**

Upon request





## **Industrial buyers' food neophobia - a possible barrier to market entry? - a study of industrial buyers in south korea and vietnam**

Gøril Voldnes

Nofima, Tromsø, Norway

### **Abstract**

#### **Introduction**

The salmon louse is a parasite that causes damage to both wild and farmed salmon. The challenge of sea lice in the salmon aquaculture industry have resulted in various measures to reduce the problem. Among the measures taken, the use of cleaner fish that feeds on the sea lice that live on farmed salmon, have become an effective way to reduce the number of lice. The production of lumpfish for this sole purpose has grown, from just above 0,4 million fish in 2012 to nearly 27 million fish in 2021. A major challenge with the use of lumpfish as cleaner fish in the salmon aquaculture is the lack of after-use of this fish. The salmon industry has paid limited attention to the after-use, resulting in millions of fish going to waste or in best case are used for ensilage when taken out of the salmon net-pens. There is an urgent need to find solutions for more sustainable after-use for this resource. Aiming for the most sustainable solution we wanted to explore the possible after-use of farmed lumpfish for human consumption. However, this requires the identification of consumer markets for this fish. Introducing new foods into a new market is challenging, a challenge often explained by peoples' food neophobia (Barrena and Sanches, 2012). This concept has received much research attention focusing on the consumers. But, before convincing a consumer to try out new food, one often need to get pass the industrial (professional) buyers, i.e., the importers, wholesalers, retailers, chefs. All these industrial buyers act as gatekeepers to market entry (Knight et al., 2012). However, limited research attention has been devoted to the understanding of food neophobia among these important gatekeepers. This study explores the food neophobia of industrial buyers in South-Korea and Vietnam.

#### **Theoretical background**

The failure rate of new food products is high and thus new product development is challenging. For innovative and novel food products food neophobia (FN) contribute to in high failure rates (Barrena and Sanchez, 2012). FN is defined as the unwillingness or refusal to eat or the tendency to avoid new foods (Pliner and Hobden, 1992). Introducing new food or products to new markets may be even more challenging as the cultural background of a country seems crucial to explain the level of FN of its inhabitants (Rabadan and Bernabéu, 2021).

Food neophobia is generally characterized as a personality trait, a continuum along which people can be placed in terms of their tendency to accept or avoid new foods (Pliner and Salvy, 2006). Since FN can influence preferences toward novel foods (Tuorila et al., 2001), understanding its potential impact on consumers' food selections is an important issue for food product developers and marketers. A systematic review of FN studies the last 30 years (Rabadan and Bernabéu, 2021) showed that most studies were conducted in developed countries, mainly in the US and Europe. It is important to explore several countries as differences have been reported between countries (Chung et al., 2012) and between well-educated and wealthy people from Western and emerging countries (Brunner and Nuttavuthisit, 2019). In emerging countries, consumers were more conservative (more neophobic) about food, while consumers in developed countries showed lower levels of FN. According to Rabadan and Bernabéu (2021) specific attention should be paid to fast-growing countries in Asia, where society and food consumption are changing rapidly, as results shows that FN in societies decreases with increased income, education, and urbanization (Predieri et al., 2020, Beltran et al., 2016).

FN is interesting to investigate as it has a negative effect on the willingness to try new or unfamiliar products (Fernández-Ruiz et al., 2013) which is essential when aiming for introducing a new seafood

species to a new market. Olabi et al. (2009) indicate that it would be challenging for food companies to launch foods that are “highly novel non-traditional foods” into markets with high food neophobia levels and to assess whether these markets would require the elements of more aggressive marketing campaigns (Olabi et al., 2009).

In the literature review, no research was found investigating the potential role of food neophobia among industrial buyers. Industrial buyers constitute the critical focal point through which most of the seafood must pass; in effect they are the most important gatekeepers to market entry. Their perceptions and possible food neophobia may have significant impact on the possibilities and chances of success with introducing new food products. Thus, our aim was to investigate food neophobia among a selection of industrial buyers in South Korea and Vietnam regarding lumpfish.

## **Methodological approach**

First, a market test of lumpfish was conducted in South Korea, with 6 different industrial buyers; 1 importer, 1 wholesaler, and 4 chefs. They were all given the task to evaluate the fish and make dishes they found suitable for the fish, with particular focus on suitability for their cultural cuisine. The product test was followed up with in-depth interviews. In South Korea the interviews were conducted via Teams with help from Innovation Norway in Seoul. The results in South Korea, revealing a clear tendency towards food neophobia, made us focus more on exploring the possible food neophobia in our second chosen market, Vietnam. The interview guide was moderated to include questions aimed to explore the possible food neophobia and disgust sensitivity among the industrial buyers in Vietnam. We asked questions involving the respondents’ willingness to buy new types of food products, liking of buying products from different countries, enjoying trying out new foods. These questions were taken moderated for a qualitative approach from Pliner and Hobden (1992) Food Neophobia scale. In addition, the general questions about the fish, the perceptions of its appearance, smell, texture, lice eating history were asked to reveal possible sense of disgust towards the fish, and willingness to buy. The market test in Vietnam, included 6 industrial buyers, 3 processors, 1 restaurant owner and 2 chefs.

## **Results**

The results of the product test and interviews in South Korea revealed quite negative perceptions about the fish and gave an indication of food neophobia being an issue when evaluating the fish. Excerpts from the respondents indicate that Koreans in general were not that fond of new things: “In China it, it seems that things sell anyway. Koreans don’t like new items. The respondents said they would check through the internet first, and if they looked at the picture of lumpfish on the internet, they would say: “Nope, no way.” Another respondent expressed the reluctance to try new things in the following way: “Koreans are very conservative people. They don’t like unfamiliar things. They don’t even consider at all if things are new and not familiar. It is extremely difficult to penetrate the market with a new item.” Yet another expressed: “Whomever the first penguin is, he must put a tremendous effort. Otherwise, it’s almost impossible.” In addition, the respondents expressed very negative perceptions of the fish, regarding the looks, taste, texture, and lice-eating history. One of the respondents expressed: “We have many uglier fish in South Korea, but this is different from ugly, it’s scary.” Further, one said that the looks of the fish made her feel uncomfortable, while another said that this fish was not for eating, revealing a quite strong reluctance to try this the fish.

In contrast to the South Korean industrial respondents, the respondents in Vietnam expressed that they really enjoy tasting new foods. The general response from all the respondents was that they enjoyed and “Like to taste all types of products.” A couple of the respondents said also that in addition to enjoy tasting new foods, that this is also a necessity for their business. As of the respondents expressed: “Trying out new foods is the way we survive. We all copy each other, thus looking for new products is our purpose.” It was here added that their continuous search for new raw material mainly was driven by a cost focus. They were dependent on finding new raw material to their production or menus that helped them lowering the costs. Thus, low price and high yield was their biggest priority. Another expressed it as follows: “We always try to find new things to make us different from others.” The respondent here further explained that finding a type of seafood that they could put on the menu and promote as something special, something unique, was important for them to attract customers. The competition to attract

customers was fierce, especially during and after Covid-19 and the war between Russia and Ukraine. A big majority of tourists in Vietnam have traditionally been Chinese and Russians. The Chinese have had very strict traveling restrictions since the start of Covid-19 and the Russians have been banned from travelling due to the war. Thus, attracting other customers with something special was important.

## Discussion

The results of the interviews in South Korea and Vietnam show both similarities and differences. Both markets did not like the appearance of the lumpfish, and did not see much potential of this fish due to its looks and low amount of meat/fillet in the fish. The results of possible FN revealed some differences. According to our study, the respondents in South Korea seemed in general to be much more reluctant to try out new foods, indicating a higher level of food neophobia, compared to the Vietnamese. While the the South Korean industrial respondents expressed that entering the Korean market with something new is generally really challenging, the Vietnamese industrial respondents, seemed to have a quite different approach to new foods. Trying out new foods was for the Vietnamese industrial buyers perceived enjoyable and even a necessity, as trying to find something new and different was important to use in advertising to attracts customers. So according to this exploratory study it seems like the degree of food neophobia is higher among the industrial buyers in South Korea than in Vietnam. This may be explained by the findings of FN among consumers by Brunner and Nuttavuthisit, (2019) showing that in emerging countries, consumers are more conservative (more neophobic) about food, while consumers in developed countries showed lower levels of FN. While South Korea is praised as one of the leading emerging markets in the world (Perk et al., 2022), Vietnam is still struggling to get this position caused by infighting between state institutions about key reforms, including on settlements and companies' foreign ownerships (cnbc.com 2023). So, in relation to the research question whether industrial buyers' food neophobia hindering market entry, this may seem more prevalent for South Korea than Vietnam.

Further, the approach to the lice eating history of the lumpfish was different in the two countries. The importance of transparency clearly differs among the industrial buyers in South Korea and Vietnam. While the South Korean respondents said that it was very important to be open about the lice eating history and to find a good way to market this properly, finding the right way to explain the facts, the Vietnamese thought the best way to approach this was to hide this information. This very different approach towards the importance of sharing information with the consumers may also be explained by the degree of development of the two markets and the length of their democratic history. The communist history of Vietnam may be still prevalent were the need or focus to share information with the people is not well adapted yet.

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## The effect of consideration of future consequences on consumer preferences for sustainable foods

Giovanna Piraccj, Fabio Boncinelli, Leonardo Casini  
Università di Firenze, Firenze, Italy

### Abstract

In its simplest form, sustainability from a consumer perspective is about engaging in behaviours aimed at preserving and enhancing the natural and social environment. Sustainable consumption encompasses not only an ethical conflict, i.e. the need to consider collective versus individual interests, but also a temporal one, i.e. the focus on future outcomes at the expense of present benefits (Joireman et al., 2001; Fuller et al., 2022). Strathman and colleagues (1994) introduced an individual construct named the Consideration of Future Consequences (CFC) as “the extent to which people consider the potential distant outcomes of their current behaviours and the extent to which they are influenced by these potential outcomes” (p. 743). The CFC is considered a reliable measure of individual time orientation, which is to say how they discount future events (De Marchi et al., 2016). Since pro-sustainability actions often imply immediate costs (e.g. time and economic efforts in the short run) to provide future benefits, researchers have been paying increasing attention to the CFC as a possible driver of sustainable behaviours. Nonetheless, how time perspective relates to sustainable food choices has been scarcely investigated so far. Moreover, how people are conditioned by the long- and short-term outcomes of their behaviours may help explain the difference in preferences between social and environmental food attributes. A higher consideration of future outcomes may support a strong orientation towards environmental causes since these are seen as more distant in time. On the other hand, attaching more value to the present may be linked to a major concern for societal and ethical issues as these configure as more immediate concerns.

To promote sustainable consumption patterns, there is a need to understand how individual characteristics, such as time perspective, may affect sustainable food choices. Therefore, the current study investigates if and how the CFC influences the demand for sustainability attributes in food products. In addition, this work aims to disentangle the impact of the CFC according to the different dimensions of sustainability labels, namely the environmental or social types. To pursue our research objectives, we applied a hypothetical Choice Experiment (CE) for a bottle of red wine. We considered three different sustainability attributes: (i) a social label, i.e. the fair labour condition claim; (ii) an environmental attribute, i.e. the 100% recycled glass label; (iii) the most familiar sustainability label, i.e. the organic certification. Data were collected through a cross-sectional online survey delivered to 500 Italian consumers.

Our findings are expected to elucidate which time perspective, i.e. immediate or future, exerts the strongest effect on consumer preferences for environmental or social attributes. The development of sustainable food policies and marketers’ strategies could benefit from knowledge about the characterization of sustainability-involved food consumers and how this relates to the demand for sustainability-labelled products.

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## Marketing Role of CSR Engaging Consumer's Behavior in the Food Market

Zdenka Kádeková, Kristína Igarová\*, Ingrida Košičiarová, Adriana Rusková  
Slovak University of Agriculture in Nitra, Faculty of Economics and Management, Institute of Marketing,  
Trade and Social Studies, Nitra, Slovakia

### Abstract

Submitted contribution aims at CSR activities and marketing communication of food companies in Slovakia and its influence on consumer behaviour and their decision making. On the threshold of the 3rd millennium, the CSR is also connected with rationality and irrationality in creating preferences in consumer shopping behavior. Interest within our study was aimed at trustworthiness is one of the key factors in this direction for customers and their consumer behavior, which the CSR activities in the food market can influence. Our study was organized based on the necessity to fill out the gap in this area of research. Any other research in Slovakia still needed to carry out research with such a focus. Concerning CSR and the food market in the Slovak republic, professionals from the field of marketing, management, and economy conducted research based on the questionnaire survey focused on CSR activities as a marketing tool in the food market from customers' perspective. Firstly, the most important problems and issues related to the topic were investigated and transferred to the questionnaire offered online to respondents. We ensured the representativeness of the research sample by addressing the questionnaire to the target interest groups, and clubs focused on the food market, including respondents of all ages. Four research questions were set for the analysis of corporate social responsibility as a marketing tool of food companies in Slovakia from the consumer's point of view. The questionnaire survey results with 1,254 participating respondents showed that, although they are familiar with the concept of CSR, a large percentage of respondents either need to learn about these activities or pay more attention to them. This may be because some CSR activities need to be actively applied and communicated by food companies. Based on the results of our conducted research, customers perceive the CSR activities of food companies in most cases as a marketing communication tool that builds the good name company and the image of the company and we can observe a huge influence also in area of rationality and irrationality in creating preferences in consumer shopping behavior based on CSR activities and their implication and communication with customers. However, our research also has some limitations. We focused on respondents from Slovakia and the perception of food companies' CSR activities in the Slovak Republic's territory. We are also aware that CSR is rapidly developing, and the issue described in the submitted contribution may continue to develop and change. Based on this, new possibilities and trends for future research will be developed. In the future, the solved issue can be investigated from the point of view of respondents in other EU countries and food companies of selected countries, which can be an interesting basis for comparing selected countries and the use of CSR activities as a marketing tool on the food market not only in Slovakia but also abroad. The submitted contribution creates a solid basis for further research and practical application in using CSR activities in Slovakia and EU countries on the food market. It can use as a base for further research in this area. For statistical evaluation of data, we used Chi-square test, Pearson Chi-square test, proportion Z test, Two-Sample Kolmogorov-Smirnov Z test, frequency and contingency tables. However, the communication of CSR activities is a challenging task for food companies, as it brings a number of threats and opportunities. For this reason, a proper CSR communication strategy is essential to effectively influence consumer attitude and behavior. CSR in the food industry is particularly important because of the wide range of potential benefits.



## Regional food destination attractiveness: an exploration of food day-tripper preferences

Guljira Manimont<sup>1</sup>, Juliet Memery<sup>1</sup>, Thilini Alahakoon<sup>2</sup>

<sup>1</sup>Bournemouth University, Bournemouth, United Kingdom. <sup>2</sup>Queensland University of Technology, Brisbane, Australia

### Abstract

#### 1. Introduction

Consumers' desire for unique and authentic food experiences has established food as an essential ingredient for travel. Indeed, some consumer groups, such as foodies, have elevated this trend by incorporating it into their daily lives (Robinson & Getz, 2013), giving rise to a new market segment called 'food day-trippers' who plan day trips to nearby destinations to experience local food. As a result, food destinations targeting food day-trippers have emerged. Given the potential for local food to enhance destination attractiveness (Rand et al., 2003), it is likely destinations that establish themselves as regional food destinations will attract food day-trippers. However, despite this potential, scant research addresses regional food destination attractiveness and preferences for regional food from the food day-tripper perspective, a growing market segment that Destination Marketing Organisations (DMOs) can target (Manimont et al., 2022).

The current paper aims to address this gap by investigating how food destination attributes connect back to food day-trippers' preferences through using a personal values lens. First, it explores the salient attributes that represent food destination attractiveness from the food day-tripper perspective, before investigating how personal values shape food day-trippers' attribute preferences. Repertory Test and Laddering Analysis are used to study these connections and provide valuable insights into the personal values that shape attribute preferences and drive food day-tripper destination choices and behaviour.

#### 2. Literature review

##### 2.1 Food destination attractiveness

Destination attractiveness and destination image are interconnected concepts and are used interchangeably within the destination marketing literature (Gordin & Trabskaya, 2013). Both concepts address the overall impression or perception individuals have of a destination, based on a range of destination attributes. Destination attractiveness specifically refers to how an individual perceives and feels about a destination's ability to fulfill their travel needs (Pike & Kotsi, 2016). Destination image can be partly attributed to the intangibility of tourism products making consumers often rely on their mental shortcuts, such as destination image, during their destination selection process (Tasci & Gartner, 2007). This indeed is a critical point because of the concerns around the potential for misperceptions due to the 'perception is reality' proposition introduced by Thomas Theorem in the 1920s (Pike et al., 2021). For instance, if an individual perceives a destination as crowded, regardless of whether or not that perception is accurate, they are less likely to consider visiting that destination. This highlights the importance of identifying unique destination attributes and ensuring that consumers' perceptions align with a destination's ability to deliver those attributes, in order to match their expectations (Alahakoon et al., 2021).

