

# FISH FOR THE FUTURE: WHAT COULD INFLUENCE EUROPEAN CONSUMER CHOICE OF NEW AQUACULTURE PRODUCTS? EVIDENCE FROM AN EXPERIMENTAL STUDY WITH LOW AND MEDIUM PROCESSED PRODUCTS

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## Introduction

Aquaculture fish production (i.e. ‘fish for the future’) has increased over recent decades as well as its utilization in human consumption as a part of nutritious and healthy diet (FAO, 2016). The number of newly launched fish products are also overwhelming the market (Mintel, 2016). Previous research has shown that consumer decision-making and choices regarding fish products in general can be influenced by extrinsic cues such as nutritional labelling, country-of-origin (COO) labelling and responsibly sourced production labelling (Banović et al., 2016; Claret et al., 2012; Olesen et al., 2010). Given the current state surrounding aquaculture industry obtaining reliable estimates of consumer preferences and willingness-to-pay (WTP) for a development and launching of a new fish product is a matter of prime importance. Thus, the main objective of this study is to evaluate the relative importance of above mentioned attributes and WTP to a European consumer in the launching of low and medium processed products.

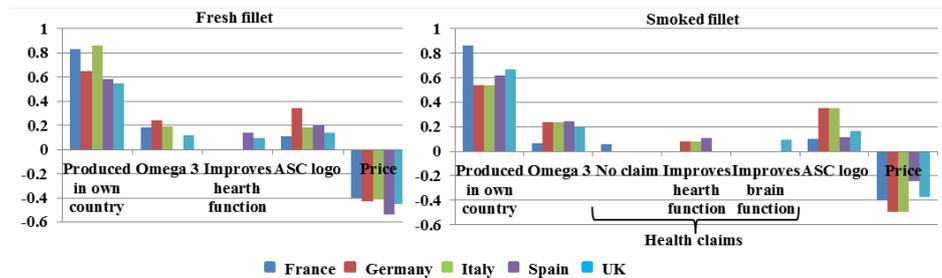
## Materials and methods

A discrete choice experimental approach was used. Five attributes were selected based on availability of claims and logos for both low and medium processed farmed fish product (i.e. fresh fillet; smoked fillet, respectively) and secondary analysis of existing prices for similar products (Mintel, 2016). The selected attributes and corresponding levels used in the choice experiments were as follows: (i) country of origin (COO) - none, produced in the EU, produced in own country; (ii) nutrition claim - none, rich in Omega 3, high in protein; (iii) health claim - none, improves heart function, improves brain function; (iv) Aquaculture Stewardship Council (ASC) logo - none, present, and (v) price – reference price and two premiums (15% and 30% of reference price). Three price levels included were reflecting the range of current market prices for farmed fish (for usual weight of the fish fillet and smoked fillet: EUR/300gr 5.73, 6.59, 7.45 and EUR/300gr 5.13, 6.11, 6.90, respectively) in top five EU fish markets (i.e. France, Germany, Italy, Spain and the UK). These attributes and their levels were subjected to a 2x3x3x3x3 orthogonal design in SAS statistical software to produce 36 experimental product descriptions. The 36 product descriptions were then partitioned into twelve different choice sets with three product descriptions in each, organized in a “visual shelf”. The same procedure was undertaken for both low and medium processed product. Participants were assigned randomly to the low or a medium processed product experimental condition. Participants were then asked 12 times to pick the one of the three described products they would choose.

Five on-line choice experiments were undertaken in each of the study countries. Each choice experiment lasted about 30 min. One hundred participants per investigated product approximately, who consume fish on a regular basis (at least once a month) and are responsible for food shopping in their household, were recruited in each of the participating countries. Age, gender and income were balanced across countries (for both fresh fillet and smoked fillet: mean age = 41.1, range = 20-60 years, 50% male, ~ 65% with average income).

## Results

The discrete choice data were analysed by a conditional logit model. Higher probability of choice for both fresh and smoked fillet was indicated by COO attribute ‘produced in own (domestic) country’ and possessing an ‘ASC logo’, Figure 1. Preferences for nutrition and health claims varied with ‘Omega 3’ being the most attractive claim. Negative price coefficients confirmed preferences for lower over higher prices. Estimated WTPs for different attribute levels were higher for smoked fillet compared to fresh fillet. Higher WTPs were for ‘produced in own (domestic) country’ compared to ‘produced in the EU’ and for ‘Omega 3’ compared to ‘high in protein’ (both in Spain: 2.57EUR/300gr and 1.00EUR/300gr above reference price, respectively).



**Figure 1.** Parameter estimates from conditional logit model: only significant estimates with highest utility per country shown.

## Conclusion

The insights from this study regarding EU consumer reactions to different country of origin (COO), ASC logo and claims are very relevant for aquaculture industry, especially in light of the current campaigns towards healthier food choices and overwhelming amount of new fish products on the market. Use of a COO indication in general, and produced in own (domestic) country in particular, stimulates consumer to think more positively about the product besides increasing the probability of its purchase. This could be related to the stronger associations between product quality and COO in fresh and perishable products; where there is a higher perceived risk for health and safety issues. Moreover, aquaculture companies may consider relying more on responsibility logos (e.g. the ASC logo) in their marketing differentiation to signal their customers that their products come from a controlled, certified and responsible aquaculture source. Future use of ASC logo could also depend on the extent to which consumers’ general concern about sustainability of fish sources and responsible aquaculture farming can be turned into actual behaviour.

## References

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