Consumer Adoption of Online Grocery Shopping: Findings from a Case Study in Cyprus

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Abstract

Consumer adoption of online grocery shopping has been gradually increasing over the past two decades. This article examines the factors that influence adoption of online grocery shopping in relation to the socio-economic characteristics of the typical adopter profile in Cyprus. Using data from 302 respondents of an online questionnaire, a representative of the demographics of Cyprus, it was found that 45,7% have purchased groceries online. Age and family income are key drivers of online grocery shopping. These findings can support marketers and policymakers in enhancing the knowledge of this emerging online market.

Keywords

Online grocery shopping, consumer adoption, consumer profiling

1. Introduction

Technological advancement has become an indispensable part of life. According to recent reports [1], globally 4,95 billion people use the internet, that's the equivalent of 62,5% of the world's total population. Moreover, there are 7,4 billion mobile-phone subscription [2], hence one might describe today's consumers as more "connected" than ever before. On average, people spend almost 7 hours daily using the internet, and the majority, 92,1% of the users access the internet using their mobile phones [1].

Information technology has changed the way people communicate, socialize, learn, and consequently even how they do shopping. The global food & grocery retail market was valued approximately at USD 12.29 trillion in 2020, and is projected to be worth USD 17.29 trillion by 2027 [3]. In a survey of 30,000 respondents from 63 countries, carried out in 2016 by the Nielsen Group, showed that 24% have purchased groceries online, specifically packaged grocery food, and 21% have purchased fresh groceries [2].

Online grocery shopping (OGS) is an alternative way of buying food and other household necessities using a web-based shopping service, instead of the traditional in-store grocery shopping. In a previous study, carried out in Cyprus in 2006, it was found that only 14% of the respondents had purchased groceries online, indicating that Cypriot consumers were quite unfamiliar with OGS [4]. Findings from this survey have shown, however, that 45,7% of the respondents said that they have bought groceries online and in fact 72,6% of them agree that purchasing groceries online is an easy/straightforward process. Hence, Cypriot consumers are now much more familiar with OGS than 15 years ago.

This study started in 2021 (Summer-Autumn), during the Covid-19 pandemic where several measures were in place (since 2020), to limit the spread of the virus (e.g., restriction of free movement). In the context of a pandemic, online grocery shopping can offer interesting benefits to consumers including social distancing, home delivery and time savings. The associated measures introduced in

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Cyprus, and worldwide, caused several severe economic and societal disturbances, leading to an expansion of e-commerce in general, and accelerating its adoption. Subsequently the online grocery retail expanded during the pandemic [5-7].

According to the Cyprus Statistical Service in 2021 Internet access in households reached 93,4% compared to 92,8% in 2020 [8]. This is in accordance with findings in our study, which found that 95% of participants have access to the Internet. The Cyprus Statistical Service also reports that 80% of households have access to a personal computer (desktop, laptop/netbook or tablet) and a computer is found in almost all (95,4%) households with dependent children. Similarly, in 2020 18,8% of all enterprises received orders for goods and services via computer networks compared to 16,4% in 2019 [9]. Furthermore 22,7% of all enterprises stated that due to the Covid-19 pandemic the enterprise started or increased its efforts to sell goods or services via the internet (websites, apps, marketplaces). Specifically, one such case is the Foody delivery service where people can order, using their website (http://www.foody.com.cy) or their mobile app, from more than 2100 stores throughout Cyprus. Prior to the Covid-19 pandemic, in 2019 there were only 5 stores on Foody available to order groceries, while today (January 2022) there are almost 100 stores for grocery home delivery [10].

The aim of this article is to investigate consumers' adoption of online grocery shopping, in relation to demographic and household characteristics, presenting the case study of Cyprus. The remainder of this paper is structured as follows. In the next section, a literature review on online grocery shopping and consumer characteristics is provided. Then, the methodological steps, data collection and analysis are described in detail. Next, the results of the study are analyzed with a discussion of the core findings and finally a summary of main results and future work are presented.

2. Literature Review

A bibliographical survey in Scopus for the period 2000 until 2021, resulted in 217 articles related to the query ("online grocery shopping" OR "e-grocery"). The analysis of the search results shows a steady increase in the number of published studies on the subject of OGS, especially since 2016. It is notable however, that after further analysis, out of the 216 articles, only 21 (9,7%) were reporting results about consumer adoption of OGS in Euro-Mediterranean countries (Figure 1). In this sense, this study provides additional, more recent information for the case of Cyprus, but also supplements findings from Euro-Mediterranean countries.