DMOs and stakeholders have increasingly focused on food destination attributes due to their perceived ability to enhance a destination's attractiveness and branding success. Previous research has shown the importance of local cuisine in influencing destination choice, directing many destinations to promote and

brand their local cuisine as a major attraction. Studies on destination image have examined the link between destination attributes and food destination attractiveness (e.g., Lyu et al., 2020; Williams et al., 2019) indicating attributes such as local cuisine, local markets and festivals, vineyards and cultural heritage play a significant role in enhancing destination attractiveness. Some studies have conducted systematic reviews on food destination research (e.g., Okumus et al. 2018), finding consistently that travelling for food provides an opportunity to immerse oneself in new experiences, so supporting a strong relationship between local cuisine and destination attractiveness (Lyu et al., 2020). However, due to the high diversity in consumers' preferences and the continuous evolution of travel patterns, motivations may have changed over time, hence further research is needed. Moreover, such motivations may go beyond local or regional cuisine to include other related considerations such as accessibility and cleanliness of a destination (Manimont et al., 2022).

## 2.2 Attribute importance and the influence of travel situations on food destination attractiveness

Whilst research on destination attractiveness has expanded, the absence of research that considers the influence of travel situations and practicalities, such as time, duration, and distance, are of concern (Nicolau, 2008; Wynen, 2013). This gap is supported by distance decay theory, which implies the attractiveness of a destination decreases as the required travel time and distance increase (Eldridge & Jones, 1991). Previous research on value perceptions, McKercher (2008) notes that the real issue is not solely the travel distance, but also the cognitive trade-offs between the benefits (consequences) and sacrifices of travelling to a particular destination (Lee et al., 2014). This suggests that the relative destination attributes importance can vary depending on the travel situation.

Applying this to the food tourism context, consumers may view non-context specific attributes (e.g., accessibility, infrastructure, recreational activities) of a destination as more 'important' than context-specific attributes (e.g., local cuisine and specialty food) in different travel situations, with only a few 'salient' attributes determining their destination choice (Manimont et al., 2022). However, there is little research on this topic in the context of regional food tourism, where travel time and distance are limited for food day-trippers, particularly that of a qualitative nature which engages with consumers and identifies attributes that are most attractive to them. The emergence of food day-tripping as a new travel pattern adds a fresh dimension to food tourism research suggesting a need to understand the specific travel behaviours and motivations of those travellers, including the unique destination attributes that appeal to them.

## 2.3 Destination attributes and personal values

While destination attributes that represent destination attractiveness can provide insights into consumers' attribute preferences, a more comprehensive understanding of such attribute preferences are facilitated through the study of personal values. Personal values act as guiding principles in an individual's life (Muller, 1991). The study of such values within tourism uncovers insights into overarching reasons for individuals' lifestyle choices that guides tourism behaviour. A notion that has been extended to food consumption behaviour (Chan et al., 2022; Kim et al., 2022).

One of the earliest studies connecting travel destination attribute preferences and personal values, (Muller, 1991) identified three diverse segments among US outbound leisure travellers to Canada: security-conscious travellers, fun and enjoyment-oriented travellers, and experience-based travellers. These traveller segments were defined by distinct value orientations such as security, excitement, and warm relationships, providing an extended explanation of their attribute preferences. More recent studies exemplified this in food consumption preferences showcasing connections between attributes and values. Chan et al. (2022) establish personal values linked to fast food consumption. Kim et al. (2022) present local food consumption values for different inbound cultural groups, focusing on inbound traveller experiences and the personal values guiding their food experience engagement. However, an explanation of attribute preferences and value orientations of food day-trippers' who benefit from local knowledge but are bounded by time and distance considerations is still absent in the current literature.

### **3. Methodology**

#### **3.1 Research approach**

A qualitative inquiry using the Repertory Test with Laddering Analysis was employed. First the Repertory Test elicited food destination attributes local travellers perceive as salient for food day-tripping. Then, Laddering Analysis was applied to understand the reasoning behind their preferences by exploring the resulting consequences and personal values that drive their decisions. These results were then aggregated to understand regional food destination attractiveness as defined by food day-trippers. Methodologically, the present study adapts the steps recommended in studies by Pike (2012) and Alahakoon et al. (2021) given their focus on destination attractiveness.

#### **3.2 Sample and sample recruitment**

This study focused on self-declared 'foodies' (defined as those interested in food and who travel locally to specific destinations for food experiences) living in the counties of Dorset or Hampshire in the United Kingdom. Twenty individuals were recruited with a further condition of them being 18+ years of age. Recruitment was done through personal contacts and snow balling. Sample characteristics are outlined in Table 1.

#### **Table 1: A summary of sample characteristics**

	Frequency	Percentage
<b>Residency</b>		
Dorset	14	70
Hampshire	6	30
Total	20	
<b>Gender</b>		
Female	12	60
Male	8	40
Total	20	
<b>Age</b>		
18 - 24 years	3	15
25 - 34 years	10	50
35 - 44 years	5	25
45 - 54 years	1	5
55 - 64 years	1	5
Total	20	
<b>Marital status</b>		
Married	7	35
Engaged/de facto	6	30
Single	7	35
Total	20	
<b>Dependent children at home</b>		
Yes	4	20
No	16	80
Total	20	
<b>Employment status</b>		
Full-time employed	11	55
Self-employed	6	30
Full-time student	3	15
Total	20	
<b>Income status</b>		
Prefer not to say	2	10
Under £10,000	3	15
£10,000-£19,999	1	5
£20,000-£34,999	8	40
£35,000-£49,999	3	15
£50,000-£74,999	2	10
£75,000-£99,999	1	5
Total	20	

### 3.3 Elements and element selection

Nine elements (i.e., destination names) were used for the Repertory Test to replicate real-life destination choices, namely: 1. Bridport, 2. Christchurch, 3. Dorchester, 4. Lyme Regis, 5. Lymington, 6. Poole, 7. Romsey, 8. Southsea, and 9. Winchester. Element selection was informed by three pilot interviews. When introducing the selected elements to participants, triads were used. Accordingly, a combination of three elements at a time were presented to participants eliciting attributes in the form of similarity/difference statements. The order of triad presentation was determined using the balanced incomplete design formula (Burton & Nerlove, 1976). The resulting 84 triad combinations were narrowed down to 24 for

practical reasons as advised by Pike (2012). Therefore, the triads of destinations were provided in the following order. All interviews were conducted online via Zoom, and triads were presented in the form of PowerPoint slides following the steps outlined in Alahakoon et al. (2021).

1,2,3	4,5,6	7,8,9	1,4,7	2,5,8	3,6,9	1,5,9	2,6,7
3,4,8	1,6,8	2,4,9	3,5,7	3,4,5	6,7,8	9,1,2	3,6,9
4,7,1	5,8,2	3,7,2	4,8,9	5,6,1	3,8,1	4,6,2	5,7,9

### 3.4 Data collection

Data collection took place between April to May 2022. All interviews were conducted online via Zoom to enable audio/visual interaction. Opening questions clarified participants' self-declared foodie behaviours followed by their top-of-mind regional food destinations. Each participant was then presented triads of destination names with the question 'when thinking about local destinations to visit for food experiences in Dorset or Hampshire for a day trip, in what important way are two of these alike, but different to the third?'. They were also reminded of the 'no repeat rule' to ensure comprehensiveness (Pike & Kotsi, 2016) and 'no wrong answer' to ensure encouragement. For each construct elicited through the Repertory Test, a process of laddering was followed where the question 'why is that important to you' (Reynolds & Gutman, 1988) was presented to the participant to ladder up to consequences and personal values. This process was repeated until the participants reached a point of saturation that elicited no new responses from them. Interviews averaged 20 minutes in which participants went through an average of 6 triads.

## 4. Analysis & preliminary findings

### 4.1 Food destination attractiveness

The Repertory Test results present the final constructs in the form of destination image attributes, while the Laddering Analysis shows the resulting consequences and personal values that drive food day-trippers' perceptions. The analysis primarily took the forms of thematic analysis, frequency counts and hierarchical value mapping. Based on this process, firstly participant responses were coded and then grouped together to form relevant themes. This resulted in 32 themes split across Personal Values (10), Consequences (10) and Attributes (12) as shown in Table 2 which includes a summary of frequency counts for each one.

**Table 2: Frequency counts for themes**

Category	Label	Description	Count (out of 20)
Personal values	V23	Happiness	15
	V24	Excitement	12
	V25	Comfortable life	12
	V26	Sense of security	11
	V27	Wisdom	10
	V28	Inner harmony	8
	V29	Sense of accomplishment	8
	V30	Freedom	5
	V31	A world of beauty	3
	V32	Sense of belonging	2
Consequences	C13	Engaging in new food experiences	15
	C14	Developing a feeling of security/freedom	14
	C15	More time at the destination	11
	C16	Escaping from routine life	10
	C17	Variety in experiences	10
	C18	Reconnecting with history and origins	7
	C19	Appreciating nature	4
	C20	Good value for money	3
	C21	Connecting with locals	2
	C22	Refresh/recharge/relax	2
Attributes	A1	Comfortable distance from home	15
	A2	Close to the sea/beach	12
	A3	History	10
	A4	Previously visited	9
	A5	Natural landscape and attractions	8
	A6	Familiarity	7
	A7	Not previously visited	7
	A8	Urban and city atmosphere	6
	A9	Local markets, events and festivals	5
	A10	Lots to see and do	5
	A11	High-end and quality of restaurants and cafes	5
	A12	Local specialty stores and food	5

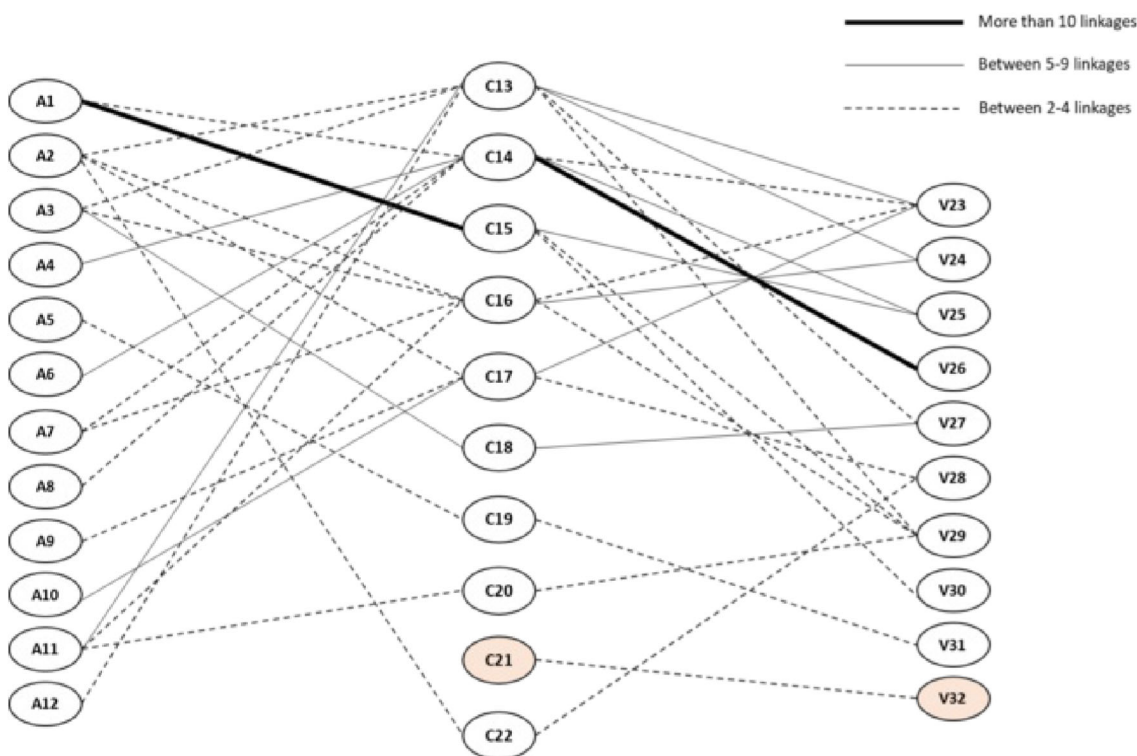
Results indicate different categories of attributes representing regional food destination attractiveness. These consist of attributes that are: proximity-based (i.e., A1 comfortable distance from home, A2 proximity to sea/beach), non-food related experiential (i.e., A3 history, A5 natural landscape and attractions), food-related experiential (A9 local markets, events and festivals, A12 local speciality stores and food) and novelty-familiarity considerations (i.e., A6 familiarity, A7 not previously visited). Evidently, regional food destination attractiveness is largely represented by proximity, in that a comfortable distance from home and being close to the sea/beach emerged as salient. This is followed by non-food related experiential considerations dominated by history so aligning with extant studies proposing that

culture and heritage contribute to food tourists choice of destination (Kim et al., 2022). Interestingly, novelty considerations among food day-trippers were conflicted, with some recognising previous visitation and familiarity as representing regional food destination attractiveness and others preferring newer destinations. This closely reflects Özdemir & Seyitoğlu's (2017) findings that categorised food tourists as authenticity seekers, moderates and comfort seekers. Overall, in this study regional food destination attractiveness seemingly depends on non-food related attributes as opposed to the suggestion in past research that gastronomic image depends on food-related attributes (e.g. Chang & Mak, 2018).

#### 4.2 Personal values and food day-tripper attribute preferences

In a marketing context where new segmentation bases are sought, perceptual orientations considering food day-tripping uncovers insights into the food destination attributes preferred by food day-trippers, and underlying reasons for such preferences as reflected through personal values. As can be seen from Figure 1, this Hierarchical Value Map (HVM) provides an overview of how personal values drive perceptions of regional food destination attractiveness through the benefits derived from destination attributes.

**Figure 1: The first full hieratical value map (HVM)**



#### 5. Initial conclusions & next steps

Initial conclusions suggest a cognitive trade-off between the perceived benefits of a regional food destination and the time and effort required to travel to that destination. Evidently, food day-trippers in this study prioritise proximity and accessibility over other food-related attributes, such as 'local cuisine' and 'quality of restaurants and cafes'. Consistent with prior research on the role of familiarity in destination choice and value perceptions, the novelty-familiarity perceptual orientation in this study suggests that visiting familiar food destinations outweigh the opportunity to seek and engage in new food experiences (Manimont et al., 2022). However, for better comprehension, HVMS will be developed

based on the earlier identified attribute categories presenting, proximity-based attributes, non-food related experiential attributes, food-related experiential attributes, and novelty-familiarity considerations. This categorisation will enhance comprehension by presenting the dominant perceptual orientations within this context.

## **References on Request**



## **Standardized Supply VS. Differentiated Demand--An approach to analyze food waste**

Funing ZHONG

Nanjing Agricultural University, Nanjing, China

### **Abstract**

Standardized Supply VS. Differentiated Demand

--An approach to analyze food waste

Dr. Zhong, Funing

Professor of Nanjing Agricultural University

Nanjing, China

Email: fnzhong@njau.edu.cn

Food security is one of the top policy objectives in most developing grain importing countries. In addition to boosting domestic production and ensuring importing sources, reducing post-harvest losses has gained growing awareness from both policymakers and the public. Great efforts have been taken along the supply chains of grain and other food products with successes in different extents. However, the losses or wastes during consumption stage have attracted inadequate attention in the public in general.

Following economic transformation and demographic change, food consumption has shifted from at home to away from home at an accelerated speed. Unlike at home where food could be prepared according specific needs and adjusted with leftovers, away-from home food consumption is more restricted by standardized supply with the size fitting big-eaters and leftovers usually unsuitable for bring home eating later. Some research have measured the food wasted in restaurants and other food outlets and analyzed the factors attributable; however, no such research has been conducted for order-delivered meals. In real world, order-delivered meals have become more and more popular, especially among young population. The number of daily services has approaching 50 million, and still growing quickly. As the extent of standardization is higher in order-delivered meals, so is likely the wastes in its consumption compared with other forms of food consumption.

This research attempts to measure the extent of staple food wastes in consumption of order-delivered meals for two reason: food grain is the center of food security policy in China, and staple food is relatively easier to measure compared with other components in the meal. After analyzing major factors attributable to the wastes, this research will try to find out if supply differentiated sizes and types could match the actual requirements, and to what extent consumers may accept size-differentiated supply, especially to what extent and under what conditions suppliers are willing to prepare and supply size-differentiated meals for order-delivered meals with more choices in types. The finding may help to reduce food wastes from mismatch between supply and demand, and may have potential to reduce overweight and obesity due to over consumption of food.

## **Can we learn to like sustainable food? The development of taste preferences over time**

Klaus G. Grunert

Aarhus University, Aarhus, Denmark. University of Vaasa, Vaasa, Finland

### **Abstract**

Taste remains the major driver of food choices and this also goes for the adoption of sustainable alternatives. Sometimes the sustainable alternative is perceived as having a better taste than the conventional one, in which case the taste perception supports the adoption of the sustainable alternative. In other cases, however, the sustainable alternative will be perceived as less tasty than the conventional one. Will consumer taste preferences adapt to the new taste over time? And can the moral satisfaction that results from choosing the sustainable alternative aid in this process? We look at data from a cross-sectional study on taste preferences for and moral satisfaction with free range and organic and chicken, and also meat substitutes. We look at how taste preference and moral satisfaction differ depending on the length of time in which the consumer has bought the product. We find preliminary evidence that over time moral satisfaction falls, and that taste preference, while initially falling, picks up after three years to a level higher than when bought for the first time. While diminishing moral satisfaction and a mere exposure effect with regard to taste preference can explain some of these results open questions remain, especially with regard to the initial drop after the first year of buying. The results have implications for the adoption of sustainable food alternatives for the food industry and for public policy

## Dimensions of food freshness - the consumer perspective

Morten Heide, Florent Govaerts  
Nofima AS, Tromsø, Norway

### Abstract

#### Introduction:

Freshness is an important determinant of food preference and choice (Jaeger et al., 2023; Kumpulainen, 2018). Despite its importance, freshness is an imprecisely conceptualized and defined concept (Jaeger et al., 2023; Saba et al., 2018). This can be attributed to freshness being a complex concept comprising of many different properties. This has led to freshness being described as a multidimensional construct that can involve a variety of factors related to the product (both sensory and non-sensory attributes), as well as temporal and situational aspects (Cardello and Schutz, 2003; Peneau et al., 2009; Saba et al., 2018).

