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Factors influencing the use of e-commerce in the agri-food sector: an analysis of Italian consumers

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Abstract: Understanding the determinants of users' propensity to purchase goods online is urgent for firms in the food industry. The present paper aims at analyzing how socio-demographic traits and characteristics influence consumers' propensity to buy online. More specifically, the paper aims at understanding whether there are any differences or similarities in online purchases of food and beverage items *vis-à-vis* the purchases of non-food items. We find that a variety of socio-demographic characteristics influence online buying behavior and do so in nuanced ways. As far as food purchases are concerned, we find that males, aged 40-49 are more inclined to buy food and beverage online. While age and gender explain online shopping for food and beverage, other variables, such as education and place of residence, play a role in explaining the propensity to buy online non-food items. Several indications related to the preferences of customers in terms of additional services are proffered throughout the paper.

Keywords: e-commerce; online shopping; food and beverage.

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1. Introduction

Digital channels and e-commerce platforms triggered relevant transformations in a variety of industries the last two decades. Digitally-mediated forms of commerce were seen as ripe with opportunities especially for small and medium-sized enterprises: since the first platforms and portals appeared, the hypothesis was that they might benefit from e-commerce to expand their reach and open new markets at relatively low costs. In addition, selling goods online either on proprietary or third-party e-commerce websites is seen as a crucial given the familiarity of clients with digital devices and transactions (Kannan, 2017; Merrilees, 2016; Weil, Woerner, 2015). E-commerce and the proliferation of virtual shelves it brought about were heralded as harbingers of radical and structural changes in industries and in the population of global markets since they encouraged the explosion of variety in markets for goods and services: as the advocates of concepts such as the *long tail* (e.g. Brynjolfsson et al., 2006) maintained, the multiplication of online stores and the low cost of expanding catalogues on the Internet, together with the lowering costs of logistics, allowed a variety of niches to become economically viable. Small and micro firms, in other words, had the opportunity to cater to global niches, getting rid of the constraints of geography.

The debate on e-commerce, both in academic discourses as well as in policy-making ones, still faces the need to understand the determinants of online shopping behavior and the variables influencing the use of e-commerce platforms by users. Firms, whether they want to capitalize the potential of e-commerce or aim at finding ways to contrast its advance, still need to make sense of the factors influencing the customers' processes of choice. Some markets are populated by users that are highly familiar with e-commerce platforms, others are not. Some product categories are commonly bought and sold online, others are not (Carpio, 2015).

The paper contributes to extant knowledge of the attitudes of consumers to buy food and beverage items online and the underlying motivations by shedding light on the socio-demographic variables influencing their behavior. We consider a specific geographical market and a specific set of product categories to shed light on the factors underlying the online shopping behavior of consumers, namely the Italian market for food and beverage products. Italy is an interesting testbed for frameworks aimed at understanding the factors influencing customers' online purchases: in Italy e-commerce has shown signs of growth and increased revenues, but the increase in online transactions occurs at a much lower speed than that of the adoption of social networks and other digital services usage of social networks and other digital services (Casaleggio Associati, 2018). More specifically, food and beverage items lag behind other product categories in terms of online transactions: Health & Wellness registered +39% in 2017 with respect to 2016, Fashion +28%, Food & Beverage +24%, Electronics +21% and Furniture +19% (Casaleggio Associati, 2018). Despite the positive trend, food and beverage goods are characterized by (2.7% of the total) and are interesting to be observed as a field where internet usage to make transactions is still at an early stage.

Understanding the determinants of users' propensity to buy food and drinks online, thus, is urgent for food producers and retailers alike. . Changes in technology, business models and market structure have been transforming the whole retail experience, creating new winners and new losers We contribute to scholars' and practitioners' knowledge of e-commerce by analyzing how socio-demographic characteristics influence consumers' propensity to buy online. More specifically, we tackle the question of whether there are any differences in the online purchases

of food and beverage *vis-à-vis* the purchases of non-food items. The paper is organized as follows: the first section provides a brief synthesis of the extant literature on e-commerce and socio-demographic characteristics; the second presents the research design and is followed by a section that illustrates the results of the analysis of empirical data. Finally, the paper considers the results of a logit regression model that attempts at singling out the specific socio-demographic traits and characteristics that are apparently correlated with the propensity to buy food and beverage online. Finally, the paper elucidates the limitations of the current research design and its further developments.

