



Cross-Game Learning In Preference Elicitation For An Upcycled Food Product

Abstract

This study investigates consumer willingness to pay (WTP) for an upcycled food product—hazelnut chips made from bio-waste—elicited via experimental auctions. The research design aims in exploring the effect of storytelling as a branding strategy on WTP and consumer purchasing behavior. The experiment is structured into six treatments, incorporating variations in information provision and auction mechanisms. The findings will contribute to understanding consumer preference elicitation and the effectiveness of branding strategies in promoting sustainability in the food industry. Moreover, we examine whether cross-game learning (Giebe et al., 2024) in homegrown value auctions has the potential to mitigate misbidding behavior.

Keywords: upcycled food products, consumer willingness to pay, experimental auctions, storytelling branding, circular economy.

The content of this submission is well-suited for a visual presentation as a digital poster because it involves a structured experimental design with distinct treatments and auction mechanisms that can be effectively illustrated using diagrams, flowcharts, and tables. The study's focus on consumer decision-making, cross-game learning, and storytelling is ideal for engaging visual representations, such as infographics that highlight key behavioral insights and comparative WTP results. Additionally, the integration of branding strategies and sustainable food innovation can be visually enhanced with icons, images, and storytelling elements, making the presentation more intuitive and impactful for the audience.

Problem statement

The global food industry is increasingly emphasizing sustainability, with upcycled food products gaining attention as a means to reduce waste and enhance resource efficiency. However, storytelling, may enhance consumer perception and increase market acceptance. This study aims to experimentally examine how different levels of information and branding influence consumer WTP for an upcycled product—hazelnut chips derived from bio-waste. By integrating experimental auction methodologies, this study seeks to generate empirical evidence on how consumers value sustainability attributes and whether storytelling improves product desirability.

Research questions and objectives

This study examines how auction formats, branding through storytelling, and incentive structures influence consumer willingness to pay (WTP) for upcycled food products. Additionally, it investigates whether cross-game learning mitigates misbidding behavior in homegrown value auctions. By employing a controlled experimental design, this research contributes to the literature on auction-based preference elicitation (Canavari et al., 2019) and the market potential of upcycled foods. It provides empirical insights into how consumers value sustainability attributes and whether branding strategies such as storytelling enhance market acceptance. The findings offer practical implications for producers and policymakers aiming to promote circular economy solutions and improve demand for upcycled food products.

Methods - Experimental Design

Within-subjects, all participants go through **three auction rounds**, with the **third round always including tasting** before bidding for the product.

Between-subjects, we vary two key factors:

1. **Auction format in Round 1:** Some subjects begin with a **Second Price Auction (SPA)**, while others start with a **First Price Auction (FPA)** to facilitate cross-game learning (**Treatment 2 vs. Treatment 3**).
2. **Storytelling in Round 2:** Within each of **Treatments 1, 2, and 3**, we also vary whether subjects receive **storytelling information about the product** before bidding in Round 2.

Additionally, we include a **control treatment (Treatment 1)**, which mirrors Treatment 2 but uses **hypothetical incentives** instead of real monetary incentives.

This design allows us to examine **how the auction format influences bidding behavior, whether storytelling affects WTP, and how hypothetical vs. real incentives impact decision-making.**

Treatment	Auction Round 1	Auction Round 2	Auction Round 3
1. Hypothetical SPA	Hypothetical SPA	Hypothetical SPA	Hypothetical SPA + tasting
	Hypothetical SPA	Hypothetical SPA + storytelling	Hypothetical SPA + tasting
2. Real SPA	Real SPA	Real SPA	Real SPA + tasting
	Real SPA	Real SPA + storytelling	Real SPA + tasting
3. FPA + Real SPA	Real FPA	Real SPA	Real SPA + tasting
	Real FPA	Real SPA + storytelling	Real SPA + tasting

Participants will be randomly assigned to one of the six treatment groups. In half of the treatments, consumers will bid on the product without additional information. In the remaining three treatments, participants will receive a storytelling-based branding narrative in Round 2, highlighting the sustainable and ethical aspects of the upcycled product. The experimental process will include a pre-auction questionnaire to assess participants' prior knowledge and perceptions of sustainability, followed by bidding rounds and a post-auction survey to capture attitudinal shifts. Regression analysis will be employed to examine variations in WTP across treatments and auction mechanisms, particularly comparing results of cross-game learning against the benchmark treatment.

Data

This study will collect primary data through an experimental auction with university students, measuring their willingness to pay (WTP) for upcycled food products. Participants will be randomly assigned to six treatment groups, varying in auction format for the first Round (First Price vs. Second Price auction), incentive type (real vs. hypothetical), and branding strategy (with or without storytelling).

Data will include bids across auction rounds, shifts in WTP after product tasting, and responses to storytelling interventions, along with demographics, prior sustainability awareness, and attitudinal changes captured through pre- and post-auction surveys. Regression analysis will examine how auction mechanisms, incentives, and branding influence WTP, with a focus on cross-game learning and misbidding. Findings will provide insights into consumer acceptance of upcycled food and the role of branding in sustainable consumption.

References

- Giebe, Thomas, Radosveta Ivanova-Stenzel, Martin G. Kocher, and Simeon Schudy. (2024) Cross-Game Learning and Cognitive Ability in Auctions. *Experimental Economics* 27: 80–108.
- Canavari, Maurizio, Drichoutis, Andreas C., Lusk, Jayson L. and Nayga, Rodolfo M. Jr. (2019) How to run an experimental auction: a review of recent advances, *European Review of Agricultural Economics*, 46(5): 862–922