For product-related factors, freshness is strongly associated with consumers' evaluation of the perceived product quality (Acebron and Dopico, 2000; Brunsø et al., 2002). Especially the sensory dimension of freshness has been explored for many products such as yoghurt (Bouteille et al., 2013), apples (Peneau et al., 2006), breads, biscuits, and cakes (Heenan et al., 2009), salads (Dinnella 2014), and vegetables (Saba et al., 2018). Freshness has also been associated with non-sensory attributes, in particular, healthiness (Dinnella et al., 2014; Jaeger et al., 2023; Zhang et al., 2016). In terms of temporal perspectives, there is an inherent time component to the concept of freshness (Cardello and Schutz, 2003). Examples are the relationship between storage time and freshness perception (Dinnella et al., 2014; Østli, et al., 2013) and the time since harvest associated with local production (Peneau et al., 2009; Saba et al., 2018;). While quality perceptions have been shown to include both cognitive and affective elements (Compeau et al., 1998), possible affective elements of the freshness concept have not been explored much. Only one study identifying an affective element of freshness could be found (Dinnella et al., 2014). Further exploration of possible affective elements of freshness has been encouraged to get a more holistic approach to the freshness concept (i.e., Saba et al., 2018).

The literature above focuses on explaining freshness perceptions related to specific products or product categories and not a general understanding of what food-related freshness is to the consumer. In light of this, the overall aim of this research was to generate a more comprehensive understanding of the underlying dimensions of the overall food freshness concept. To this end, the study had the following two objectives.

1. To explore affective and cognitive beliefs consumers associate with food freshness.
2. To relate and confirm an underlying factor structure of beliefs associated with food freshness with particular reference to the three theoretical dimensions identified in the literature (product, temporal and affective).

#### Materials and methods:

Data collection took place in February 2022 with a representative sample of 500 participants from the USA. The age range of the respondents was 18-92 years, with an average age of 49,5 years. There was an equal number of men and women.

To elicit responses from the consumers about cognitive and affective beliefs about food freshness, open-ended questions (OEQs) were used. OEQs have been previously used in past explorations of what freshness means to the consumers for specific products (e.g., Peneau et al., 2009; Jaeger et al., 2023). In OEQs the consumer writes down 2-3 words in response to a question. This aims to collect the first associations of the consumer to a concept and is an effective methodology for eliciting consumer associations (Altintzoglou et al., 2018). The participants responded to one cognitive and one affective

open-ended question about freshness. Words with similar meanings were put in the same category. Words mentioned more than 10 times by the consumers were included as part of the freshness concept.

Identified beliefs from the OEQs were used as a basis for developing a questionnaire. The questions were in the form of opinions towards food freshness. The opinions were prefaced with: "Consider the following statements about food freshness. To what extent do you either agree or disagree with each of the following opinions?" All responses were recorded using a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree). The questionnaire was sent to the same respondents 3-4 weeks after the OEQs.

Given the explorative nature of the study, an explorative factor analysis (EFA) and a confirmatory factor analysis (CFA) were conducted. The original sample of 500 respondents was randomly divided into two samples of 250 subjects each (using the randomization function provided by SPSS 29.0), and EFA and CFA were separately conducted on those two samples (Raykov & Marcoulides, 2011). This strategy was applied to explore the communality of the underlying structure of the observed variables and validate the obtained patterns in terms of model specification and inferential properties. Descriptive statistics and EFA were performed using SPSS 29.0. The CFA was conducted using STATA 17.

### Results:

Responses to the OEQs provided qualitative insights into the beliefs underlying food freshness and confirmed the multidimensional nature of the construct. The results from the OEQs identified 13 beliefs about food freshness. In addition, freshness was associated with the specific product category vegetables. However, as this association does not describe food freshness in general, it was removed from further analysis. The remaining associations could be divided into 3 dimensions; product related (5 beliefs), temporal (2 beliefs) and affective (6 beliefs). The product-related associations were tasty, healthy, good, delicious and look delicious. The temporal beliefs were recently and locally produced. Locally produced has previously been associated with the notion that consumers believe that since a product has been produced locally, they have control over time since harvest (Saba et al., 2018). This item was thus put in the temporal dimension. The affective beliefs were happy, energetic, fondness, satisfied, peace and full. Table 1 summarizes the responses from the consumers on the OEQs.

Table 1: Responses from the OEQS

Dimension	Belief	Examples of statements	Number of responses
Product	Good	Good, it is good, great	124
	Tasty	Tasty, better taste, good taste	18
	Healthy	Healthy, healthiness, good for my health	17
	Delicious	Delicious, is delicious	10
	Looks delicious	Looks delicious, looks wonderful	11
Temporal	Locally produced	Locally produced, local origin	14
	Recently produced	Recently made, recently harvested	10
Affective	Happy	Feel happy, happy, happiness	57
	Satisfied	Satisfied, satisfaction	38
	Energetic	More energy, energetic	13
	Peace	Peace, harmony	12
	Fondness	Fond, fondness, affection	10
	Full	Full	10

EFAs were performed on the questionnaire data using a principal component analysis and varimax rotation. The suitability of the data for EFAs was assessed using the Bartlett's test of sphericity. The results were significant,  $\chi^2(df=91) = 2276,63$  ( $p < 0.001$ ), which indicates its suitability for factor analysis. Based on the 3 dimensions of freshness identified from the literature, a 3-factor solution was tried. This solution accounted for 74,45 % of the variance.

Item loadings on more than one factor with salient cross-loadings ( $\geq 0.32$ ) were eliminated to make each variable associate with only one factor and make factors represent separate concepts of freshness (Tabachnick et al., 2013; Hair et al., 2010). This led to the removal of three items (i.e. "happy", "tasty" and "fondness"). "Satisfied" loaded onto a factor other than its underlying dimension and was removed. EFA was repeated without including these items. The results of this new analysis confirmed the three-dimensional structure theoretically defined in the research (see Table 2). The Bartlett's test of sphericity was significant. The three dimensions explained a total of 79,44 % of the variance. Cronbach's alphas above 0,7 indicated good reliability (Nunnally, 1978).

Table 2: Factor loadings and Cronbach alphas for the different dimensions of freshness

	Factor 1	Factor 2	Factor 3
	Product related	Affective	Temporal
	$\alpha = .918$	$\alpha = .820$	$\alpha = .772$
Fresh food is healthy	0,826	0,206	0,130
Fresh food is good	0,889	0,142	0,224
Fresh food is delicious	0,845	0,123	0,292
Fresh food looks delicious	0,849	0,215	0,221
Fresh food is locally produced	0,275	0,316	0,778
Fresh food is recently produced	0,303	0,204	0,838
Fresh food makes me feel energetic	0,215	0,794	0,318
Fresh food makes me feel full	0,262	0,826	0,169
Fresh food makes me feel at peace	0,072	0,835	0,135

First-order CFAs were then conducted to test the results of the EFA. The results suggested excellent model fit:  $\chi^2(24) = 42,783$  ( $p = 0.011$ ); and  $\chi^2/df = 1,78$ . Further, GFI = .985; CFI = .977; RMSEA = 0,059; and SRMR = 0,037; thus corroborating the excellent model fit to the data (Bagozzi and Yi, 2012, Bagozzi and Yi, 1988, Bentler, 1990, Steiger, 1990).

#### Discussion:

This research has focused on general food freshness dimensions from the consumers' perspective, exploring distinctions by product, temporal and affective factors. The product factors seem to consist mostly of attitudinal features, typically expressed as cognitive evaluative adjectives such as good, delicious, and healthy (Fishbein and Ajzen, 2010). These identified variables can describe intrinsic and extrinsic attributes related to sensory attributes (i.e., delicious taste, good colour) or more credence attributes (i.e., healthy or good for you). The final product attribute "looks delicious" seems more related to beliefs about the sensory properties of fresh food. Previous research on food freshness indicates that food freshness is related to beliefs about the sensory properties of specific products (Saba et al., 2018). General food freshness seems more related to higher-order attributes such as attitudes.

The results confirm previous literature indicating that freshness has a temporal dimension (Dinnella et al., 2014; Peneau et al., 2009). It seems that this can be related to a short time from production to consumption, also in terms of the distance between where the food is produced and consumed (locally

produced).

Finally, this research confirms that food freshness has an affective component. This has not previously been shown in the literature (i.e., Saba, 2018). This might also help explain why just labelling food with freshness increases liking of that food (i.e., Altintzoglou et al., 2012; Dinella et al., 2014).

This study contributes to the overall understanding of food freshness by demonstrating that it is a 3-dimensional construct consisting of product, temporal and affective factors.

Limitations and future research:

Further research is needed to test and develop a global construct that can be used to describe and measure food freshness cross-culturally. In the present research, the temporal factor was only identified by two items. It is preferable to have at least three measured variables for statistical identification of a factor, and more items are preferable (Watkins, 2018). Future research should try to identify additional items that describe the food freshness constructs, especially for the temporal dimension.

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## Values and motivations for shopping at farmers' markets in New Zealand

Caixia (Ivy) Gan, Paige Walker

Plant & Food Research, Auckland, New Zealand

### Abstract

Farmers' markets have a long-held rich history in human society. They represented an important community-based food distribution system before the rise of modern retail agribusiness, and re-emerged in the past two decades as part of the alternative food networks driven by the "local food movement" (McEachern et al., 2010). Many countries have witnessed significant growth of farmers' markets over this period, including New Zealand (Lawson et al., 2008). In New Zealand, the notion of trading food within and between communities can be dated to pre-colonisation. The Whangarei Growers Market was the first "modern" farmers market to be established in 1998, followed by the Hawkes Bay farmers' market in the early 2000s. New Zealand Tourism (2015) describes farmers' markets as a way to reconnect people to the land and increase regional sustainability. Despite its growing popularity, little work has examined consumers' perceptions and their motivations to participate in farmers' markets in the New Zealand context.

With the aim to understand the perceptions and values that consumers associate with, and attach to shopping at farmers' markets, a survey was designed adopting the theory of consumption value (Sheth et al., 1991; Yuan et al., 2022), to measure different types of value that consumers may associate with shopping at farmers' markets, along with some general attitudes around food provenance and sustainability. These values include functional value (quality and price), emotional value, social value, and epistemic value. The survey then was circulated across New Zealand on 21 Facebook pages of farmers' markets as well as pages of local community groups where a farmers' market is located around. A total of 222 respondents completed the survey online. Among these respondents 58% reported visiting farmers' markets two times or more every month, and females accounted for 87% of the overall respondents. The top three reasons for them to visit and shop at farmers' markets are to buy fresher/better quality produce (86%), to support local growers/local economy (67%), and to buy local produce (65%); with 23% of respondents also stated that it is more sustainable to shop at a farmers' market. Factor analysis was conducted and the values components were revised into four categories, i.e., functional value, experiential value, provenance, and novelty. Multiple regression was then performed to examine the impact of different values on consumers' shopping patterns at farmers' markets. The results show that functional value is the strongest predictor for farmers' market shopping frequency, preference for farmers' markets, and willingness to pay more for farmers' market produce. Provenance (learning about where and who grows the produce) also has a positive impact on shopping frequency and willingness to pay more. Interestingly, although most respondents enjoyed the shopping experience (socialising, enjoyable, and exploring new products) at farmers' markets, experiential and novelty values do not predict their shopping behaviours at farmers' markets. Understanding these contextualised factors that motivate consumers to shop at farmers' markets can better inform New Zealand local producers and policy-makers to improve the performance and further growth of farmers' markets.



## Exploring the relation between content strategies and consumer engagement for plant-based milk posts on Instagram

Francesca Lemmens, Malaika Brengman, Kim Willems  
Vrije Universiteit Brussel, Brussel, Belgium

### Abstract

#### Motivation

Dietary advices play a prominent role in shaping the dietary habits and choices of the population and are disseminated through various channels, such as promotion campaigns, scientific opinions (and their mediatized formulations), cookbooks... (Geyzen, 2011). These advices have evolved considerably since the 20th century and are interpreted, framed and passed on by various social actors, including governments, food industry, scientists, nutrition professionals, brands, social media influencers and consumers. This is currently leading to unstable and often contradictory narratives for animal-based food sources, causing much confusion at the broader population (Leroy et al., 2018). As concerns regarding health continue to rise, the demand for non-dairy alternatives is also increasing, among others (Phair, 2015).

The present study explores how plant-based milk posts on Instagram affect consumer engagement. Our research contribution is twofold. First, we identify which message strategies are more effective and whether this is source dependent. Second, particularly promising (engaging) social media food posts are identified for follow-up (experimental) examination in order to further investigate what makes them effective and whether this is audience-specific.

#### Conceptual Framework

Social networking sites have been found to influence consumers' attitudes and behaviors towards food (Chung et al., 2021). Different sources provide food-related information to consumers on social media: next to authorities and public health institutions, manufacturers and brands communicate directly about their products, or indirectly via food influencers, and finally peer users can also engage with messages and thus create user-generated content (Barklamb et al., 2020). This study focuses on Instagram, which, as a popular platform for food posts, is particularly influential in impacting consumer food preferences (Hoy et al., 2019). The appendix provides an overview of which Instagram food post elements have been studied in the existing literature and what voids remain to be addressed.

#### Methodology

##### *Procedure*

The study's design is exploratory as the aim is: (1) to gain insights into the salience of certain message contents, -executions, and -sources, and (2) to explore how this relates to message effectiveness. Preliminary information in the form of secondary data (namely public Instagram posts) is gathered to advance our understanding of how social media users communicate on food, and why certain posts seem more effective than others in terms of user engagement.

To explore the effectiveness of Instagram message strategies, we operationalize user engagement by (1) number of likes, and (2) number of comments per post. We analyze the impact of the source (messenger) of the post, as well as of the characteristics of the message itself (i.e., content and execution).

## ***Data collection***

We manually collected a sample of 240 recent posts on plant-based milk, using 80 posts from three searchable labels (i.e., #almondmilk, #coconutmilk, #oatmilk). We used the following post inclusion criteria (cf. Davis & Papies, 2022): (1) maximum limit of 30 hashtags and 2200 characters for captions, (2) food-related image required, (3) in English, and (4) no videos. Additionally, (5) a quorum was set, limiting the posts containing recipes to a maximum of 25% per hashtag, to warrant sufficient variation. Finally, (6) we added the requirement that the source needed to have at least 1000 followers, to ensure sufficient engagement.

## ***Data analysis***

A coding scheme was constructed combining both deductive and inductive strategies. The deductive category development was based on a review of prior research (mainly Barklamb et al., 2020; others see appendix). The inductive approach was informed by the content of a subset of the posts using open coding, via repertory grid analysis. Triads of posts were compared in order to identify distinctive characteristics to be included into the encompassing, yet context specific coding scheme. Thus, the posts were coded according to 60 criteria (i.e., 11 related to message source, 16 to message content, and 28 to message executional elements). Furthermore, 5 aspects related to message effectiveness were integrated gauging for user engagement with the post, including likes and comments, the valence of the comments, and further re-comments. Six trained researchers assured that every individual post was rated by 2 independent raters. Of the total of 14.400 ratings (i.e., 240 posts, evaluated on 60 criteria, by 2 independent raters), there were only 1.411 initial disagreements (i.e., 9,8%), pointing at a reliable rating of the coding (Perreault & Leigh, 1989; Rust & Cooil, 1994). Disagreements were resolved by discussion among coders.

## **Major findings**

### ***Source effects on user engagement***

Posts were generated, either by commercial players (i.e., 134 of 237 posts, i.e., 56,5%) such as brands, retailers and industry, or by non-commercial instances (i.e., 103 of 237 posts, i.e., 43,5%), including influencers (not necessarily paid for posting), nutrition professionals, and non-profit organizations. Commercial sources outweigh the non-commercial ones in our sample. As to the effectiveness in terms of number of likes however, the non-commercial or indirect posts via influencers outperform the direct commercial ones, albeit only with marginal statistical significance ( $M_{\text{comm}} = 71.49$  likes, versus  $M_{\text{non-comm}} = 384.87$  likes;  $t(102,76) = 1,78$ ;  $p = .077 < .10$ ). Note however that the spread in number of likes in response to non-commercial posts is also substantially wider than for commercial posts ( $SD_{\text{non-comm}} = 1779.59$  versus  $SD_{\text{comm}} = 124.15$ ) and will be further investigated. In terms of comments, a similar finding emerges: posts by non-commercial sources generally generate significantly more comments; again with greater spread in comparison to commercial posts ( $M_{\text{comm}} = 3.20$  comments,  $SD_{\text{comm}} = 7.09$  versus  $M_{\text{non-comm}} = 12.94$  comments,  $SD_{\text{non-comm}} = 22.87$ ,  $t(117) = 4,17$ ;  $p < .001$ ).