2. Literature Review

The multiplication of merchants selling goods and services online and the increasing familiarity of consumers with digitally-mediated forms of transaction are central to the evolution of many industries. Inquiries in a variety of fields—from business strategy to marketing and consumer research—tackled questions related to the motivations and determinants underlying consumers' online shopping behavior. Socio-demographic characteristics are central in these streams of research: inferring and predicting online buying behaviors from objective data represents a promising avenue of research and a fruitful avenue for practitioners to increase the effectiveness of their marketing strategies. Information on consumers' characteristics and behaviors is increasingly available: individuals release data that is collected in public and private databases; consumers feed datasets owned and analyzed by firms controlling and managing online spaces (e.g. websites, company-owned or controlled social media and the like, cf. Hofacker et al. 2016; Heinonen, 2011; Li, 2010). Understanding the role of socio-demographic factors in the use of e-commerce platforms, moreover, resonates with the prevailing posture in literature on technology acceptance model (cf. Hernandez et al., 2011; Venkatesh et al., 2003) that either considers socio-economic variables as predictors of users' acceptance of new technologies or socio-demographic ones.

Age was one of the eminent themes in literature regarding the role of socio-demographic characteristics on online shopping behavior. In an analysis of Israeli online consumers' behavior, for instance, Lissista and Kol (2015) showed how age is only to a certain extent a predictor of online shopping behavior. Despite common sense might bring analysts to consider younger consumers as more prone to buying items online, such a contention needs to be balanced with considerations related to the availability of disposable income. As the authors state, generation X (composed by individuals born between 1960 and 1980) shows a higher propensity to buy online than generation Y (individuals born after 1981) given the higher availability of disposable income and free time. Hence, despite generation Y appears more attractive to marketers given its connectivity, hedonism and search for engaging online experiences, marketing efforts should consider generation X as a primary target. Similarly, Kooti et al. (2016) find that the amount of money spent on online websites increases sharply with age, reaching a peak when consumers approach the late 30s. In a study on Chinese consumers, Wang et al. (2018) find that they might be grouped in two segments: online-food-conservatives and online-food-pioneers. The authors highlight how the two segments differ in terms of socio-demographic characteristics, singling out age as the most important discriminant factor: pioneers are mainly individuals aged 31 to 40, while conservatives are those that are younger than 30 or older than 40. Bryla (2018) analyzed selected characteristics, attitudes and

opinions of organic food e-consumers (online shoppers) in Poland. Through a logistic regression model, age and income turned out to be statistically significant determinants of online shopping behavior: specifically, higher age decreases the likelihood of being an organic e-consumer. Also, Kaur et al. (2017), studying the influence of customer's demographic characteristics on their attitude towards online shopping, demonstrated that age is one of the most significant variables.

Other studies, such as those published by Kooti et al. (2016), try to model the interaction of a large set of socio-demographic variables with online shopping behavior. For instance, they find that gender is highly correlated with the propensity to buy online across product categories, with men buying more items and more frequently than women. Moreover, they find that available income, measured through the residence of individuals—in more or less affluent areas—is highly correlated both with online shopping frequency and with the amount of money spent. Also, other authors (Kaur et al., 2017; Bryla, 2018 and Wang et al., 2018) show that the income variable plays an important role in the interviewee's use of e-commerce.

As far as gender is concerned, the first variable examined in Kooti et al. (2016), evidence is still mixed in literature. While many studies infer the impact of gender on specific behaviors in terms of online shopping, more recent examinations such as that of Pascual-Miguel et al. (2015) introduce variables like effort expectancy and social influence as important mediating variables explaining different rates of e-commerce acceptance among women and men. Research the authors did on Spanish consumers suggests that both the variables tend to be more important for women than for men and that such a situation might determine females' low acceptance of e-commerce in some product categories (digital goods and services) and high acceptance in others (non-digital goods). The findings of Wang et al. (2018) and Kaur et al. (2017) have demonstrated indifference between genders and e-commerce adoption.

A host of other socio-demographic variables are considered in the recent literature on consumers acceptance of e-commerce and propensity to buy products and services online and an extensive and systematic review is outside the scope of this paper. We refer the interested reader to Kooti et al. 2016 for both a review of the different *foci* of the existing literature as well as for the attempt to develop and test an integrative model.

What interests the most the authors of this paper is that literature on the determinants of online shopping behavior is highly fragmented both in terms of industry and market considered, and in terms of geographical area of reference (Hallikainen, Laukkanen, 2018). An increasing number of studies, for instance, consider e-commerce acceptance in emerging economies and highlight how cultural factors in different countries and regions interact with consumers' socio-demographic characteristics in multiple ways (Kim, Peterson, 2017). Moreover, the fragmentation of literature in hundreds of streams related to different industries suggest that the hope for integrative and unifying views of the online shopping behavior of consumers might be an illusion and that knowledge of the phenomenon is destined to be contextual and industry-specific.