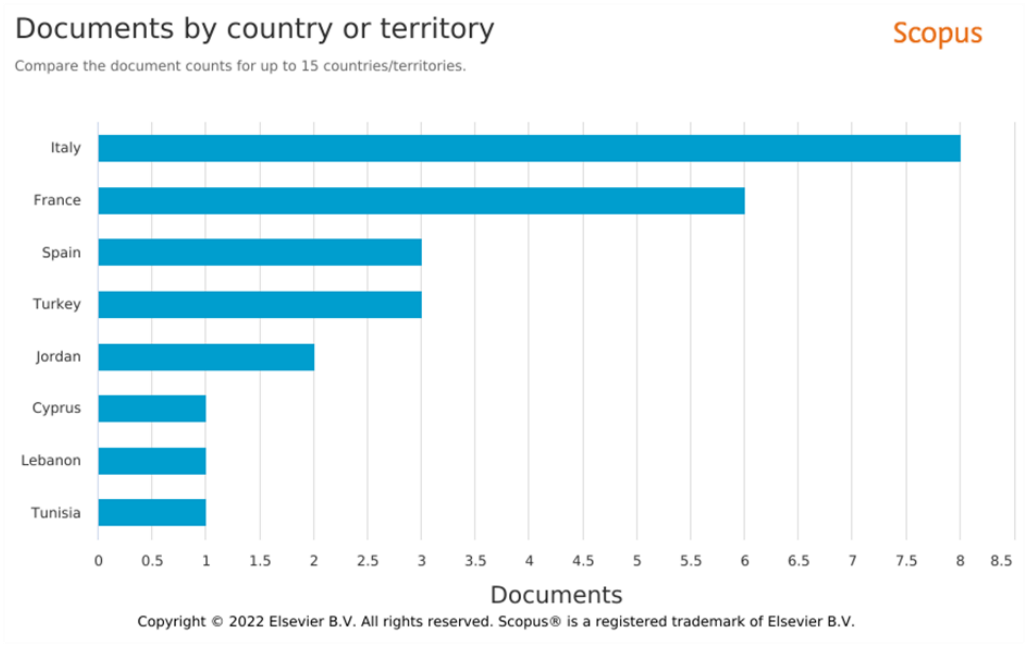

Figure 1: Scopus search results analysis of OGS adoption in Euro-Mediterranean countries.

Etumnu, Foster, Widmar, Lusk and Ortega [11] examined the drivers of online grocery shopping in the United States and explored linkages between consumer demographics and perception. They hypothesized that specific socio-demographics (e.g. age, children in the household) affect the tendency to shop for groceries online, and that consumers who do OGS have favorable perceptions about OGS compared to in-store grocery shopping (e.g. convenience). They concluded that younger people, irrespective of their gender, where they live, and their previous online shopping experience, are more likely to shop online for groceries.

Van Droogenbroeck and Van Hove [12] using logistic regression analysis, they examined the impact of both personal and sociodemographic variables of consumers in Belgium and the effects on the adoption of online grocery shopping. They found that the higher the educational level of the respondents, the more likely were to adopt OGS, while gender was non-significant. They conclude with suggestions that supermarkets should target households with young children and highly educated full-time working parents, as for those groups of consumers the probability to adopt OGS is significantly higher. In addition, supermarkets should focus on providing solutions (e.g. develop websites with a clear layout, sufficient but concise product information, as well as a logical and fast ordering process) for poor-time consumers, because time saving is an important reason for adopting OGS.

Driediger and Bhatiasevi [13] has used the Technology Acceptance Model to identify differences in the acceptance of OGS in the context of developing countries (e.g. Thailand). They found that perceived usefulness is very likely to develop intentions to use OGS. They also found a positive relationship between perceived ease of use and perceived usefulness, meaning that consumers who find OGS easy to use are more likely to perceive it as useful. Furthermore, they found a positive relationship between perceived ease of use and intention to use. In terms of gender, perceived enjoyment and perceived ease of use is higher for females. In terms of perceived usefulness towards intention to use, they found that OGS effectiveness and efficiency are more appealing to the higher income respondents. There was no significant differences between married and single respondents, and likewise, the size of the household did not seem to have any significant differences in their acceptance and behavior.