### ***Message effects on user engagement***

Given the substantial variation in posts' effectiveness of a given source type, we further explore effects of message content and execution. Table 1 provides an overview of findings, showing that post message characteristics mainly seem to affect user comments (rather than likes). Note that, for conciseness sake, in this table, we only provide statistically significant results. At the EACR conference, all results will be presented.

Table 1. Effectiveness of posts depending on the message (content and execution)

	Frequency of occurrence			Effectiveness	
	Total freq. (n = 237)	Freq. in comm. posts (n = 134)	Freq. in non- comm. posts (n = 103)	# Likes per post	# Comments per post
Relates to a product (yes/no)	130 (54,9%)	105 (78,4%)	25 (24,3%)	n.s.	M <sub>yes</sub> =4,15; SD <sub>yes</sub> =9,36 vs. M <sub>no</sub> =10,83; SD <sub>no</sub> =21,92 t(140,57) = 2,80; p = ,006 < ,01
Product launch (yes/no)	100 (42,2%)	90 (67,2%)	10 (9,7%)	n.s.	M <sub>yes</sub> =4,83; SD <sub>yes</sub> =10,49 vs. M <sub>no</sub> = 9,24; SD <sub>no</sub> =19,69 t(220,45) = 2,24; p = ,026 < ,05
Brand promotion (yes/no)	105 (44,3%)	82 (61,2%)	23 (22,3%)	n.s.	M <sub>yes</sub> = 5,08; SD <sub>yes</sub> =10,22 vs. M <sub>no</sub> = 9,21; SD <sub>no</sub> = 20,09 t(206,25) = 2,07; p = ,04 < ,05
				M <sub>pos</sub> = 83,77; SD <sub>pos</sub> =164,09 vs.	

Message valence (pos.1/neg.)	100 (42,2%) <sup>1</sup>	63 (47%) <sup>1</sup>	37 (35,9%) <sup>1</sup>	Mneg= 219,70; SDneg= 359,53 t(41,67) = -2,22; p = ,03 < ,05	n.s.
Informative tone (yes/no)	107 (45,1%)	53 (39,6%)	54 (52,4%)	n.s.	Myes= 9,40; SDyes=17,58 vs. Mno= 5,76,70; SDno= 15,60 t(213,88) = -1,68; p = ,09 < ,10
Emotional tone	186 (78,4%)	103 (76,87%)	83 (80,582%)	n.s.	n.s.
Prompting engagement	58 (24,5%)	20	38	n.s.	Myes= 10,88; SDyes=13,95 vs. Mno= 6,27; SDno= 17,21 t(117) = -2,07; p = .07 < .10
Recipe (yes/no)	31 (13,1%)	6 (4,5%)	25 (24,3%)	n.s.	Myes= 10,88; SDyes=16,76 vs. Mno= 6,62; SDno= 16,45 t(39,07) = -1,84; p = ,07 < ,10
Invitation to submit content/engagement (yes/no)	32 (13,5%)	14 (10,4%)	18 (17,5%)	n.s.	n.s.

First, statistically significantly more comments are generated when the post does not relate to product related content (e.g., product launch, brand promotion). Note that commercial sources rely substantially more on product related content, than non-commercial sources do.

Second, negatively (vs. positively) valenced messages generate statistically significantly more likes. However, the spread in comments is also over double as high in the former case.

Third, while an informative (vs. non-informative) tone of message seems to generate (marginally) statistically significantly more comments, the use of an emotional tone (or not) does not seem to make a difference. Non-commercial sources tend to rely more heavily on informative posts than commercial sources do.

Finally, prompting user engagement, and particularly including a recipe, results in (marginally) statistically significantly more user comments.

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## Appendix

Source	Theoretical lens	Research aim(s)/ outcome	Method	Key-findings
Barklamb et al, 2020	NA	Identify social media strategies (on Instagram vs. Facebook) of food and nutrition-related posts associated with higher engagement.	Content analysis of six most engaging posts from 10 most successful nutrition and food-related accounts	- Higher FB engagement: hashtags, prompting engagement - Higher IG engagement: higher caption counts, health information links, prompting engagement and humor
Davis & Papias, 2020	Grounded cognition theory of desire and motivated behavior	Language used on social media to describe meat and plant-based foods	Content analysis of hashtags and caption text on Instagram	- Meat food posts contained hashtag language referring to the enjoyable experience of eating the food. - Plant-based food posts contained hashtag language referring to food being healthy or identity affirming.
Haas et al. (2019)	NA	Identify product image and motives for the consumption of cow milk and plant-based milk	Survey and means-end-chain analysis	- Product image of cow milk is better compared to plant-based milk - Motives for cow milk consumers: origin of milk and support of small-scale farmers - Motives for plant-based milk: more diverse, including animal welfare and sustainability
Hoy et al., 2019	Similarity/attraction theory	Assess exposure of food marketing on eating preferences and choices of adolescents	Quantitative and qualitative content analysis, diary study	- The most prominent social media platform as source for food images is Instagram. - Adolescents are mostly exposed to non-core foods in oversized portions, equally promoted by peers, marketers and influencers and branded food. - Influencers, peers and marketers often contextualize non-core food as part of celebrations, socialization with friends, gatherings, family, and enjoying meals at restaurants and coffee shops. - Social media influencers are a powerful tool in directing food norms on social media.
Klassen et al., 2018	NA	Identify and quantify social media strategies used by the food industry and lifestyle brands, and health promotion organizations across Facebook and Instagram	Retrospective content analysis that used a mixed-methods exploratory design	- Different effective strategies for Facebook and Instagram - Higher FB interaction: links to purchasable items, body image content, content inducing positive emotions - Higher IG interaction: posting relatable content and food content
Phua et al., 2020	Theory of planned behavior, Source credibility model, Match-up hypothesis	Source and message effects of Instagram-based pro-veganism messages	Experiments 1. Brand vs. nonprofit X egoistic vs. altruistic 2. Celebrity vs noncelebrity X positive vs negative valence	- Main effects of organization type - Main effects of message type, with higher perceived information value for altruistic messages
Pilar et al., 2021	NA	Identify the main topic associated with healthy food on Instagram	Hashtag and community analysis	- Most common characteristics of healthy food on Instagram are vegan, homemade, eat clean and vegetarian
Qutteina et al., 2019	Similarity/attraction theory	Explore food messages adolescents encounter and assess these messages for their sources, content and marketing strategies	Diary study Quantitative and qualitative content analysis	- Adolescents are mostly exposed to messages of non-core and branded food - Adolescents encounter branded food images through peers and social media influencers
Sendur Atabek & Atabek. (2019)	Theory of reasoned action, Agenda setting theory, Grounded theory	Examine how consumer perceptions towards dairy products are developed through information from mass media	Mixed design, 3 data collection phases 1. Quantitative content analysis 2. Qualitative data from focus groups 3. Questionnaire	- Consumers decisions are usually affected by mass media information - Dairy consumers tend to trust more in the positive claims than the negative ones - Consumers with more trust in media and readiness to share media information have higher levels of positive perceptions about milk and yogurt

## Consumer Behaviour towards Low Trophic Aquaculture Products in Europe

Sezgin Tunca, Violeta Stancu, Karen Brunsø

MAPP Centre, Department of Management, Aarhus BSS, Aarhus University, Aarhus, Denmark

### Abstract

The goal of the 2030 European Union Strategy, sustainable growth, is to prevent environmental degradation and the unsustainable use of natural resources, particularly marine resources, which are a key source of healthy nutrition while also providing employment and income. One practise to achieve this aim is producing and consuming low-trophic aquaculture products (e.g., seaweed, mussels, oysters) as sustainable products, which have recently received attention from authorities and producers; however, we lack comprehensive knowledge of consumer behaviour towards these products. To provide a deep understanding, our purpose is to examine consumer intention towards consuming these products by modelling knowledge and food-related lifestyles with additional aspects such as food neophobia, health consciousness, and quality based on the theory of planned behaviour. An online questionnaire survey is conducted to collect data from a representative number of individuals with heterogeneous sociodemographic characteristics in Denmark, France, and the United Kingdom. The output of the study will be presented using various statistical methods, including ANOVA, principal component analysis, clustering, and structural equational modelling. The research will present the results of the multiple relationships among the following components. The impact of food-related lifestyle on attitudes, subjective norms, perceived behavioural control, knowledge, and habit will be represented, while the influence of attitudes, subjective norms, perceived behavioural control, knowledge, and habit on consumer intention towards these products will be illustrated with the mediation effect of food neophobia, health consciousness, and quality attributes on attitudes, subjective norms, and perceived behavioural control. This is one of the first studies to take a theoretical approach towards understanding the drivers of low trophic aquaculture behaviour. It will serve as a baseline for future research and guide the production and marketing of low trophic aquaculture products.

## **One label to rule them all? Exploring how a new holistic sustainability food label, consumers' attitudes and perceptions affect willingness to purchase**

George Tsalis<sup>1</sup>, Susanne Pedersen<sup>1</sup>, Moira Dean<sup>2</sup>, Tony Benson<sup>2</sup>, Michelle Felton<sup>3</sup>, Jessica Aschemann-Witzel<sup>1</sup>

<sup>1</sup>Aarhus University, Aarhus, Denmark. <sup>2</sup>Queens University, Belfast, Ireland. <sup>3</sup>Reading University, Reading, United Kingdom

### **Abstract**

The domain of sustainability is not unidimensional. It encompasses environmental, social, and economic dimensions. This multidimensionality complicates the way in which sustainability can be communicated. Food labels aim to convey information on one or more dimensions of sustainability, but so far, no label encompasses all its dimensions. In this study we develop and test one potential example of a long and a short version of a holistic label that incorporates the economic, social, and environmental dimensions of sustainability. We experimentally test consumers' willingness to purchase selected products with such a label in comparison to existing sustainability labels, and explore predictors of willingness to purchase in Denmark, the United Kingdom and Ireland. The results across all countries indicate that consumers' willingness to purchase is significantly higher for the existing sustainability labels, rather than the holistic sustainability label alternatives. Willingness to purchase is impacted by consumers' perception of 1) the integrity and benevolence of the producer; 2) their own perception of sustainability, and 3) their attitude about facts, values, and health interest. These results, provide direction for the implementation of initiatives to promote sustainable product attributes and increase product appeal to consumers, as well as illustrate which sustainability metrics could be prioritized in the communication of sustainability through labelling.



## **Mother or Child: the dietary impact of fathers' migration on the left-behind family members in rural China**

Jing ZHU, Xiaoyun QUAN, Lijuan CAO  
Nanjing Agricultural University, Nanjing, China

### **Abstract**

### **Abstract**

#### **1. Introduction**

As unhealthy diet has been identified as a major contributor to chronic diseases and mortality among Chinese residents (CNS, 2021), dietary nutrition security has gained increasing attention in China over the past few decades. While China has successfully ensured adequate food supply and provided sufficient quantities of the three major nutrients, protein, fat, and carbohydrates, its agriculture and food system has not been effective in guaranteeing dietary nutrition security for vulnerable groups, particularly the large population of left-behind individuals generated by off-farm employment.

Statistics obtained from four rounds of the China Health and Nutrition Survey (CHNS) conducted in 2004, 2006, 2009, and 2011 reveal that the nutritional status of the rural left-behind population is less than satisfactory. Left-behind children and mothers, in particular, face dietary and nutritional challenges, including excessive cereal intake and inadequate intake of other foods (excluding meat), in comparison to the food consumption standards recommended in the "Chinese Dietary Guidelines". The intake of some high-value foods, such as fruits, dairy products, and aquatic products, is even lower than 20% of the recommended amount. Furthermore, left-behind mothers suffer from more severe nutritional deficiencies than left-behind children, which merits further attention.

The migration of fathers has a dual impact on the food intake of left-behind mothers through household food consumption and distribution decisions. Firstly, regarding household food consumption decision-making, fathers' migration can have a positive impact on the household intake of high-value foods (such as animal foods, fruits, nuts, etc.), as it can loosen household budgetary constraints and improve nutritional knowledge (Azzarri and Zezza, 2011). However, it can also have a negative impact on the consumption of high time-cost foods (often high-value foods) due to the absence of the fathers, which can increase the labor burden of left-behind mothers (Meng and Ding, 2020) and decrease the payoff of cooking high time-cost foods. Secondly, with respect to family food distribution decisions, the absence of fathers may grant greater decision-making power to the left-behind mothers (Zezza et al., 2011), including decisions regarding food distribution. Due to the altruistic motivation of women when making decisions (Kabeer, 1999; Quisumbing et al., 2021), left-behind mothers tend to prioritize their children in the allocation of high-value food resources, which has a negative impact on their own nutritional security.

It is important to note that the impact of fathers' migrant work on the dietary nutrition of left-behind mothers may vary depending on the age of their children. As left-behind children grow older, left-behind mothers may have more time to improve their nutritional intake as they spend less time caring for their children (Vemireddy and Pingali, 2021), although their motivation to do so may decrease. Moreover, as left-behind children become more immune, left-behind mothers' motivation to prioritize their food allocation may decline.

Existing literature has mainly focused on the impact of labor migration on the food and nutrition security of left-behind family members, particularly left-behind children (Mu and Brauw, 2015; Min et al., 2019). However, little attention has been given to the more vulnerable left-behind mothers, whose nutritional status may be worse than that of their children. Furthermore, research has not adequately examined the mechanisms through which fathers' migration affects left-behind mothers' dietary nutrition. Given that

left-behind mothers are the primary decision-makers and have altruistic motives in food distribution, this mechanism is likely to differ from the impact of labor migration on left-behind children.

This study employs longitudinal data from the CHNS to investigate the effects of fathers' migration on the dietary and nutritional status of rural left-behind mothers, and assesses the heterogeneity of these effects across families with left-behind children of varying ages. Moreover, we estimate the potential disease burden resulting from these impacts on left-behind mothers. The study contributes to the literature by developing a theoretical and empirical framework to examine the effect of fathers' migration on the dietary status of rural left-behind mothers, thereby expanding the research paradigms on food security for the vulnerable groups. Furthermore, it sheds light on the dietary nutrition of often overlooked left-behind mothers, which has important practical significance for not only improving the health level and quality of life of the left-behind mothers themselves but also ensuring the sustainable output of human capital for the next generation in rural areas.

## **2. Methods and data**

Fathers' rural-urban migration affects nutritional well-being of left-behind mothers through family income, food preferences, time constraints and women's empowerment according to the New Economics of Labor Migration Theory (Stark and Bloom, 1985), Health Production Function (Grossman, 1972) and Intra-household Food Allocation Theory (Wheeler, 1991).

We estimate the individual-level impact of fathers' migration on maternal nutrition security with a two-period panel data using propensity score matching (PSM) and difference-in-difference (DID) model with two-way fixed effects. Firstly, construct a matched sample of treatment and control groups with similar pre-treatment characteristics based on the PSM method. In this study, two waves of data are collected for each mother-child pair. Mothers (or children) who are non-left-behind in both waves are treated as the control group, while those who are non-left-behind in the first wave and left-behind in the second wave are treated as the treatment group. Secondly, we retain the samples that fall within the common support region and estimate the average treatment effect on the treated (ATT) of paternal migration on the dietary nutrition of left-behind mothers using the DID method. This method can alleviate the potential selection bias of migration, construct a well-comparable treatment group and control group, and remove the influence of unobservable factors that systematically affect the dietary status of these two groups through differentiation (Smith and Todd, 2005).

In addition, to identify the left-behind mothers who face the greatest challenge of nutrition deficiency, we categorize the samples into three groups based on the age of the left-behind children: 1-6 years, 7-12 years, and 13-18 years. We then estimate the ATT of paternal migration on the dietary nutrition status of these left-behind mothers.

This paper develops two sets of dependent variables aimed at reflecting the dietary and nutritional status of mothers. The first set encompasses the average daily food intakes, expressed as the intake rate (measured in grams/kilocalories per day), across ten different food groups. The second set of variables captures the gaps of food intake rates between left-behind mothers and their children within the same household. The selection of food items is guided by the Chinese Dietary Guidelines (2022), which enumerate ten categories of dietary components, namely cereals, potatoes, vegetables, fruits, meat, eggs, aquatic products, dairy products, soybeans, and nuts. In this case, two types of parameters are necessary to present the results: the estimated coefficients that reflect the effects of paternal migration on the food intakes of left-behind mothers and the food intake differences between left-behind mothers and their children, and the dietary balance status of both left-behind mothers and children during the non-experimental period.

The individual-level panel dataset constructed for this research is sourced from the CHNS, conducted in 2004-2011. The CHNS covers urban and rural areas and contains over ten provinces with different levels of economic development, including Jiangsu, Henan, and Chongqing province, etc., and has good representativeness and heterogeneity.

## **3. Results**

## **(1) Baseline regression results**

We first examine the relationship between migration and maternal dietary status. On one hand, fathers' migration has a negative impact on the majority of insufficient-intake foods consumed by left-behind mothers, such as several high-value foods (eg. aquatic products, dairy products and nuts, not statistically significant) and low-value foods (eg. potatoes, vegetables and soybeans), and the impact on vegetables is the most significant.

