

# PREFERENCES TOWARDS SUSTAINABLE E-COMMERCE PACKAGING AMONG AUSTRIAN CONSUMERS

Manuela Brandner<sup>\*a</sup>, Sarah Pfoser<sup>b</sup>, Maria Niedermeier<sup>b</sup>,  
Tanja Mosor<sup>b</sup>, Patrick Brandtner<sup>b</sup> and Oliver Schauer<sup>b</sup>

<sup>a</sup> *University of Applied Sciences Upper Austria, Steyr, Austria*

<sup>b</sup> *University of Applied Sciences Upper Austria, Steyr, Austria*

*\* Corresponding Author: Manuela Brandner, Manuela.Brandner@fh-steyr.at*

**Abstract.** With the growth of e-commerce and the steadily increasing volume of parcels, requirements for a sustainable transport packaging are gaining in importance. Furthermore, consumers demand sustainable actions by companies. To investigate the relevance of a sustainable transport packaging and the way sustainability efforts can be best communicated, an online survey was conducted with 1,017 participants in Austria. The results show consumers' expectations towards a sustainable transport packaging and provides recommendations for companies in communication sustainability to their consumers.

**Keywords:** sustainability, transport packaging, transport, logistics

## 1 INTRODUCTION

Online retail is currently booming, not at least due to the global COVID-19 pandemic. At the same time, the number of parcel shipments being delivered has increased in Austria. While the volume of parcels delivered in quarter 4/2019 was EUR 61,8 million, it increased by 34,4% to EUR 83.1 million in 2020 compared with the same quarter of the previous year [1].

Thus, e-commerce retailers are facing new requirements. Not only reasons such as sustainability and economic efficiency are important drivers for the use of sustainable packaging solutions, but consumers demand more green alternatives. According to the trend research by Mondi in 2020, 80% of the people surveyed desire a sustainable transport packaging and 57% show willingness to pay more for it [2]. In addition, a study by PwC points out sustainable processes as a decisive criterion for future customer acquisitions [3].

It is still uncertain to what extent consumers are willing to accept constraints for the sustainability of their delivery. These restrictions include not only additional effort in handling the packaging, but also possible surcharges for sustainable packaging solutions. To ensure that companies do not suffer any economic losses because of sustainable measures, the willingness of consumers, specifically regarding sustainable transport packaging, must be analyzed in detail. Only when consumers start to rethink and adapt their demands, the economy will act in a truly sustainable way.

The research interest therefore focuses on the following research questions:

**RQ1:** Which attributes determine consumers' preferences for sustainable packaging?

**RQ2:** How is the best way to communicate the company's sustainability efforts to the consumers?

## **2 METHODS**

After a brief literature review an online survey has been carried out among the Austrian population in May 2021. The questionnaire consists of 6 question blocks: a conjoint analysis, purchasing habits and sustainability behavior, significance of sustainability, packaging and sustainability, reusable packaging, and demographic data. The final sample size after subtracting the non-usable results was 1,017 respondents, who have already purchased online. To obtain a representative survey, 600 responses were needed, based on 56% of the Austrian population shopping online [4], a confidence level of 95% and a margin of error of 4%. The questions asked are based on the individual elements of the model of the Theory of Planned Behavior [5]. This model attempts to explain the interplay of the way to the willingness of paying more for a sustainable product or service [6].

In the conjoint analysis, various products or product packages were compared to competing products and the preferences were determined as a result. The preference represents the benefit expected from the product for the consumer and thus the probability that the consumer will decide in favor of the product. A special variant of the conjoint analysis is the choice-based conjoint analysis (CBC) [7]. In this variant, the respondents are asked to select the option that seems most suitable for them from a set of alternatives.

The demographic and socioeconomic data indicate that 50% of the respondents are female and 50% male. One quarter of the surveyed are between 50-59 years, followed by the age group from 18 to 29 and 30 to 39. 60% of the participants comes from Vienna, Lower and Upper Austria. Nearly two-thirds of the respondents (66%) live in a place with less than 5,000 or more than 100,000 inhabitants.

## **3 RESULTS**

The conjoint analysis indicates that the price of sustainable packaging plays a decisive role in the intention to use sustainable packaging. A further high value is assigned to the material of the packaging. The usage system is least relevant to the respondents' purchase decision. The preference value for an option decrease with increasing price.

A presentation of the utility values for the respective prices shows that the maximum willingness to pay for a sustainable package is EUR 0.99.

At a price higher than EUR 0.99, more than 75% opt against this option. Regarding the material, it is shown that the higher the utility value, the higher the preference for the respective material is. High utility values are attributed to cardboard and grass cardboard. Table 1 shows the correlation between price and usage system. The willingness to pay for reusable systems is higher than for disposable systems with a decreasing price of packaging.

*Table 1. Correlation between price and usage system (by the author)*

	<b>free of charge</b>	<b>EUR 0.49</b>	<b>EUR 0.99</b>	<b>EUR 1.99</b>	<b>EUR 2.99</b>
<b>Disposable</b>	11.24328301	-2.272290158	-2.587822816	-3.393709907	-4.003947311
<b>Reusable</b>	1.177973623	0.699528285	0.302540892	-0.244147654	-0.921407964

In a further step, a simulation was created that represents the acceptance of packaging. Three groups were identified based on their decision-making behavior. One group chooses based on the price, whereas another group selects only plastic-free options. The third group chooses mainly reusable solutions.

Various scenarios were also queried within the conjoint analysis. In the case of a free option for all packaging, the grass cardboard was favored. A free sustainable option is preferred to pay for disposable packaging. This leads to the hypothesis that a higher price for less sustainable products can lead to a change in behavior.