In a recent study conducted in the Middle East North Africa (MENA) region, including Mediterranean countries such as Egypt, Algeria, Tunisia and Morocco, showed that during the Covid-19 pandemic there was an increase of 33% of online grocery shopping [14]. Likewise, in Lebanon, Hassen, El Bilali, Allahyari and Charbel [15], also found a change in the grocery shopping behavior with a rise in online shopping, as consumers were trying to avoid in-store shopping, however not as much as in the MENA region. This may be explained to country's (Lebanon) weak digital infrastructure, which as noted the Internet infrastructure is sorely inadequate.

In Italy, Dominici, Boncinelli, Gerini and Marone [16] explored the effects of socio-demographics and situational factors that influence individuals' likelihood to buy food online. The results, from respondents who participated in the Italian National Institute of Statistics multipurpose survey "Aspects of Italian Daily Life", indicated that young (age range 35-54), well-educated, female, living in a small family, with good or adequate overall economic condition were more likely to adopt online food purchasing. Another study [17] examined the consumers' preferences for e-grocery in two major cities in Italy (Rome and Milan) in 2018. Results from this study showed that pricing or timing strategies (e.g. reduction in the delivery fees), can steer consumers towards ordering grocery online, preferably having them delivered at home.

Goethals, Leclercq-Vandelannoitte and Tütüncü [18] examined the perceptions of French consumers towards e-grocery retailing. They found no statistical significance between men (16%) and women (18%), however they did find significant evidence (p=.001) depending on consumer's age. Specifically, 32% of consumers age 30-45 years and 20% of those between 45 and 60 years have bought groceries online, while only 10% of consumers age 20-30 and none (0%) of consumers older than 60.

The overview of the literature review shows that even with an increasing number of studies in the area of OGS adoption, there are inconsistencies regarding the online consumer profile.

3. Methodology

This study was based on an online survey in Cyprus using a structured questionnaire, adapted from previous studies [19, 20]. The survey was conducted through a self-administered questionnaire that was

posted online using Google Forms[2] and was administered between July and September 2020, during the Covid-19 pandemic and the related 'stay at home' lockdown and other related measures to prevent infection in Cyprus. The choice of online survey was selected because it is cheap, easy to set up, convenient to the participant (in terms of time and place), and do not require a physical contact between the interviewers and the respondents, that was a concern (and restriction) during the Covid-19 outbreak.

The survey panel consisted of primary household grocery shoppers (i.e. person primarily responsible for most of the grocery shopping in their household) aged 18 and over, living in Cyprus. The sampling method that was used was the stratified random sampling 284 persons (5% margin of error και 95% confidence level). Prior to the survey being administered to the general public, a pretest (pilot study) of 18 respondents was conducted with the goal to increase the validity and reliability of our testimonial survey evidence.

Binary logistic regression was used to predict the probability of the binary yes or no outcome (i.e. "have you ever purchased grocery online?"). The null hypothesis tested is that there is no relationship between the outcome and predictor variables (gender, location, age, educational level, household size, number of children under 18 age living in the same household, marital status, profession and monthly family income) [21, 22]. All statistical analyses were carried out using JASP software [23].

4. Results

Table 1 displays sample averages for several demographic and household variables. The total number of questionnaires collected was 364, with 302 of the respondents indicating that they were the primary household grocery shopper, while ensuring regional (district) quotas were met. These 302 questionnaires were taken into consideration for further analysis, since when respondents answered 'No' to the first question, whether they were the primary household grocery shopper, the interview was terminated. The respondents' median age was 41, which is in line with that of Cyprus population 37,7 [24]. At 67,4%, women are dominating, which seem to be in accordance with various studies [6, 13, 25], indicating that the grocery shopping is a task performed mainly by women.

[2] https://docs.google.com/forms

Table 1
Survey sample demographics

Survey variable respondents (n-302)	Mean	% of respondents
Age	41,71	
Gender		
Male		32,56
Female		67,44
District		
Nicosia		42,05
Limassol		29,80
Larnaca		13,91
Ammochostos		6,29
Paphos		7,95
Educational level		
Primary education		0.66
Gymnasium		1,32
Lyceum		8,94
Diploma		8,94
Bachelor		28,15
Master/PhD		51,99
Number of household members	3.50	
Number of household members < 18	1,26	
Marital status		
Single		19,87
Married		73,18
Divorced		4.30
Widower		1.66
Other (cohabitation)		0.99
Occupation		
Private sector employee		36,75
Public sector employee		47,02
Freelancer		5,63
Retired		3,31
Housewife		2,32
Student		2,65
Unemployed		2,32

The logistic regression model was statistically significant χ^2 (296) = 40.99, $p < .001$. The model correctly classified 65,9% of cases. Decreasing age and increasing monthly family income were associated with an increased likelihood of online grocery shopping (Table 2 and Figure 2). These results are consistent with previous studies [11, 12, 16].