On the other hand, migration has a significantly negative impact on the intake gaps of cereals, vegetables, and meat between left-behind mothers and children. This implies that the effect of migration on these three food categories is lower for left-behind mothers compared to their children. It is worth noting that the dietary pattern in the base period reflects an imbalance, with excessive grain intake and inadequate intake of vegetables and meat for both left-behind mothers and children (left-behind children's meat intake is almost balanced). Therefore, the results indicate that the impact of migration on the dietary balance of vegetables and meat for the left-behind mothers is more adverse compared to that on left-behind children, while the effect on cereals is the opposite. One possible explanation for the negative effect on the gap of meat intake between left-behind mothers and children may be that the negative effects from women's empowerment and time constraints outweigh other positive effects. The estimated coefficients for other high-value foods are also negative, although not statistically significant, which suggests that the impact of paternal migration on the dietary balance of high-value foods for left-behind mothers may be inferior to that of left-behind children. One possible reason why the coefficients in the high-value food equation are not significant is that positive effects resulting from income and women's empowerment may be offset by negative effects from time and other pathways.

## **(2) Heterogeneity analysis**

Given the importance of the age of the child in the family, we have conducted additional analysis to examine the heterogeneity of the effects of fathers' migration on left-behind families with children of different ages.

Our investigation into the impact of paternal migration on the dietary intake of left-behind mothers has revealed that those responsible for caring for left-behind children between the ages of 7-12 and 13-18 experience more severe deteriorating situations. Specifically, among left-behind mothers caring for children aged 7 to 12, the intake of high-value foods such as meat and dairy products has significantly decreased due to paternal migration, resulting in an exacerbation of inadequate intake. For left-behind mothers caring for children aged 13 to 18, fathers' migration had a positive impact on their cereal intakes, but a negative impact on potato intakes, leading to an increased degree of excessive grain intake and inadequate potato intake.

In terms of the impact on the gaps of dietary intakes between left-behind mothers and children, the coefficient of paternal migration in the empirical equation of vegetables and meat increased with the age of left-behind children. This verifies the mediating effect of time constraints and altruistic preferences. Specifically, for left-behind mothers caring for children aged 1-6, paternal migration had a significant negative impact on meat intake gap. This implies that paternal migration has a relatively unfavorable impact on the dietary balance of meat by left-behind mothers. For left-behind mothers caring for children aged 7-12, fathers' migration had a significant negative impact on the gaps of vegetables, meat, seafood, and soybeans intakes between left-behind mothers and children. Combined with the non-experimental dietary balance situation, this result indicates that paternal migration's effects on the balance of these four types of food for left-behind mothers is worse than that for left-behind children. For left-behind mothers caring for children aged 13-18, fathers' out-migration had a significant positive impact on the gap of cereal intake, but a significant negative impact on the gaps of potato and vegetables intakes. Combined with the baseline dietary balance, it means that the dietary balance changes in grains, potatoes, and vegetables for left-behind mothers are more unfavorable compared to left-behind children.

## **4. Conclusion and discussion**

Descriptive statistical analysis discovers that both left-behind mothers and their children in rural areas

face issues with dietary nutrition, with the former experiencing more severe problems.

Through decisions related to household food consumption and distribution, paternal migration not only affects the dietary intake of the left-behind mothers, but also negatively impacts the gaps of dietary intakes between left-behind mothers and their children. Our empirical findings indicate that paternal migration not only exacerbates the insufficient intakes of high-value and low-value foods (particularly vegetables) for left-behind mothers but also has unfavorable effects on the balances of most insufficient-intake foods, especially vegetables and meat, in comparison to their left-behind children. Possible reasons for this include the fact that time constraints and maternal altruistic behavior dominate as pathways mediating the impact of paternal migration, compared to other factors.

Furthermore, the impacts of the fathers' migration exhibit distinct differences among left-behind families with children of different ages. Through grouped regression analysis, we have identified that the dietary nutrition of left-behind mothers in families with left-behind children aged 7-12 and 13-18 require the most attention. Specifically, meat and dairy intakes of left-behind mothers who caring for children aged 7-12 is negatively affected, and the change in dietary balances of most insufficient-intake foods are less favorable compared to that of their left-behind children. Moreover, paternal migration leads to a more unfavorable change in the balance of most low-value foods of left-behind mothers caring for children aged 13-18 compared to that of their left-behind children, with a significant increase in imbalanced diet.

Since an improper diet is the key reason inducing the occurrence of diseases, we finally estimated the disease burden resulting from the impact of paternal migration on the dietary nutrient intake of left-behind mothers. The findings indicate that this will lead to an increased risk of coronary heart disease (CHD), iron deficiency (ID), and colorectal cancer (CRC), resulting in greater disease and economic burdens. Three different scenarios are designed based on various left-behind mothers' population parameters. By 2035, the minimum health burdens projected for CHD, ID, and CRC are expected to be 989, 2,006, and 4,131 DALYs (disability adjusted life years, where 1 DALY represents the loss of one year of full health), respectively. The corresponding economic burden will be 0.6, 0.15, and 0.76 billion yuan by 2035, respectively. The burdens under the medium and high scenarios are estimated to be three to five times larger than those of the low scenario. Taking into account the impact of maternal malnutrition on the human capital of the next generation, the negative effects of paternal migration will be even more profound.

**References available upon request.**

## How young people react to vegetarian food as a choice or as the only option.

Brigitte Schober-Schmutz<sup>1</sup>, Klaus G. Grunert<sup>2</sup>

<sup>1</sup>Schloss Beilstein, Württ. Germany, Beilstein, Germany. <sup>2</sup>Aarhus University, Aarhus, Denmark

### Abstract

#### Background

The number of vegetarians and vegans worldwide is 1.5 billion, most of them living in India. In Germany only about 12% of the people are vegetarian or vegan (BMEL,2022). Another 18% of the German population considers itself as flexitarians (BMEL, 2022).

In our previous studies we showed that our samples of young people in the castle of Beilstein, a boarding house for young people, had as many vegetarians and vegans as the German population in general, but half of the interviewed persons that ate meat-based considered themselves flexitarians. This may indicate that the protein transition is mainly taking place in the segment of young people that are willing to reduce meat on a free will basis, but are not yet committed to the plant-based lifestyle. We also showed how important the possibility to choose the food components was to the young people (Schober-Schmutz, 2022).

In some townships in Germany decision-makers have concluded that the individual and self-determined change in favor of vegetarian or vegan food is taking too long and recently many schools and kinder garden kitchens have been forced to offer only vegetarian food , for example in the whole district of Freiburg.

In the boardinghouse for young people in Castle Beilstein, Germany, a client responsible for 3655 overnights per year decided to have only vegetarian meals at lunch during a one-week-student education program. Breakfast and dinner were combined sausage and meat with cheese on the buffet. After 3 days the students started to complain about the lack of meat and the kitchen monitored less food intake at lunch than in the beginning, but a rise of sausage and meat consumption at breakfast and dinner. It was assumed that many went outside the castle for meat-meals. We were interested in how the young people reacted to being forced to eat vegetarian, and to compare their reaction to a similar group of students who had a choice between meat-based and vegetarian meals.

#### Theoretical rationale

The fact that it was not possible to opt for meat can lead to the feeling of being deprived. Deprivation leads to cognitive dissonance (Festinger, 1975) and reactance (Brehm 1966, Wicklund, 1974), trying to reinstall the loss of freedom by complaining and or by compensation with meat-consumption in the nearby restaurants, which is mostly fast-food. Reactance can change into vegan-phobia (Rothgerber, 2018) due to group dynamics. On the other hand, being forced to eat vegetarian meals can also refute expectations that vegetarian meals cannot be tasty.

While taste is the major driver of food choice due to the immediate reward it provides, moral satisfaction is another potential reward when ethical aspects are involved (Bratanova et al., 2015). Moral satisfaction in food consumption may be linked to eating the 'right' things, or to making the 'right' choices. Having vegetarian food as a choice or as the only option can therefore possibly affect moral satisfaction.

#### Methodology

A survey was administered at the end of a 4 day stay to 234 participants where a vegetarian lunch was the only option. A similar survey was conducted in October 2022, where all the 78 participants had the choice between meat and a vegetarian meal, a salad bar and dessert. Every person could order each

component by filling out an online questionnaire with their own smart phone the day before. The probands were age 16-25, average 17.2 years old, 60% female and 26 % vegetarians. The survey contained items measuring perceived tastiness of the meat eaten, expectations about taste of vegetarian food in general, moral satisfaction with eating vegetarian food, general satisfaction with life.

## Results

In the sample of young people who were forced to eat vegetarian lunches, individuals who classified themselves as vegetarians or vegans, were significantly more satisfied with life in general than individuals that were forced to change their eating-style for this very week ( $\chi^2=15.696$ ,  $df=6$ ,  $p=0.015$ ), whereas the satisfaction with the hostel in general was not significantly influenced. The vegetarians and vegans evaluated the meals as significantly better tasting than the meat-eaters who had been forced into consuming vegetarian food ( $\chi^2=15.058$ ,  $df=4$ ,  $p=0.05$ ) Even more significantly, the non-vegetarians expected vegetarian food generally to be less tasty. Asking whether and how often the students were buying food outside to replace or to supplement the meals, we found that many students were buying meat-based food outside the Castle despite a low budget. Those who were compensating every day, were also very actively complaining and using hard words towards the personnel.

Moral satisfaction when eating vegetarian food differed between meat eaters and vegetarians, but also according to whether there was a choice or not (ANOVA, both main effects and interaction significant, all  $p$ 's  $<.01$ ). Moral satisfaction of meat-eaters, when consuming a vegetarian meal, was generally lower than the moral satisfaction of vegetarians no matter if there was a choice between meat and vegetarian food or not. However, vegetarians had a higher moral satisfaction when eating vegetarian meals, if they had a real choice at the buffet to choose out of meat and nonmeat dishes ( $p <.001$ ).

Expectations about the tastiness of vegetarian food differed between meat eaters and vegetarians, but also according to whether there was a choice or not (ANOVA, both main effects and interaction significant, all  $p$ 's  $<.01$ ). Vegetarians did not agree that vegetarian food is not tasty, no matter whether they had a meat/nonmeat-choice of food or not. The meat-eaters were as expected agreeing widely to the statement. However, in the case of compulsory vegetarian lunch the meat-eaters' expectation of tastiness of vegetarian food became significantly more positive. It seems that some of the negative expectations were adjusted on the basis of the actual experience.

## Conclusion and implications

Being forced to eat vegetarian food brings about compensating behavior, but also a change in expectations of the tastiness of vegetarian food. Further, the moral satisfaction due to eating vegetarian food is reduced by taking away the possibility to choose between food-styles.

It seems that the meat-eaters have a prejudice about vegetarian food that prevents them from making the real experience and thus prevents them from changing their opinion about the expected taste of a vegetarian meal. The reduction of the moral satisfaction of vegetarians would be probably not making them a meat-eater again, although this is speculation.

Whether forcing young people to eat vegetarian food will further the protein transition will, according to our results, depend on the quality of the food and the preferred recipes in the target group. The young people in the castle got for example wedges instead of cooked potatoes and vegetable Bolognese that has almost the same texture as meat Bolognese. If the cook had prepared kraut-casserole or wheat-sausages the result could be different. This raises the question: Are the public kitchens doing a "good" vegetarian job?

Also, the rise in expected tastiness at the end of a "no choice week" could be a result of post-fact rationalization or social expectancy in the group that decided for them. Afterwards, life can go on in freedom and as a meat-eater. Unlearning prejudices would take longer than a week. So this compulsory way could work in nursery schools over a period of several years, but in schools and universities where the young people can compensate, there is a danger that the fast food solutions will become the everyday food, which can hardly be the goal of schools and educational systems.

The reduction of moral satisfaction in the vegetarian group, when having no choice of meat, points to the rather ideological motivation of the current vegetarians. Would they leave their vegetarian way of living in a society that is living their ideal? Probably not.

## Emerging Methods as an Effective Tool for Researching the Impact of Front-of-pack Nutritional Labelling on Consumer Decision-making

Adriana Rusková, Jakub Berčík, Kristína Igarová, Jana Gálová, Elena Horská  
Slovak university of agriculture, Nitra, Slovakia

### Abstract

One way to tackle the global problem of overweight and obesity is to change lifestyles and consumer behaviour when buying food. Nutritional indicators placed on the front of packaging can have a significant impact on consumer decision-making. These indicators usually contain information on the nutritional value of the product, such as calorie content, fat content, sugar content and protein content. Front-of-pack nutritional indicators can have the ability to influence consumer behaviour in a variety of ways, from promoting healthier choices, transparency, convenience, competitive advantage to building brand reputation and trust. Companies that prioritise accurate and transparent nutritional indicators can see benefits in the form of increased sales and brand loyalty. However, there are several types of nutritional indicators on the market that differ in visual appeal and consumer clarity. In testing the perception of different versions of nutritional labels using eyeballing, it was found that more direct labels, including NS (Nutri-Score) and GDA (Guideline Daily Amounts), although less visually eye-catching, on the other hand, lead to better ratings (understanding) of nutritional quality. Other studies suggest that these product labels are in most cases not able to influence dietary behaviour change.

The present paper focuses on the Nutri-Score nutritional indicator, which is currently implemented in Slovakia on selected foods from Danone, Nestlé, Alpro, Lunter and on private label products of Kaufland Slovakia. The aim of the study was to reveal the influence of the nutritional indicator (Nutri-Score) as well as other factors on consumer decision-making when choosing healthier alternatives for selected food types. In addition to classical research methods such as questionnaires, in-depth interviews, developing methods such as eyetracking, facereading and electroencephalography (EEG) were used to collect feedback. These have made it possible to develop a more comprehensive view of consumer decision-making by obtaining implicit feedback. Research suggests that there are significant differences between implicit and explicit feedback when examining the impact of the Nutri-Score on the decision-making process. Last but not least, the study presents ideas for future research in real-world settings using emerging methods.

This research was supported by the Operational Program Integrated Infrastructure within the project: Demand-driven research for the sustainable and innovative food, Drive4SIFood 313011V336, co-financed by the European Regional Development Fund.

Keywords: front-of-pack (FoP), nutritional labeling, Nutri-Score, Emerging methods, Consumer decision making



## **Sushi consumption in Croatia: An application of the theory of planned behaviour**

Marina Štambuk, Marina Tomić Maksan, Maja Šimanović  
University of Zagreb Faculty of Agriculture, Zagreb, Croatia

### **Abstract**

Sushi is an example of a food that, until recently, the majority of Westerners would not eat because it generally involves the consumption of raw fish and other culturally unusual ingredients such as seaweed. However, sushi has undergone a remarkable repositioning and is now widely enjoyed (House, 2018). The consumption of sushi has increased significantly since the beginning of the 21st century, as has the number of restaurants serving sushi. The growing health consciousness of consumers has encouraged the search for new foods, such as sushi. People generally consider sushi to be nutritious and healthy. Although Croatian consumers prefer local foods, they are becoming more open to global food trends. Sushi is also becoming more popular in the Croatian market. The purpose of this study was to determine the factors that influence sushi consumption intention, using the Theory of Planned Behaviour (Ajzen, 1991) as a theoretical framework. The survey was conducted with a sample of 626 Croatian respondents. The study examined the relationship between attitudes, subjective norm, perceived behavioural control, and sushi intention. Statistical analyses (descriptive statistics, correlation analysis, multiple regression analysis) were performed using SPSS.

The results of the regression analysis showed that attitude, subjective norm, and perceived behavioural control explained 55.8% of the variance in sushi consumption intention. Attitude proved to be the strongest predictor of intention, while subjective norm was slightly weaker. Perceived behavioural control did not prove to be a significant predictor of intention to eat sushi.

## **Laugh it off or drink it? The effect of humoristic labels on customer decision making about wine.**

Lena Pateraki, Chrisnathi Nega, Maria Doukeri, Toulia Perrea, Maria Psimouli, Athanasios Krystallis  
American College of Greece, Athens, Greece

### **Abstract**

Laugh it off or drink it?

The effect of humoristic labels on customer decision making about wine

Lena Pateraki 1,2 Chrysanthi Nega 1,2, Maria Doukeri 1, Toulia Perrea 2, Maria Psimouli 2, Athanasios Krystallis 2

1: Department of Psychology, American College of Greece (ACG)

2: Center of Excellence in Food, Tourism and Leisure, American College of Greece (ACG)

Keywords: wine, humoristic labels, familiarity, reassuring feelings, purchase intention.

### 1. Introduction

The use of humorous elements on wine labels is a new way employed by wineries to attract consumers. Names like “The arrogant frog” or “The yellow tractor” intend to intrigue consumers (Jermedy, 2021; Lunardo & Ricard, 2019). Recent research shows that wines that include humoristic elements in their etiquette have increased sales unexpectedly (Jermedy, 2021). The inclusion of humorous elements in wine labels rests on the assumption that this kind of element might elicit positive reactions on behalf of the consumer, including attention, evaluation, recall, and purchase intention. On the other hand, although humor is expected to elicit pleasant associations and thus positive responses, past studies indicate that a considerable part of wine drinkers are confused with the selection of wines with funny labels (Hussein et al., 2007; Walker, 2006). Since a humoristic twist in wine etiquette is not very common, it can leave consumers uncertain when exposed to these types of labels (Jermedy, 2021). The current study focuses on the influence that humorous labels of Greek wines can have on consumers’ decision making and aims to investigate their effect of wine labels on consumers’ reassuring impressions, perceived quality and purchase intention (PI). Moreover, the study explores the effect of humorous labels on the above consumer responses in presence of wine producer labels with different levels of consumer familiarity. Lastly, the study tests the above effects in light of consumers’ attitude towards risk.