In the 3rd scenario, the disposable plastic bag as well as the grass cardboard were offered free of charge and reusable systems at a price of EUR 0.99. Here it can be seen that 56% opt for the grass cardboard and 25% for the disposable plastic bag. As many as 19% choose the reusable plastic bag, which must be paid for. Approximately one third of the respondents would like to see packaging made from sustainable materials, while ensuring the protection of the product. The design as well as the used transportation vehicle plays a minor role in online shopping. It was found out that 72% of the consumers expect information on the environmental protection measures and sustainability performance of the companies. Consumers want to be informed about the recyclability, the material used as well as the transport distance during the online shopping or on the product or packaging. Labels such as the energy-efficiency label used for electronic appliances, followed by recycling codes, are preferred. Credibility about a sustainable product is perceived based on a seal of approval for eco-labels. Consumers are annoyed by the greenwashing of some companies, so confirmation from a neutral organization such as WWF or Greenpeace is crucial for half of those surveyed.

Grass cardboard was chosen as the most sustainable packaging solution, followed by glass and packaging made from mushrooms. Plastic was perceived as the least sustainable.

In general, 56% of respondents have positive feelings towards reusable packaging and 60% show willingness to spend more on a sustainable option. However, when switching to a reusable solution, consideration must be given to consumer concerns such as an easy handling and return.

#### 4 CONCLUSION

The research investigates the preferences towards sustainable e-commerce packaging among Austrian consumers. After a brief literature review an online survey was conducted with 1.017 participants from Austria.

Regarding **RQ1** the price turns out to be the most important criterion for the consumers deciding a transport packaging in online retailing, followed by the material of the packaging. This shows that pricing is a key instrument in guiding the purchasing behavior of recipients. Price-sensitive consumers choose the lower-priced packaging in purchase situations.

Indeed, 30% of the consumers are ready to pay up to EUR 0.99 for plastic-free packaging. While another group, comprising 24% of respondents, proves to be less price sensitive and are prepared to pay up to EUR 0.99 for reusable packaging, cardboard, or grass cardboard. This suggests that consumers are willing to pay a maximum of EUR 0,99 for a transport packaging. Consumers do not focus on the transportation vehicle used. Although materials such as grass cardboard and packaging made from mushrooms are considered more sustainable than wood-based cardboard. Glass is also seen to be a very sustainable raw material by the respondents, but they did not differentiate between disposable and reusable glass.

To answer the **RQ2**, it is important to know that some consumers feel a very strong frustration regarding greenwashing and credibility of sustainability-related information from online retailers. However, there is an interest in sustainability-related packaging information. They especially desire information concerning the material used and its recyclability. According to this, if a company wants to communicate sustainability, several important aspects should be considered. A transparent and honest presentation of the facts increases the credibility and trust of the consumers. There shouldn't only be emphasized the positive points, but also the company's objectives to improve. Furthermore, the information on sustainability should be structured in a way that matches the consumer's personal life experiences and interests. An objective approach also contributes to the credibility of the information; it should not sound like advertising, but rather like objective information. Sustainability information inspires the most trust when it is certified by an external organization. Recommendations for action can also be derived from the online survey - especially impressions of certain package options were queried, as well as the perception of sustainability messages.

The respondents are particularly interested in the labeling of the eco-friendliness - the options of a rating scale and seals of quality are well accepted. The preferred communication channels regarding information are the retailer's online store or on the packaging itself. However, the seals mainly paid attention to, are the energy efficiency classes of electrical appliances - the blue angel is the least known and noticed.

## 5 ACKNOWLEDGEMENT

This research is funded by the State of Upper Austria (Land Oberösterreich), through the Excellence Network Logistikum.Retail.

## 6 REFERENCES

- [1] Rundfunk und Telekom Regulierungs-GmbH, „RTR Post Monitor Jahresbericht 2019/2020“, URL: [https://www.rtr.at/TKP/aktuelles/publikationen/publikationen/m/pm/RTRPostMonitor\\_Jahresbericht\\_2020.pdf](https://www.rtr.at/TKP/aktuelles/publikationen/publikationen/m/pm/RTRPostMonitor_Jahresbericht_2020.pdf), last access: 31.01.2022
- [2] PwC, „Verpackungen im Fokus: Die Rolle von Circular Economy auf dem Weg zu mehr Nachhaltigkeit“, URL: <https://www.pwc.de/de/handel-und-konsumguter/pwc-studie-verpackungen-im-fokus-februar-2018-final.pdf>, last access: 10.04.2022
- [3] G. Bovensiepen, H. Fink, S. Rumpff and S. Raimund, „Verpackungen im Fokus: Die Rolle von Circular Economy auf dem Weg zu mehr Nachhaltigkeit“, URL: <https://www.pwc.de/de/handel-und-konsumguter/pwc-studie-verpackungen-im-fokus-februar-2018-final.pdf>, last access: 31.01.2022
- [4] Statistik Austria, „E-Commerce in Österreich“, URL: <https://de.statista.com/themen/2875/e-commerce-in-oesterreich/#dossierKeyfigures>, last access: 10.04.2022
- [5] M. J. Ryan and E. H. Bonfield, „The Fishbein Extended Model and Consumer Behavior“ in *Journal of Consumer Research*, vol. 2, issue 2, 1975, pp 118–136, doi: <https://doi.org/10.1086/208623>
- [6] R. Mostaghel and K. Chirumalla, „Role of consumers in circular business models“ in *Journal of Business Research*, vol. 127, pp. 35-44, 2021, doi: <https://doi.org/10.1016/j.jbusres.2020.12.053>
- [7] S. Alriksson and T. Öberg, „Conjoint analysis for environmental evaluation“ in *Environmental Research and Pollution Research*, 15, no.3, pp. 244-257, 2008, doi: <https://doi.org/10.1065/espr2007.12.460>