RETASTE Conference Abstracts
RETASTE-CFW-1274-In-person Oral
Rethymno, September 16-18, 2026
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DOI:10.5281/zenodo.23678443

Behavioural and Spatial Influences on Surplus Food Absorption in Digital Redistribution Platforms

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Abstract

Digital platforms for redistributing surplus food, such as Too Good To Go, are increasingly recognised as practical ways of preventing consumer food waste by reconnecting surplus food with consumers. While much research has examined user motivations and attitudes, less attention has been given to how surplus food is actually absorbed in local contexts, and to the ways in which behavioural and spatial factors shape this process. This ongoing study proposes a data-driven framework to investigate the speed at which surplus food is absorbed in an urban digital marketplace. Efficiency is measured as time-to-sell-out, which is understood as an indicator of how quickly consumers respond to surplus food offerings. Rather than focusing solely on whether surplus food is sold, this approach considers how quickly it is redistributed, offering a more dynamic view of consumer engagement. The research design combines three elements. Firstly, store-level publication patterns are analysed to identify different behavioural profiles in how businesses use the platform (e.g. regular versus irregular release of surplus food). Secondly, the spatial proximity of stores is examined to determine whether behavioural patterns and performance are influenced by local factors such as competition or neighbourhood dynamics. Thirdly, predictive models are developed to assess whether behavioural characteristics and spatial context both contribute to differences in time-to-sell-out. By integrating behavioural analysis with a spatial perspective, this study aims to improve our understanding of how digital platforms operate as tools for preventing consumer food waste in real urban settings. The framework aims to inform the design of more context-sensitive interventions, such as targeted awareness campaigns, location-specific incentives, or personalised recommendations for businesses. The ongoing work involves collecting data and developing models across selected urban areas. This study contributes to the wider debate about how digital innovations can encourage behavioural change and improve the effectiveness of initiatives aimed at preventing consumer food waste.

Keywords: Food waste prevention, Surplus food redistribution, Behavioural patterns

Acknowledgments: This work has been supported by the European Union under the Next Generation EU, through a grant of the Portuguese Republic’s Recovery and Resilience Plan (PRR) Partnership Agreement, within the scope of the project CircularTech.