### 2. Conceptual framework

Celhay and Passebois (2011) claimed that label designs that are typical to a product or a product category tend to increase consumer preference because they entail a low level of risk associated with a product choice compared to atypical label designs. Thus, the incorporation of humorous elements into wine etiquette, making it atypical, may have a negative effect on consumer decision making. According to the Elaboration Likelihood Model (ELM, Petty et al., 1983), humor may lead consumers to engage in more information processing, especially in the case of wine labels, where humor is not the norm (Nabi et al., 2007). In accordance with the ELM, deep processing results in increased cognitive elaboration and evokes more counter arguments. Hence, even though labels with humorous elements may attract attention -and thus processing, consumers exposed to such labels may translate the message they

receive as irrelevant to their judgments, ending up feeling less reassured and more insecure with their choices (Nabi et al., 2007; Lunardo & Ricard, 2019).

Furthermore, wine labels as visual cues impact on consumer' judgments and evaluations of the product (Boudreaux and Palmer, 2015). Such important label-based judgment is related to quality, i.e. consumers' cognitive evaluation of the benefit of the product (Teas and Agarwal, 2000). The fact that humorous elements in wine labels may be associated with less reassuring impressions suggests that the evaluation made by consumers regarding the quality of the wine may be less positive (Orth et al., 2010). In addition, Lunardo and Rickard (2019) maintained that consumers exposed to humorous wine labels were less willing to purchase such wines due to lower product quality perceptions.

Campbell and Goodstein (2001) claim that consumer preference of what is typical in a product depends on the level of perceived risk with the product. In the case of wines, perceived risk refers to the perception that something might go wrong and the severity of its consequences, when the product is not as good as expected (Messer et al., 2017). Since fun elements in label designs can be perceived as incongruent or atypical, consumers more prone to risks will react more negatively to humorous elements. The findings of Lunardo and Rickard (2019) and Celhay and Passebois (2011) show that consumers prefer wine labels depending on their risk propensity score.

### 3. Methodology

We designed an online experiment with a sample of N=360 participants, (49.7% males, Mage=50.2y). To measure: reassuring impressions by employing Hederson's et al. (2004) 3-item scale (e.g. "This wine gives me a feeling of relaxation" - 5-point likelihood scale,  $\alpha = .71$ ); perceived quality using Agarwal's (2000) 3-item scale (e.g. "This wine appears to be of high quality", 5-point likelihood scale,  $\alpha = .93$ ); PI with MacKenzie's et al. (1986) single item (e.g. "How probable is that you buy a bottle of this wine if it was available in the market today", 0-100 probability scale); and risk propensity using the 3 positively phrased items of the Risk Propensity Scale (Meertens & Lion, 2008) ("I usually take risks", "I take risks regularly" and "I view myself as a risk seeker", 9-point likelihood scale,  $\alpha = .86$ ).

As experimental stimuli, we selected by means of a pilot study wine etiquettes existing in the Greek market. A master list of 32 wine labels and 31 producer labels (wineries) has been evaluated by 82 wine consumers recruited from the faculty of a central University in Athens (74% males, Mage=55.1 y) for their perceived humoristic impression (17 wine labels), typicality (15 wine labels) and familiarity (all producer labels). Typicality was evoked by means of elements of nature on the wine label, such as grapevines, trees, cricks, birds etc. As a result, 10 labels were selected for the experiment, out of which three for humorous elements (high, low and none), three for elements of typicality (high, low and none), two producer labels perceived as familiar, and two producer labels perceived as unfamiliar.

The experiment incorporated a 3x3x3 within-subjects factorial design. The independent measurements were "wine label type", "producer label familiarity", and "risk propensity" (as covariate). Moreover, the dependent measurements were participants' Reassuring impressions, Perceived quality, and PI. We presented to the participants the 10 wine etiquettes sequentially in a rotated order to avoid response bias.

### 4. Analysis and Results

The sample comprised consumers interested in wine selection (M=5.27 (1.41)). The majority of participants buy bottled wine a few times a month, while they consume about 7 glasses of wine per week on average. About two-thirds of participants show a general interest in wine (65.3%), 21.4% are novices with little to no knowledge, and the remaining 12.8% are wine lovers.

A 3x3x2 analysis of variance (ANOVA) was conducted with the wine label type (humorous vs. typical vs. none), producer label familiarity (high vs. low vs. none) and risk propensity (high vs. low) on reassuring

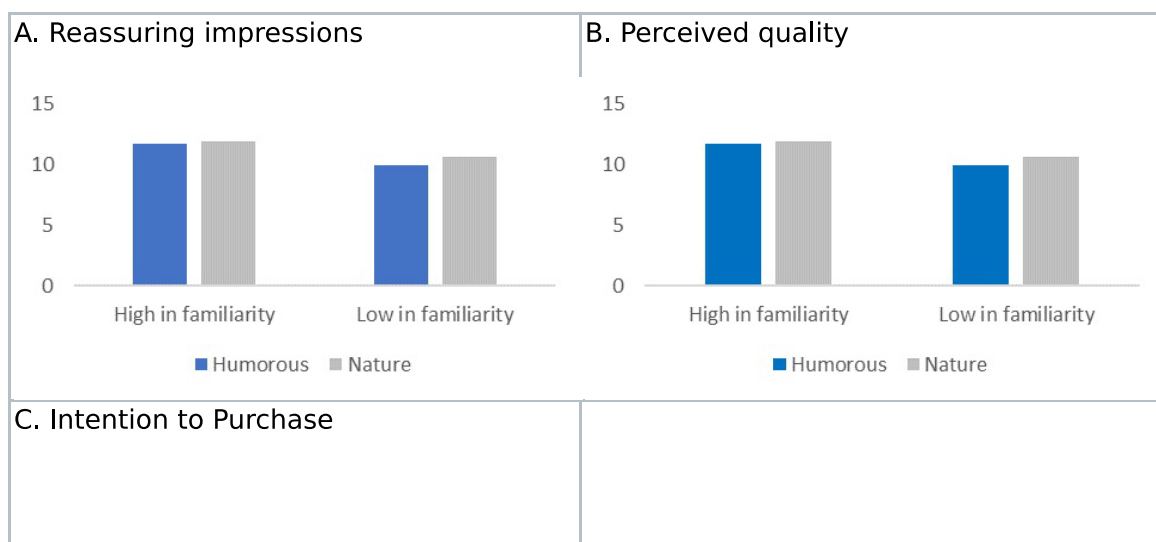
impression. Results revealed a significant main effect of wine label type on reassuring impressions ( $F(1.90, 673.26) = 80.33, p < .001, \eta^2 = .19$ ). Pairwise comparisons showed that typical labels ( $M = 11.24 (4.74)$ ) had a stronger effect on reassuring impressions compared to humorous labels ( $M = 10.26 (4.48)$ ) ( $p < .001$ ). Moreover, findings showed a significant main effect of producer label familiarity on reassuring impression ( $F(1.67, 708) = 204, p < .001, \eta^2 = .37$ ), with familiar labels ( $M = 11.80 (4.52)$ ) having a stronger effect on reassuring impressions to those low in familiarity ( $M = 10.50 (4.15)$ ) ( $p < .001$ ). The analysis also revealed a significant interaction effect between wine label type and producer label familiarity on reassuring impressions ( $F(3.67, 1301.32) = 61.98, p < .001, \eta^2 = .15$ ) (Figure 1A).

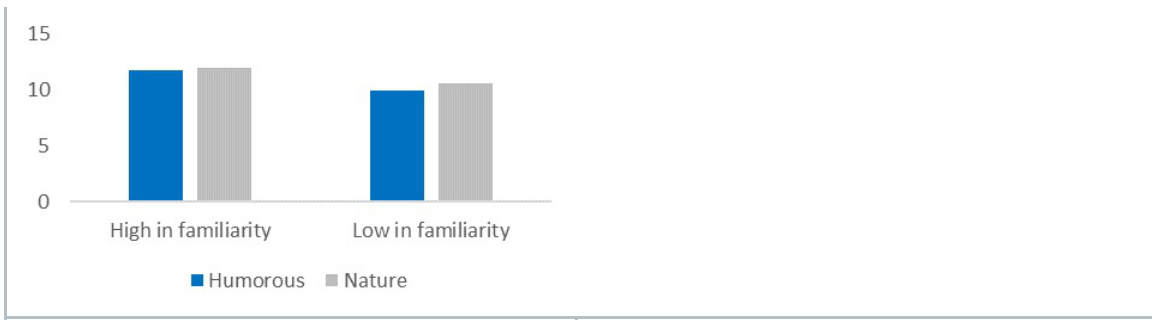
A 3x3x2 analysis of variance (ANOVA) was conducted with the wine label type (humorous vs. typical vs. none), producer label familiarity (high vs. low vs. none) and risk propensity (high vs. low) on perceived quality. Results indicated that there was a significant main effect of wine label type on perceived quality ( $F(1.83, 650.97) = 93.27, p < .001, \eta^2 = .21$ ). Pairwise comparisons showed that typical labels ( $M = 12.13 (4.64)$ ) had a stronger effect on perceived quality compared to humorous labels ( $M = 11.42 (4.74)$ ) ( $p < .001$ ). Furthermore, results demonstrated a significant main effect of producer label familiarity on perceived quality ( $F(1.72, 609.35) = 330.45, p < .001, \eta^2 = .48$ ), with familiar producer labels ( $M = 13.50 (4.70)$ ) having a stronger effect on perceived quality compared to those low in familiarity ( $M = 11.28 (4.47)$ ) ( $p < .001$ ). Analysis revealed a significant interaction effect between wine label type and producer label familiarity on perceived quality ( $F(3.67, 1299.05) = 67.31, p < .001, \eta^2 = .16$ ) (Figure 1B).

A 3x3x2 analysis of variance (ANOVA) was conducted with type of label (humorous vs. nature vs. none), type of producer (high familiar vs. low familiar vs. none) and propensity of risk (high vs. low) on PI. Results indicated that there was a significant main effect of wine label type on PI ( $F(1.87, 661.82) = 60.75, p < .001, \eta^2 = .146$ ). Pairwise comparisons showed that typical labels ( $M = 4.71 (2.63)$ ) had a stronger effect on PI compared to humorous labels ( $M = 4.35 (2.54)$ ) ( $p < .001$ ). Furthermore, results showed a significant main effect of producer label familiarity on PI ( $F(1.72, 610.64) = 248.20, p < .001, \eta^2 = .41$ ), with familiar producer labels ( $M = 5.43 (2.74)$ ) having a stronger effect on PI compared to those low in familiarity ( $M = 4.22 (2.46)$ ) ( $p < .001$ ). Analysis revealed a significant interaction effect between wine label type and producer label familiarity on PI ( $F(3.70, 1312.57) = 49.59, p < .001, \eta^2 = .12$ ) (Figure 1C).

A 3X3 ANCOVA tested all main and interaction effects of wine label type and producer label familiarity on reassuring impressions, perceived quality, and PI, after controlling for risk propensity. All tests (results available upon request) showed the same pattern of significant effects of wine label type and producer label familiarity on all DVs tested, while post hoc comparisons showed significantly higher effect for typical labels compared to humorous labels, and of familiar producer labels compared to less familiar ones on all DVs. Further, analyses revealed significant

Figure 1: Interaction effects of wine label type and producer label familiarity with the DVs





interaction effects between wine label type and producer label familiarity on all DVs (Figures 2A-C). In short, no change in the IVs-DVs relationships emerge in neutralizing risk propensity, indicating that the effect of the covariate was not significant.

## 5. Discussion and Conclusions

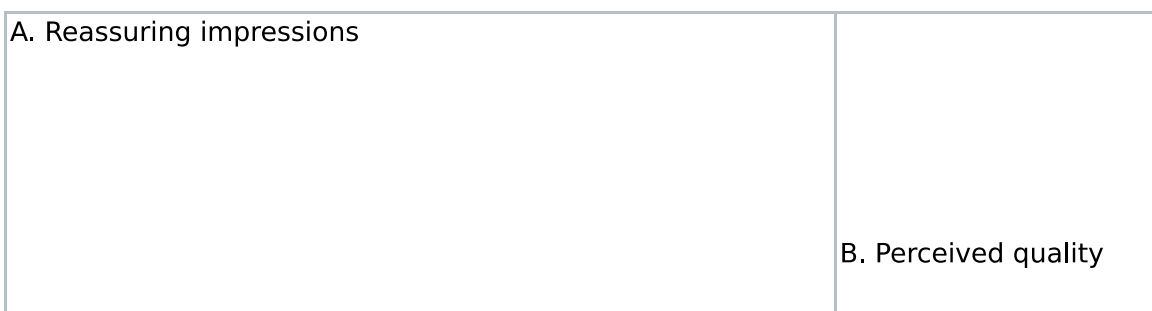
The current study contributes to the research on the effect of wine labels on consumer behavior by exploring the influence that humorous vs typical elements of wine labels have on consumer responses in the presence of (un)familiar producer labels. Analysis revealed a significant effect of wine label type on participants' reassuring impressions, perceived quality, and PI. In accordance to Lunardo and Ricard (2019), participants felt more reassured for wines that included typical (i.e. nature-evoking) elements on their labels compared to humorous elements, while the presence of humorous wine etiquette reduced the perceived quality of the product and consumers' PI, as a result.

Statistical analysis also revealed participants' preference toward familiar producer labels. Specifically, there was a significant effect of producer label familiarity on participants' reassuring impressions, perceived quality, and PI for wines with familiar producer labels. The strength of the brand is vital for consumer purchases because brands that typically produce more publicity and have larger market share are considered superior in the eyes of the consumer (Shah et al., 2012).

Most importantly, findings revealed a higher (or at least equal) preference towards wine labels that included nature-evoking elements perceived as typical for wine against the "atypical" humorous elements across all tests, with or without the presence of familiar wine producer labels. Wine labels with typical elements that remind consumers of nature create a sense of comfort, while consumers who care about healthy nutrition and food authenticity tend to choose wines that seem more "natural" (Galati et al., 2019). Consequently, wine labels with nature-reminding typicality on their label elicit positive effects regarding customers' reassuring impressions, perceived quality, and PI.

Wine marketers should be cautious regarding the humorous elements on labels having a negative influence on purchase intention. Moreover, the superiority of nature-evoking elements may also pave the way towards more "natural" designs being more effective in terms of consumer responses.

Figure 2: Interaction effects after controlling for the covariate (i.e. risk propensity)





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## **Play it safe or stay hated! How are consumers of meat alternatives socially seen, what kind of emotions and behavioral tendencies do they evoke?**

Roosa-Maaria Malila, Kyösti Pennanen, Harri Luomala  
University of Vaasa, Vaasa, Finland

### **Abstract**

Environmental (Aiking and de Boer, 2020), health (Aiking, 2011) and ethical (de Boer and Aiking, 2022) problems associated with animal-based proteins have supported the development of plant-based food products. Along with product development, plenty of evidence has been gathered on consumers' responses, motives, and intentions related to meat alternatives (Onwezen et al., 2021), but less is known on how meat alternative shoppers are socially perceived and accepted by other consumers. Building the theoretical foundation upon the Behaviors from Intergroup Affect and Stereotypes (BIAS) map (Cuddy, Fiske, & Glick, 2007), the aim of our study was to analyze how consumers' perceived stereotypes, emotional and behavioral responses towards meat and meat alternative shoppers vary. In addition, we analyzed if the participants' fundamental social motives of status and group affiliation moderate the evaluations of the fictional shoppers.

A between-subject online experiment was implemented in which participants N=3600 from Finland, Sweden, United Kingdom and Germany evaluated three fictitious consumers using three different shopping lists. In addition to five non-protein food products consistent across three shopping lists, Shopping list 1 (N=1199) included two red meat products, Shopping list 2 (N=1169) one red meat product and one meat alternative product, and Shopping list 3 (N=1206) two meat alternative products.

One-way ANOVA results on stereotypes showed that the meat alternative shopper was evaluated more environmentally conscious, health- and ethics-oriented, while the meat shopper was perceived warmer. In terms of emotional responses, meat alternative shopper induced more contemptible, enviable, and intimidating feelings. The person was also perceived to generate more anger, but also more admiration. As regards the action tendencies, meat alternative shopper's behaviors were less supported and imitated; and more harmed than the meat shopper's behaviors. In every dimension the shopping list 2 with both red meat product and a meat alternative product was seen in a better light compared to the shopping list 3, which only contains meat alternative products. When it comes to moderations, status did not moderate. In the evaluations of the meat alternative shopper, increased group affiliation moderated positively the sustainability stereotype. Whereas in the evaluations of the user of shopping list 2 including both meat and meat alternative products, group affiliation moderated negatively emotions: contempt and anger, and behaviors: active and passive harm. This means that increasing group affiliation lowers the negative emotional and behavioral tendencies towards the user of shopping list 2.

The study results draw a conflicting picture of a meat alternative shopper who on one hand follows high ethical standards but on the other hand is perceived as distant and even slightly intimidating and whose actions are less supported than those of meat consumers. Shopper consuming both meat and meat alternatives is seen more relatable and neutral. The results guide marketers to create more persuasive communication strategies to improve the socio-cultural valuation of meat alternatives. This supports the sustainability transition of our food system.



