

Target groups for fish from aquaculture: Consumer segmentation based on sustainability attributes and country of origin



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ABSTRACT

Sustainable food products have become significantly more important over the last decades. One example is the constant growth in the market for organic food. However, market shares for sustainable aquaculture products remain small. Parallel to emerging markets for sustainable foods, consumers' interest in the geographical origin, in particular domestic and local food production evolved. The aim of this paper was to elicit target groups for fish from sustainable aquaculture and their preferences for different countries of origin. Choice experiments and structured interviews were conducted with 447 German consumers of fish to analyze heterogeneous consumer groups. The results of latent class modelling yielded five target groups. One consumer segment (19%) was predominantly considering sustainability labels and claims on production criteria, i.e. 'production in natural ponds' and 'sustainably produced'. The largest consumer segment (39%) placed highest importance on the COO while sustainability labels and claims had a positive but much weaker impact. Yet, another consumer segment (20%) gave the country of origin priority over all other attributes. Two more classes based their choice primarily on price, with one class preferring premium prices and the other class low prices. Marketers of sustainable aquaculture products are advised to source products from countries of origin that consumers prefer, and prominently declare the country of origin. For reaching new target groups, certified sustainable producers should not only rely on their label. It is recommended to focus on production criteria of consumer interest, for example the production in natural ponds, and state these on the product package.

1. Introduction

During the past years, more and more food products with special characteristics of sustainable or ethical production methods became increasingly important to consumers. Prominent examples are organic food, fair traded food, products with carbon footprint labels, or products with higher animal welfare standards. In many countries, fish from certified sustainable aquaculture is a relatively new market segment. Fish from aquaculture represents an alternative to fish from wild fisheries and its associated problems of decreasing natural fish stocks. In recent decades, aquaculture production has strongly increased; nowadays half of the seafood consumed comes from aquaculture (FAO, 2016; Fry et al., 2016). However, even aquaculture production causes environmental problems such as eutrophication (Edwards, 2015) and emission of substances like hormones, antibiotics and biocides (Bergleiter and Meisch, 2015). To minimize unfavourable effects of aquaculture, certified standards for sustainable procedures were introduced (Bergleiter and Meisch, 2015). Examples are certified organic aquaculture and the standards defined by the Aquaculture Stewardship

Council (ASC) as the counterparts to the standards for wild fisheries by the Marine Stewardship Council (MSC).

Parallel to the development of markets for sustainable food products, the geographical origin of food became more important to consumers. Consumer preferences for country of origin (COO) have been studied in manifold contexts (Balcombe et al., 2016; Dobrenova et al., 2015). Nonetheless, generalizable knowledge about consumers' preferred COOs in regard to food remains insufficient and seems to differ by food product type (Hempel and Hamm, 2016).

Previous studies on consumer preferences for different food attributes analyzing both, COO and sustainable production, unanimously revealed that COO has, on average, a larger effect on consumer preferences than sustainable production (e.g. García-Torres et al., 2016; Hempel and Hamm, 2016; Pouta et al., 2010). However, these findings refer to mean values across the sample population without differentiating between different consumer segments. According to the literature, many sustainable food products are bought less often by mainstream consumers but primarily by a rather small group of consumers with distinct preferences and attitudes (Scarpa and Thiene,

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2011; Verain et al., 2016; Vanhonacker et al., 2013; Langen, 2011; De Jonge et al., 2015; Liljenstolpe, 2011). For producers and marketers of sustainable food products, the question is which role does COO play for consumers interested in sustainable production. COO may be an important product attribute to target a wider range of consumers and to differentiate markets for sustainable food products. However, it is also possible that some consumer segments interested in sustainable production place little importance on COO. Hence, the objective of the present paper was to conduct a segmentation of fish consumers to identify target groups for fish from sustainable aquaculture and for different COOs. In the present study, the segmentation was based on consumer preferences for different product attributes, namely COO, sustainability labels, claims on production criteria, and price. This analysis enables marketers to create products tailored to specific target groups. The identification of target groups is particularly relevant in emerging markets for sustainable products – such as the market for fish from aquaculture – to develop recommendations for a successful market penetration of sustainable products.

2. Material and methods

To identify different segments of fish consumers, choice experiments accompanied by structured interviews were conducted with 459 consumers of fish in three German cities. The data were analyzed with the method of latent class modelling. A priori, a qualitative study with think-aloud protocols and in-depth interviews was conducted to explore consumer perceptions of sustainable aquaculture production (Risius et al., 2017). Results of the preceding qualitative study were used for the survey design and model specification of the present quantitative study.