Table 2
Logistic regression model Coefficients

					Wald Test		
	Estimate	Standard Error	Odds Ratio	z	Wald Statistic	df	p
(Intercept)	1.15	0.59	3.17	1.96	3.84	1	0.05
Age	-0.07	0.02	0.93	-4.60	21.12	1	< .001
MonthlyFamilyIncome	0.51	0.12	1.67	4.42	19.54	1	< .001

Note. OnlineGrorceryShopping level '1' coded as class 1.

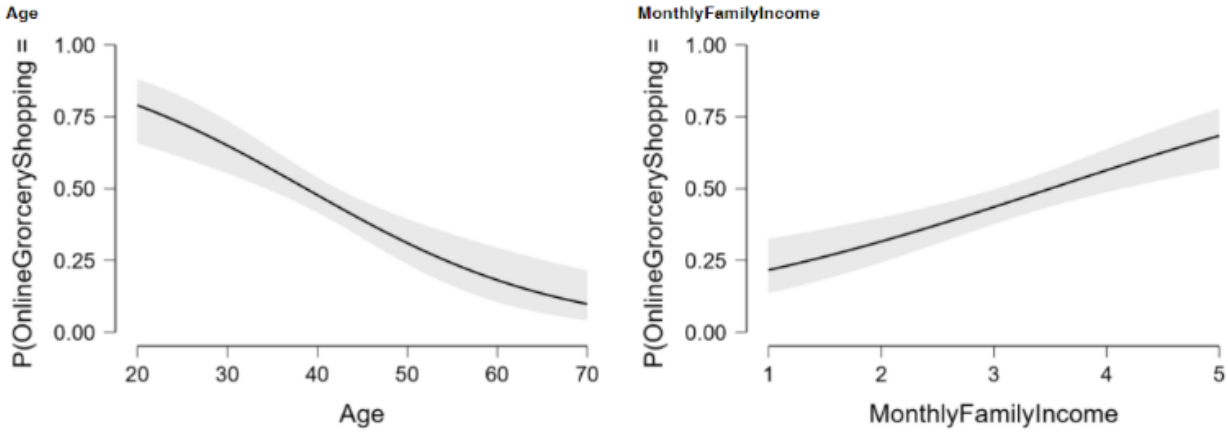

Figure 2: Estimates plots – Age and monthly family income.

Similar to other studies [5, 12], no statistically significant difference was found between men (41%) and women (48%). Likewise, the education level, profession, geographical location (district) and marital status were not found to have any statistically significant difference, which are also consistent with similar studies [11, 13].

5. Conclusion

Despite its fast growth rate in the past two years, primarily possibly due to Covid-19 pandemic related movement restrictions, online grocery shopping has ever gained little attention so far. It is notable that in Cyprus, the previous study on this topic occurred in 2006. This paper fills this research gap and opens a discussion about consumer behavior and online grocery shopping strategies. Furthermore, our analysis enriches the literature on the consumers' profile characteristics of the adoption of online grocery shopping, especially in the Euro-Mediterranean region. This case study provides new empirical evidence on the understanding of the determinants of online grocery shopping in Cyprus.

The key drivers that emerged were age and family income. With regard to age, younger consumers seem to be more accustomed with technology and Internet applications, while older people are less enthusiastic. These findings might be beneficial to retailers and policy makers for grocery shopping in marketing OGS. Supermarkets may opt to target older populations and big households by offering no-fee delivery or promotions of discounted products to attract individuals from these groups (i.e. price-sensitive customers).

Big life changes (e.g. Covid-19 pandemic) may trigger an initial adoption of a behavior (i.e. online grocery shopping), given the higher demand for social distancing, convenience and/or time-saving features. As noted by Goethals, Leclercq-Vandelannoitte and Tütüncü [18] and Frank and Peschel [25], convenience and time saving aspects are also possible drivers for adopting online grocery shopping, especially for households with full-time employment and presence of young children. Before the Covid-19 pandemic, only 7% of grocery retail sales worldwide involved e-commerce channels. During the

peak of the pandemic (March-April 2020), the e-commerce share of grocery retail grew to 10%, while a recent study [26], showed that the current share of global e-commerce penetration for online grocery shopping was valued at 9%.

Further research should investigate consumers' attitude towards online grocery shopping, the factors that enable online grocery shopping, behavioral intention and related social norms.

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