## What determines intention to reduce meat consumption?

Barbara Borusiak, Andrzej Szymkowiak, Bartłomiej Pierański, Urszula Garczarek-Bąk  
Poznan University of Economics and Business, Poznań, Poland

### Abstract

Meat production (especially beef) is harmful to the natural environment. Livestock farming utilizes approximately one-third of the global land area and generates 14% of all human-caused greenhouse gas emissions. Meat production also requires a lot substantial amount of water; the water footprint of any animal product is larger than that of crop product with an equivalent nutritional value (Mekonnen & Hoekstra, 2012). The efficiency of conversion of feed into nutritional values is low in the case of meat, especially beef. Taking this into consideration, as well as ICPP recommendations regarding reducing the level of greenhouse gas emissions, meat consumption should be reduced in countries where its intake is high. Meat consumption is the highest in high-income countries (with the largest meat intake in the United States, around 125 kilograms per person in 2018). The average European and North American consumes nearly 80 kilograms and more than 110 kilograms, respectively (Ritchie, Rosado & Roser, 2019). Such a high meat (especially processed one) intake poses health risks (Giromini & Givens, 2022) what is another reason for meat consumption reduction. And finally, the sensitivity to animals welfare grows what also is an argument against meat intake (Niemyjska, Cantarero, Byrka, & Bilewicz, 2018). On the other hand, meat is a kind of food which has a very special status, deeply rooted in culture, so many people are highly attached to its consumption.

The objective of the current research is to examine the determinants of intention to reduce meat consumption. Five independent variables were implemented in order to explain intention to reduce meat intake; three of them are related to three basic reasons of doing so. These are: environmental concern, health concern and animal sensitivity. Meat attachment was also included as one of the variables, as well as subjective norm. Five hypotheses were formulated, according to the assumption about statistically significant relation between them and intention to reduce meat intake. Data were collected with CAWI method and processed with SEM method.

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## **Social norms and prototypes as factors influencing willingness and intention to consumer foods with an unhealthy image**

Pernille Videbæk, Kristina Thomsen, [Liisa Lähteenmäki](#)  
Aarhus University, Aarhus, Denmark

### **Abstract**

Consumers are constantly facing decisions whether to buy products or accept offers of served foods that are regarded as unhealthy. Many of these products are foods that are regarded as appropriate, or even essential parts of social events or situations aimed for enjoyment and relaxation. Although a healthy diet has space for some unhealthy products as well, consumers current use of these products is well above what is recommended and frequently reminded to reduce or limit the use of these products.

The aim of this study was to explore the social factors that influence consumers' willingness and intention to reduce the use of these snack products using the Prototype Willingness Model (PWM) as a framework. In this model, the behaviour is not only dependent on volitional intention, but also in the willingness to behave. Intention can be seen as a goal-oriented concept, such as trying to limit the intake of unhealthy foods, whereas willingness relates to propensity to engage in risky behaviour, such as accepting when offered foods that are unhealthy. As many of the unhealthy foods are served in social situations, individual consumers may need to balance between an intention to eat less of these food and willingness to accept what is offered in order not to break social norms. The PWM emphasises social aspects in behaviour and acknowledges that often behaviour results from contextual cues rather than goal-oriented intentions.

In a survey with 1033 adult respondents in Denmark, we explored the role of perceptions of social image and willingness to reduce the consumption of snacks. Social image of those who are less or more willing to accept offers in social context were measured with prototype perception. As a prototype, those who refused to take snacks when offered were regarded as more disciplined, hardworking, and systematic, but there were no major differences in warmth, friendliness or other qualities related to how people relate to other people. Willingness, operationalised as responding positively when offered snacks in the social context were compared with intention to reduce the use of snacks. Although willingness did not explain reported behaviour better than intentions, it was strongly linked to affective attitudes: the willingness to reduce was lower when affective attitudes towards snacks were more positive, whereas cognitive attitudes were linked to intentions. Interestingly, the correlation with willingness and intention to reduce was not significant (or low significance level at best). These findings indicate that we need to pay more attention to the social aspects and affective responses to find more effective ways to promote reduction in the consumption of these energy-dense foods. The challenge is to find ways for these social factors to become facilitators instead of barriers to change.

## **Distaste**

Maria Frostling

Stockholm Business School, Stockholm, Sweden

### **Abstract**

#### **DISTASTE**

Maria Frostling

April 2023

Stockholm Business School

Stockholm University

### **Introduction**

This paper presents an upcoming study which concerns distaste as a phenomenon. As an antithesis to taste the theoretical contribution lies within that area.

For many households with children and adolescents, the taste of food is an important aspect to consider when preparing and serving a family meal. Sociological studies have shown that younger children contest foods offered in the family and that this continues into adolescence (e.g., Grieshaber 1997). One sociological study has shown the importance of food for reproducing dominant norms and values in our society (Charles & Kerr, 1988). The same study emphasizes the focus that women place on serving a 'proper meal' when cooking for the family and the importance that the food has on gender, age and social class and as a marker of power structures within a household context where often different dishes have to be served (ibid). There are several studies on so-called 'picky eaters' showing the complexity of satisfying different ideas of preferences and taste when serving a family meal (e.g., Wilk, 2010; Wolstenholme, Kelly, Hennessy & Heary, 2020).

Food consumption can be an expression of autonomy, since it allows young people to define themselves in relation to other family members. By expressing diverging taste, young people are provided with a possibility to experiment with different identities (Wills, 2005; Wills, Backett-Milburn, Gregory & Lawton, 2008). Numerous studies have focused on the importance of food consumption and taste for this group of consumers and highlighted the mechanisms that occur within a household context, between children and parents, adolescents and parents or between spouses (Miller, 1999; 2001). Those mechanisms have been interpreted as opportunities of negotiation and construction of identity between adolescents and family members (Miller 2001; Wills, Backett-Milburn, Gregory & Lawton, 2008). Food can even work as a distinction in terms of expressing difference in consumer society, as a mere 'fashion accessory' (Wilk, 2012).

Even though distaste is developed during the first 8 years of childhood (Rozin & Fellow, 1987), distaste is not only a question for children and adolescents. Instead, there are studies describing distaste as an important aspect for other consumer groups as well (e.g., Coulthard, Aldridge & Fox, 2022).

As an academic field, food studies have grown immensely in recent decades covering different aspects of food in culture and society (Neuman, 2019). Numerous studies emphasize e.g., food politics, food sustainability, food ethics, nutritional aspects, commensality, sensorics and food as identity. Some studies focus on more unpleasant aspects of food consumption, such as food (in)security (Borch & Kjaernes, 2016; Guo, Mao, Yuan, Qin, Xu, Batani, Zhao & Ye, 2021), unhealthy eating (Barnhill, King, Kass & Faden, 2014; Mizia, Felińczak, Włodarek & Syrkiewicz-Światała, 2021) and food disorders (Curtis, 2011, Miljkovic, 2020). Recently, many contemporary studies have focused on the concept of taste (e.g., Keast & Costanzo, 2015; Mouritzen, 2015; Sangkyun, Eerang, Yi & Fan, 2021; Yeliz, Ferriday & Rogers, 2023). Not only in academic writing is taste in vogue at present, but also in the education of hospitality, culinary arts and meal sciences. The focus for Bocuse d'Or 2023 was taste. In order to understand taste as a concept, it is of utmost importance to understand the dichotomy between taste and distaste. Understanding distaste paves the way for a more profound understanding of the mechanisms behind taste. However, relatively few studies have focused on distaste as a phenomenon and this study will contribute to that field.

The few studies conducted on distaste have addressed distaste from various academic perspectives. A study by Rozin and Fellow (1987), where a psychological perspective was applied, highlighted the perceived contamination aspects of food. According to Wilk (1994, 1995, 1997) disgust is considered a mirror of desire, and food in relation to identity and difference is discussed which can encompass both consumption and non-consumption. Another recent study addressing disgust, explores a contemporary German phenomenon called 'bänderer', when consumers eat leftover from other people's plates, an activity regarded as an idealistic way to satisfy hunger guided by environmental reasons, but also perceived as a threat to health and social order (Diekmann & Germelmann, 2021). There are several studies stressing the importance of understanding disgust as a system that evolved in order to avoid diseases (Curtis, 2011; Curtis, de Barra & Aunger, 2011).

Hence, in order to contribute to taste as a theoretical construct, it is of utmost importance to understand the concept of distaste.

## **Aim**

The aim of the paper is to present a sketch of a coming study which will explore distaste theoretically and empirically among young consumers. This is done in order to get a better understanding for both taste and distaste as theoretical constructs.

## **Research questions**

The research questions in this study are:

R1: How can you theoretically understand distaste?

R2: How can you empirically understand distaste and how is it expressed?

## **Methodology**

The ontological point of departure is to understand the perceived experience of how distaste is perceived from the informant's perspective, hence a phenomenological perspective is practiced where 'active listening' is an important part of the research design (Smith, 2010; Pietkiewicz & Smith, 2014; Fejes & Thornberg, 2015). More specifically, Interpretative Phenomenological Analysis (IPA), a dominant qualitative research methodology in many academic disciplines is applied, which emphasizes both convergence and divergence of the lived experiences of a small number of informants (Smith, 2010; Tuffour, 2017). Even though the majority of research using IPA as a method have been conducted in health studies in psychology journals (Smith, 2010), it is argued that IPA is an approach well-suited for research in various academic fields. The approach is inspired by ideals of Husserl who believes that access to the world is through consciousness as experienced from the first-person perspective (Smith, Flower & Larkin, 2009) 'giving voice' to the concern of informants (Larkin, Watts & Clifton, 2006; Larkin & Thompson, 2011) and by Heidegger (1962) who emphasizes the researcher's subjective interpretation of the experiences from the informants. IPA integrates ideas from both traditions, "resulting in a method which is descriptive because it is concerned with how things appear and letting things speak for themselves, and interpretative because it recognizes there is no such thing as uninterpreted phenomenon" (Pietkiewicz & Smith, 2014, p. 8). The contribution of this study is to shed light on distaste as a phenomenon in order to understand how it is constituted.

The paper is based on both secondary empirical data from a literature review complemented with interviews as primary empirical data. To explore the patterns of unanticipated and expected relationships in data the researcher has to employ personal reflexivity in a form of self-analysis and self-evaluation during the research (Tuffour, 2017) in order to capture the 'connection between embodied experience, talk about that experience and a participant's making sense of, and emotional reaction to, that experience' (Smith, 2010, p. 10).

The interviews are going to be informal conversations, based on open questions around areas such as: distaste, disgust, taste and eating.

The questions will deliberately be defined in an open manner and will concern areas to cover rather than being well-defined questions posed. The idea is to let the informants talk freely round the areas defined above. This approach is suitable for exploring a less understood topic, such as, in this case, distaste, and to bring to the forefront unexpected knowledge (Tuffour, 2017).

The reason for choosing this approach is an ambition to broadly define the areas we are going to have a dialogue around, at the same time to leave room for flexibility, diversity and possibility for the informants to define what is important from their point of view (Miller et al., 2018). Since the main interest is knowing what the informants find as especially worthwhile of bringing forward, the methodological idea is not to define the questions more than that.

- a) A systematic literature review. The definition of a literature review in this paper mainly follows the definition done by Fink (2005, p. 3) which is “a systematic, explicit, comprehensive and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars and practitioners”. However, in this paper recorded work from practitioners will be excluded.
- b) Interviews with 20 adolescents, age 16-19, about distaste.

The study will be carried out in 2023 and 2024.

Key words: food, food studies, distaste, disgust, taste, consumer’s reactions to distaste, picky eaters.

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## **Consumer Propensity to Boycott Wine Products: The Influence of the Seven Sins of Greenwashing and the Moderating Role of Ecological Attitudes and Wine Category Involvement**

Andrzej Szymkowiak, Bartłomiej Pierański, Barbara Borusiak  
Poznań University of Economics and Business, Poznan, Poland

### **Abstract**

The phenomenon of greenwashing, where companies engage in deceptive marketing practices to portray their products as environmentally friendly, has gained increased attention in both academic and public spheres. While a growing body of research has begun to explore the consequences of greenwashing on consumer behavior, there remains a dearth of studies specifically examining the wine industry. This study seeks to address this gap by investigating the impact of the seven sins of greenwashing on consumers' propensity to boycott wine products, and by examining the potential moderating effects of pro-environmental attitudes and wine category involvement.

An experimental research design was employed, wherein participants were exposed to information about seven wine products, each associated with a specific sin of greenwashing as identified in existing literature. The sins encompassed various deceptive practices, including hidden trade-offs, lack of proof, vagueness, irrelevance, lesser of two evils, fibbing, and false labels. By systematically exposing participants to these deceptive practices, the study aimed to assess the extent to which each sin influences consumers' emotional reactions and their willingness to engage in social activism, such as boycotting a brand.

A total of 315 responses were collected and subjected to rigorous statistical analysis to explore which sins were most influential in driving consumers' boycott propensity. In addition to examining the direct effects of the sins of greenwashing, the study also considered the role of pro-environmental attitudes and wine category involvement as potential moderators of the relationship between the sins of greenwashing and consumers' responses.

The findings reveal that pro-environmental attitudes significantly amplify consumers' reactions to instances of greenwashing, suggesting that individuals with strong ecological concerns are more likely to be adversely affected by and react against greenwashing practices. This insight underscores the importance of recognizing and addressing the concerns of environmentally conscious consumers, as their heightened sensitivity to greenwashing may render them more susceptible to negative reactions and subsequent boycott behavior.

Surprisingly, the results also show that wine category involvement exerts a strong yet homogeneous influence on consumers' reactions to all forms of greenwashing deception. This finding suggests that highly involved consumers, who possess greater knowledge and interest in wine products, may be more discerning and critical of greenwashing practices, regardless of the specific sin being committed.

By delving into the underexplored context of the wine industry, this study contributes to the growing body of literature on greenwashing and consumer behavior. The findings hold important implications for marketing practitioners and policymakers alike, as they highlight the need for greater transparency and accountability in corporate sustainability communications to avoid consumer backlash and potential boycotts. Furthermore, the research emphasizes the significance of considering consumers' pro-environmental attitudes and category involvement in understanding their responses to greenwashing, ultimately providing valuable insights for the development of effective and responsible marketing strategies.

In conclusion, this study sheds light on the complex interplay between the seven sins of greenwashing, pro-environmental attitudes, and wine category involvement in shaping consumers' propensity to

boycott wine products. The findings underscore the importance of ethical marketing practices and the need for businesses to prioritize genuine environmental commitments to foster positive consumer relationships and avoid the reputational and financial repercussions associated with greenwashing-induced boycotts.

## **Perceptions of Food Carbon Footprint Among UK Consumers: Assessing Awareness of Environmental Impact and Implications for Sustainable Consumption**

Andrzej Szymkowiak, [Barbara Borusiak](#), Konstantinos Madias  
Poznań University of Economics and Business, Poznań, Poland

### **Abstract**

This study examines the perception of food carbon footprint among 335 UK residents, focusing on their awareness of the environmental impact of various food products, particularly cow's milk and its alternatives. The primary objectives of the research were to assess participants' understanding of the carbon footprint of selected food products, their perception of the carbon footprint associated with alternative products, and their opinions on the factors that contribute most significantly to the food carbon footprint.

The research was conducted in the context of growing concerns about the environmental consequences of food production and consumption, emphasizing the importance of raising public awareness of the true environmental impact of different products and their production processes. A lack of understanding of these differences may hinder consumers' motivation to make more sustainable choices, thereby exacerbating the global environmental crisis.

Using a survey methodology, the study collected data on participants' perceptions of the carbon footprint of various food products, including cow's milk and its alternatives, such as plant-based milk options. The analysis aimed to identify gaps in understanding and areas where public education efforts could be targeted to improve awareness and foster more sustainable consumption patterns.

The findings reveal that participants generally underestimated the carbon footprint of cow's milk and its alternatives. Moreover, the study identified a lack of understanding of the factors contributing most significantly to the food carbon footprint of these products. These insights highlight the need for targeted educational interventions to enhance public awareness of the environmental consequences of food production and consumption and to motivate consumers to make more informed and sustainable choices.

In conclusion, this research emphasizes the importance of raising public awareness of the environmental impact of food products and their production processes, as a lack of understanding may limit consumers' motivation to adopt more sustainable consumption patterns. The findings offer valuable insights for policymakers and educators in devising strategies to improve the public's understanding of food carbon footprints and to promote more environmentally responsible consumption behaviors.

## Multiple Identities: Food ethnocentrism and local foods

Carolina Ferrales Lopez

Aarhus University, AARHUS, Denmark

### Abstract

The development of rural communities and the growing interest in food sovereignty have become relevant factors in public policy and countries' objectives. Consequently, consumers have become more interested in the origin of their food products, leading to a certain lack of trust in the global supply chain. As a result, ethnocentric attitudes and sentiments towards consumption choices may be proliferating. However, this phenomenon is not as straightforward as previously believed, where more ethnocentrism equated to a greater preference for domestic products. In the case of food products, the origin is no longer a binary attribute and has become increasingly complex, fulfilling various roles ranging from physiological and health needs to social, historical, and cultural ones, often tied to the surrounding environment. Therefore, the origin of a food product can represent all these considerations to consumers. Ethnocentrism refers to the bias that can lead individuals to select food from their group over that of others. Originally defined in sociology, ethnocentrism described individuals placing their group at the center of everything and judging others from this perspective (Sumner, 1906). This definition enabled the concept to be incorporated into the Social Identity Theory and even support the Realistic Group Conflict Theory (Bizumic, 2018). Ethnocentrism has been adopted and used in various areas, including the field of marketing, where it is referred to as Consumer Ethnocentrism. Consumer Ethnocentrism is defined as the moral bias that people may have towards products from different countries. Researchers have measured Consumer Ethnocentrism using the same scale across the globe and applied it as a variable to evaluate products from domestic and foreign origins.