Germany was chosen as a study country for the following reasons. Germany is the largest food market within Europe. At the same time, the average per capita consumption of fish is below the European average, so there is potential for growth. Germany is an interesting market for fish from sustainable aquaculture, since sustainably produced food in general (e.g. organic food, Willer and Lernoud, 2017), and seafood with the MSC label in particular (Marine Stewardship Council, 2016), reach above average market shares compared to other industrialized countries such as the US and Japan.

2.1. Sampling

Data was collected face-to-face with computer-assisted personal

interviews in February and March 2014 after a pre-test with 33 participants. The participants were recruited and interviewed at six supermarkets in three different cities located in the North (Hamburg), the South (Stuttgart), and the East (Leipzig) of Germany. Data collection was spread across the country since fish consumption levels are known to vary with geographical proximity to the coast (Statista, 2018). Interviewers were instructed to approach every second customer who entered the store to rule out a subjective choice of study participants. Two screening questions were used to select study participants: First, the participants had to be at least partly responsible for grocery shopping of their household, and second, they had to buy fish at least occasionally. Respondents who fulfilled the screening criteria were invited to participate in the study and were offered a 5 Euro allowance. Data was collected by professional personnel of a commercial market research institute trained and monitored by the first author of this paper.

2.2. Choice experiments and structured interviews

Choice experiments are a method to analyze consumer preferences for different product attributes (Gao and Schroeder, 2009). In accordance with Lancaster's Consumer Theory (Lancaster, 1966), it is assumed that the utility a consumer derives from a product stems from the attributes the product has. In choice experiments, participants are asked to make a choice out of a set of alternative products with different attributes, which are varying over the different choice sets (Lusk and Schroeder, 2004). Compared to other methods analyzing consumer preferences (e.g. contingent valuation, auctions), choice experiments have the advantage of resembling a real buying situation (Bredert et al., 2006).

In the present study, smoked trout filets were selected as test products since trout is the most common fish held in aquaculture in Germany (Statista, 2015). The procedure of the choice experiments was as follows: The recruited participants were asked to make buying decisions for smoked trout filets. On a laptop screen, they were shown three photographs of real packages of smoked trout among which they could choose (Fig. 1). The three packages looked identical but the information on the label differed with respect to price, COO, sustainability label, and claim about the production system (Table 1).

The labels and claims tested in the choice experiments were selected based on the results of the preceding qualitative study and a market inventory (Risius et al., 2017). Besides the two existing labels for certified sustainable aquaculture in the German market (i.e. the ASC label

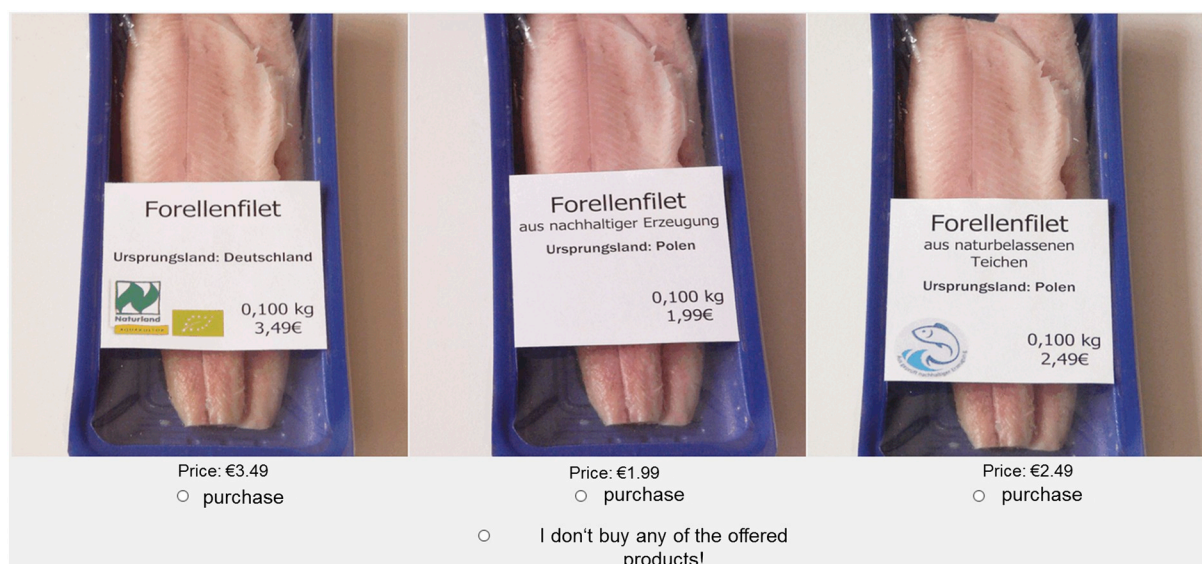


Fig. 1. Visual presentation of a choice set.

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