Despite efforts to consider food ethnocentrism as a construct (Carpenter et al., 2013) or explore ethnocentrism and subnational-specific choices, few studies have delved into these concerns beyond some construct adaptations or qualitative explorations. As CE is related to specific products or categories (Balabanis and Diamantopoulos, 2004; Schnettler et al., 2011), it has been suggested the need to consider specific food products when measuring ethnocentrism, as this implies that food characteristics are subtly considered by consumers when expressing ethnocentric attitudes (Bryla, 2019; Weber et al., 2017; Jiménez-Guerrero, 2011).

Therefore, we focused on a new construct, to consider 1) the food product attributes and 2) the gradients of identity (from the subnational groups), developing a Multilevel Food Ethnocentrism (MFE) concept and its measurement scale. Findings on the scale development venture indicate that the MFE instrument is multidimensional according to three group-nested levels (EFA) on the First trial of the scale, sustaining this dimensionality in different countries). Our second trial provided results that defined the final scale, replicated in both countries, and allowed for convergent, discriminant, and predictive validity. On local foods, our city/local dimension has a significant positive effect on the preference for local foods or on having purchased them already. While the implications involve theoretical considerations of Ethnocentrism and Social Identity, but also an empirical instrument that provides more precise knowledge on the ethnocentric attitudes of consumers towards food products and their different origins.

## Does "SUSTAINABILITY" i B2B marketing evoke emotions in professional buyers?

Ingelinn Eskildsen Pleym

Nofima AS, TROMSØ, Norway

### Abstract

Dixon and Adamson (2013) found that professional buyers are more than 50 % through the buying process before they meet with a seller. Thus, efficient marketing communication that breaks through the noise becomes crucial. One study showed that professional buyers encounter more than 4000 ads daily, creating substantial noise and competition for selling. This may be why emotional content has been found important in B2B advertising (Swani et al., 2020; Ferguson and Mohan, 2020). Research on how different marketing strategies awaken industrial buyers' emotions is limited, yet emotions also constitute part of the attraction between business partners that contribute to forming relations (Mortensen, 2012). Swami et al. (2014) found that applying B2C marketing models to reach industrial customers will not give desired results, indicating that there is a need for specific models for the B2B context. Companies are increasingly focusing on environmental issues and sustainability in their B2B (and B2C) marketing, as it is considered a crucial driver of innovation and demand (Dangelico & Vocalelli, 2017). Environmentally sustainable business practices function increasingly as a selection criterion in supply chain partnerships. Quintana-Garcia et al. (2021) argue that an increased reputation for (environmental) sustainability improves firms' competitive advantage as it meets the stakeholders' expectations. Yet, we do not know what kind of emotions sustainability in marketing evokes. Does it evoke emotions at all, or is it "just" a criterion for becoming considered? Cortez et al. (2020) have revised and adjusted the Gilliland and Johnston (1997) model developed to examine the effect of B2B communication. However, the model is complex, making it difficult to measure, indicating that there may be a need for several types of instruments to cover the different aspects. We, therefore, want to try out whether a combination of different measuring instruments can show us how marketing communication is experienced and if sustainability arguments used in marketing evoke emotions in professional buyers, and if so, are they positive or negative?

## The Taste of Organic Certification: Construction of Coffee Quality by Specialty Coffee Stakeholders and Consumers

Margarita Yelisseyeva<sup>1</sup>, Jiří Zelený<sup>2</sup>, Michal Lošťák<sup>3</sup>

<sup>1</sup>Masaryk University, Brno, Czech Republic. <sup>2</sup>University College Prague, Prague, Czech Republic. <sup>3</sup>Czech University of Life Sciences, Prague, Czech Republic

### Abstract

#### Purpose of the Research

This study aimed to explore the role of organic certification in the construction of coffee quality by selected specialty coffee agents. It examined specialty coffee stakeholders such as roasters, importers, and consumers using qualitative research methodology, particularly in-depth semi-structured interviews.

#### Background/Motivation/Support

Like other food sectors, the coffee sector has also developed an environmentally conscious side to it (Samoggia & Riedel, 2018). The commodity coffee market is dominated by third-party certification programs, most commonly organic (Raynolds et al., 2007; Slob & Oldenziel, 2003). A plethora of studies on attitudes toward organic certification in the commodity coffee market shows that it is well-received by producers (Bravo-Monroy et al., 2016) and consumers (Smith & Paladino, 2010; Yadav & Pathak, 2016; Magnusson et al., 2003). As a response to the declining quality of coffee (Traore et al., 2018) a niche in coffee market emerged – specialty coffee. Concerning itself overall well-being of every actor in the supply chain, specialty coffee emphasizes the quality of the beans (Specialty Coffee Association of America, 2009; Rhinehart, 2009), seeing a severe development in recent years (Tolessa et al., 2016; Sepúlveda, 2016; Ufer et al., 2019).

#### Methodology

This paper considers the collision of two certifications of coffee – organic and specialty. In order to do so, we adopt a socially constructed understanding of ‘quality.’ The sample consists of 30 agents: 8 roasters, 2 importers, and 20 consumers. A qualitative research methodology was performed, particularly in-depth semi-structured interviews using the grounded theory method. For the evaluation, coding of the data and seeking repeating patterns were used. In this stage, ATLAS.ti was also used to confirm the created categories. Interpretation synthesis and creation of ideal types of stakeholders and consumers followed.

#### Findings and Conclusions

The attitudes of specialty coffee stakeholders towards organic certification stem from their size. Smaller businesses expressed disinterest and reported no demand for organic certification, while larger businesses welcomed organically certified coffee as a marketing tool. Both types of stakeholders, however, admit existing risks in cooperation with organic farms, the major ones being the general vulnerability of organic farms, which leads to yield loss, and uncertainty that stems from differing standards of certifications. However, stakeholders did not avoid organic practices but did not trust organic certification. Concerning stakeholders’ perception of organic coffee in connection with “uniqueness” or “taste,” results showed that roasters see organic certification as a secondary aspect.

The taste is the primary aspect roasters identify as their priority through specialty coffee certification.

Consumers have shown awareness of what organic certification implies yet reported that they do not seek organic certification on specialty coffee. Even the consumers considered taste connected with specialty coffee certification, not organic certification. When looking at specialty coffee consumers that do not trust the organic certification, they could be divided into three ideal types: (i) type avoiding organic certification at any cost but preferring organic practices as this type is driven by mistrust connected with organic certification (which also applies to other food products); (ii) type avoiding organic certification at any cost and not preferring organic practices as this type is against the green environmental shift; (iii) type avoiding organic certification and practices for coffee only, but not for other foods.

Study novelty is based on the coverage of the research gap in the fast-growing sector of specialty coffee, in particular specialty coffee stakeholders/consumers, and their attitudes towards organic certification and practices. The research was done on the Czech market, which belongs to the top 15 countries with the highest consumption of coffee per capita.

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#### Note

All research participants signed informed consent and were informed about the purpose of the research and its anonymity.

## **Factors Influencing Consumption Behaviour towards Aquatic Food among Asian Consumers: A Systematic Scoping Review**

Mausam Budhathoki

University of Stirling, Stirling, United Kingdom

### **Abstract**

Asia accounts for over 70% of total global aquatic food consumption, but aquatic food consumption behaviours and attitudes among Asian consumers are poorly documented and understood. This paper synthesises literature on factors influencing aquatic food consumption behaviour in Asia and the potential to support transitions toward more sustainable food consumption patterns. We identified 113 studies for inclusion in a scoping review, and identified five clusters of publications: (1) product attributes, availability, and accessibility (24% of publications); (2) willingness to pay for aquatic foods (25%); (3) psychosocial factors (e.g., attitudes and subjective norms) (17%); (4) sociodemographic and lifestyle factors (21%); and (5) miscellaneous factors, including food safety and social status (13%). This study indicates that multiple interacting factors influence aquatic food consumption behaviours among Asian consumers, among which price is central. Knowledge of, and attitudes toward, the perceived quality and safety of aquatic foods were identified as important but were mediated by household characteristics. Sustainable production practices, country of origin, and ecolabels were found to be less influential on consumption behaviour. We found that improving consumers' knowledge and attitudes about the quality and safety of aquatic foods might positively influence aquatic food consumption behaviour. Future multidisciplinary research is required to better understand interactions among the multiple factors that influence Asian consumers' aquatic food consumption behaviour.

## Consumer values and self-identity as a basis for identifying segments of consumers of seaweed in the UK

Florent Govaerts<sup>1</sup>, Svein Ottar Olsen<sup>2</sup>

<sup>1</sup>Nofima, Tromsø, Norway. <sup>2</sup>University of Tromsø, Tromsø, Norway

### Abstract

Seaweed is a natural source of nutrients such as antioxidants, minerals, proteins, vitamins, and omega-3 fatty acids. Seaweed culture is also sustainable as it does not require fertilizers, heating, or watering (Pereira, 2016). In the context of increasing demand from consumers for environmental and healthy food sources, the food industry has shown renewed interest in using seaweed in food products (Birch, Skallerud, & Paul, 2019; Vincent, Stanley, & Ring, 2020). In the literature, only a few studies have focused on seaweed consumers and the variables influencing seaweed consumption (Birch et al., 2019; Govaerts & Olsen, 2022; Palmieri & Forleo, 2022).

This study aims to contribute to the existing seaweed literature by describing consumers based on their shared and distinct individual characteristics to determine the optimal number of subgroups within a population. Hence, instead of studying the effect of determining variables on behavior, this study aimed to understand seaweed consumers' underlying motivational drivers and consequences (e.g., consumption).

Thus, this study identifies segments based on the importance of consumer values and self-identity. To our knowledge, no study has combined values and self-identity to segment consumers in the context of (sea)food or seaweed. Moreover, we focus on the relationship between the identified consumer segments and their knowledge, attitudes, norms, intentions, socio-demographic characteristics, and consumption of seaweed food products. These constructs have previously been used in consumer studies of seaweed (Birch et al., 2019; Govaerts & Olsen, 2022, 2023; Palmieri & Forleo, 2020, 2022; Wendin & Undeland, 2020).

Finally, this study is the first to focus on seaweed consumer behavior in the United Kingdom (UK).

Data were collected in 2022 through a consumer survey with a representative sample from the United Kingdom (n = 1110). A hierarchical cluster analysis is based on Ward's method to identify the appropriate number of clusters. One-way analysis of variance (ANOVA) is performed to compare differences between clusters in terms of the segmentation variables (identity and values) and profiling variables (i.e., attitude, intention, personal norms, knowledge, and consumption).

The results provide new insights into individual differences in segments of seaweed consumers in the UK. Based on theoretical constructs from value theory (Schwartz, 1992) and self-identity theory (Stryker & Burke, 2000), we demonstrate that consumers could be divided into meaningful groups: progressive, conservative, and egoistic consumers.

This shows that consumers' knowledge, attitudes, personal norms, and intention/behavior towards seaweed vary depending on the group to which they belong. Progressive consumers undoubtedly have the best knowledge about seaweed and feel the most morally responsible for eating seaweed food products. In addition, they have the most positive attitudes and the highest intention to consume seaweed food products. This group is younger, more educated, and characterized by a higher self-identification of being food innovative and having a healthy lifestyle. These consumers also place great value on the environment and their own pleasure.

Finally, these insights are of great importance to the emerging seaweed food sector. By providing a better understanding of market segments, marketers can use their limited resources more efficiently, by

focusing on consumers who are more likely to eat seaweed in the future.

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## Having Less but Wasting More? The Counterintuitive Effect of Scarcity on Food Waste

Rhiannon Mesler<sup>1</sup>, Bonnie Simpson<sup>2</sup>, Katherine White<sup>3</sup>

<sup>1</sup>University of Lethbridge, Lethbridge, Canada. <sup>2</sup>Western University, London, Canada. <sup>3</sup>University of British Columbia, Vancouver, Canada

### Abstract

Estimates show that over 40 million Americans are food insecure (Feeding America, 2019). The need is thus high to explore the food waste paradox, wherein world-wide need for nutritious food is high, yet enough food to feed all goes to waste (Porpino et al, 2015). We propose that subjective scarcity negatively impacts one's ability to make accurate future-oriented choices, and the result is greater waste. And the literature remains clear that there is a very limited understanding of underlying psychological antecedents of consumer-driven food waste (Block et al., 2016; Ghafoorifard, Mesler, & Basil, 2021; Reisch et al., 2021), making this research particularly novel. In addition, while extensive literature identifies impacts of scarcity on present consumption choices, it has not considered how an individual's current experience of subjective scarcity might impact choices that apply to the future.

Individuals can experience scarcity through objective (e.g., low in a resource, such as money) or subjective (e.g., feeling as if one does not have enough of a resource; Cannon, Goldsmith, & Roux, 2019) means. Each has been demonstrated to influence physiological and psychological outcomes with consumption consequences (for a review see Cannon et al., 2019). One intuitive prediction is that individuals who have fewer resources would be inclined to waste less. For instance, Ghafoorifard et al., (2021) find that objective scarcity (economic hardship) predicts decreased food waste. Similarly, others have noted a positive relationship between income and food waste (Soma, 2020; Szabó-Bódi, Kasza, & Szakos 2018). While these findings could be an indication that individuals experiencing scarcity would be inclined to waste less, it is critical to note that they examine objective, rather than subjective, experiences of scarcity.

Objective experiences of scarcity can lead to the development of different outcome expectancies than subjective experiences (Cannon et al., 2019). In other words, while individuals experiencing objective scarcity may adapt and develop strategies to waste less, circumstances of subjective scarcity often do not provide the same opportunity. Thus, we might expect objective and subjective experiences of scarcity to result in different outcomes. In addition, decision-making in the food domain is often subject to future-oriented choice (Read & van Leeuwen, 1998), wherein an individual's current state impacts choices that apply to the future. In sum, while objective, socio-economic factors have been studied with respect to food waste, there has been no look at what consequences subjective scarcity might have for future-oriented choices in this important context.

We theorize that because a subjective experience of scarcity leaves individuals feeling hyper-focused on the present (Shah et al, 2012), it will impact the accuracy of choices that apply to the future, and thereby lead to greater food waste. Across four studies (2 experimental, 2 correlational) we test this premise. A summary of descriptive statistics is available in Table 1.

Study 1 examines actual food waste behaviors from a conference over two days. Each of the two days a buffet of the same foods was set up for participants to select breakfast items and proceed into a room to eat their food. On Day 1, no scarcity prime was present, while on day 2, a scarcity prime was presented on a large poster board advertising "limited spaces available!" (adapted from Kristofferson et al, 2017) for a set of unrelated activities. All waste left on plates was weighed and attendance was taken on both days to ensure waste was assessed on a per-person basis (N=84). As predicted, when a subjective scarcity prime was present, food waste was greater than when there was no prime ( $p < .001$ ).

Study 2 examines real food behaviors in a lab setting. Undergraduate participants (N=124) were randomly assigned to complete a scarcity (vs. abundance) prime (MacDonnell & White, 2015) and then instructed to select as many snacks from a buffet (initial weight measured) as they would like before continuing (e.g., make a future-oriented choice regarding how much they expected to eat), and then to eat them at the desk as they wished throughout the study. Participants then completed a series of filler items and tasks to provide time to consume the snacks; following which waste was collected and weighed at the end of the session. As predicted, subjective scarcity indirectly impacts food waste through accurate future-oriented choice (amount of food taken;  $b=3.87$ , 95% CI: .630 to 7.56).

Study 3 is a correlational behavioral study examining the context of grocery shopping. American participants (N=2503) were asked to complete: a 6-item measure of subjective scarcity (Roux, Goldsmith, & Bonezzi, 2015;  $\alpha = .80$ ); a 3-item measure of future-oriented choice accuracy (e.g., During my most recent shopping trip I had a clear idea of what my household would want to eat in the future;  $\alpha = .76$ ); a 9-item measure of food waste behaviours (e.g., "Throwing away more leftovers than usual" and "Throwing away spoiled produce (e.g., fresh fruits or veggies)" in the previous week;  $\alpha = .80$ ); and demographic information. Subjective scarcity predicted greater food waste indirectly through future-oriented choice accuracy ( $b=.0061$ , 95% CI: .0005 to .0121).

Study 4 is a correlational behavioral study examining actual self-reported food waste. Canadian and American participants (N=1500) were asked to complete: a 6-item measure of subjective scarcity (Roux et al., 2015;  $\alpha = .83$ ); a 5-item measure future-oriented choice accuracy (e.g., During my most recent shopping trip I had a clear idea of what my household would want to eat in the future;  $\alpha = .92$ ); a detailed and validated self-report measure of actual household food waste (Van Herpen et al., 2019); and demographic information. As predicted, subjective scarcity predicts greater food waste through future-oriented choice accuracy ( $b=4.06$ , 95% CI: .141 to 9.288).

This research provides evidence that individuals experiencing subjective scarcity (vs. not) are more likely to create food waste. They provide the first examination of subjective (rather than objective) scarcity in food waste. They also add to the understanding of mechanisms via future-oriented choice accuracy. This research thus contributes to an understanding of food waste using multiple methods, substantive dependent variables, and a strong theoretical foundation.

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