Moving from this hypothesis, the present paper aims at contributing to the debate on the online shopping behavior of consumers in a given geographical area—Italy, characterized by a specific national culture—and in a given industry: food and beverage. Such a choice is justified by the need to adhere to a prevailing trajectory in the field that privileges contextual and industry-specific analyses and by the aim of producing advanced knowledge on e-commerce to benefit firms in a sector that currently is lagging behind. The remainder of the paper, thus, illustrates

the research design motivated and the results of an empirical analyses aimed at answering at the following research question: which socio-demographic characteristics influence, and how, consumer propensity to buy online food and beverage items?

3. Methods and data

Following the methodological approach proposed by Kaur et al. (2017), a web-based survey was carried out in order to investigate consumers' attitude towards the use of e-commerce to purchase food and beverage online. The empirical analysis aimed at capturing the motivations and expectations underlying consumers' willingness to make use of e-commerce websites (or the absence thereof).

A survey was administered among a sample of consumers living in the Veneto Region (North-East of Italy) aged 20 to 69. A non probabilistic selection method was used to obtain the sample: users of Facebook were contacted and addressed for a period of 18 days in the third quarter of 2016. Groups of citizens gathering around local pages of their municipalities were solicited and asked to distribute the call to fill the survey.

The questionnaire consisted of 29 items, articulated in four main sections: the first aimed at investigating and understanding the habits and routines of consumers in relation to food and beverage purchases, specifically the frequency of their purchases, the places and retail superficies where purchases are made and the main elements influencing their perception of the point of sale. The second section aimed at understanding how, how frequently and what these consumers buy online, as to understand the degree of familiarity of the sample with e-commerce websites and their use habits, including their preferred payment methods and the reasons behind the eventual interruption of the purchase process.. The third section of the survey aimed at collecting data specifically on the online purchases of food and beverage items: this section aimed at providing a picture of how many consumers in the sample used e-commerce websites, with which frequency, which specific websites. The final section of the survey allowed the research team to collect socio-demographic information on the individuals included in the sample.

The vast majority of the questions in the survey were closed-ended; the questionnaire was validated with industry experts before being administered online.

3.1 The sample

Female participants to the survey outnumbered men (75%). The ratio is in line with national polls showing that 75% of women in Italian households take responsibility for the procurement of food and beverage. As far as the samples' age distribution is concerned, data from the survey show that the most represented age group is the one aged between 40 and 49 (28%), immediately followed by the 30-39 age group (25%) and by the 20-29 group (21%). The instrument chosen to solicit respondents, a social network, is likely to have determined the lower percentages in the age group 50-59 (18%) and 60-69 (8%). Based on national panel data, Italian citizens below 45 years of age familiar and active on social media, while those over 45 years lag behind (cf. Prato, 2016), with just 17% of over 65 that do possess and account of Facebook.

Another variable that was considered is educational attainment: a large share of interviewees attained medium-to-high credentials, especially if compared with average national values. Specifically, 57% of the informants attained a secondary title, 29% a graduate degree, 14% a lower secondary title. As far as the occupational condition in the sample is concerned, the vast majority of individuals surveyed are employees (52%), followed by free-lance workers (19%), housewives (10%), with other conditions such as students, retired and unemployed being relatively less represented. The sample is concentrated in urban areas (75%) *vis-à-vis* rural areas (25%). As far as households are concerned, 29% of individuals in the sample live in households of four components, 29% in households with three components, 26% are living with one other person. Singles (10%) and people living with four other relatives (7%) are less represented in the sample.

4. Results

4.1 Shopping for food and beverage: habits and behaviors

Data from the survey highlights how the vast majority of consumers in the sample shop frequently for food and beverage: 44% of the sample buys groceries at least twice a week, 39% less than twice a week. Smaller percentages shop daily (9%), every two weeks (7%) and monthly. When shopping for food and beverage is concerned, consumers choose different places: supermarkets are the solution of choice for the majority of the sample (51%), larger superficies (e.g. malls) are chosen by 17% of the sample. A contained share of the sample (14%) declared to be erratic in their choices, with no prevalence of one over the others. How do individuals in the sample decide where to buy food and beverage? Prices and promotions (e.g. discounts) are the most important signaling devices used by respondents in making their choices (28%), while quality of products (25%) and geographical contiguity of the shop with their homes (22%) are close followers. Operating hours, availability of parking space and other services (10%) are used by a smaller portion of the sample to make their decisions as to where their purchases will be made. Apparently, factors such as the presence of given brands, trust inspired by the point of sale, being acquainted with the owner of the shop are relatively less important in guiding consumers' behavior in our sample.

4.2 Online buying behaviors and habits

Three out of four interviewees (78%) bought something online at least once. More specifically, the sample includes a vast majority of individuals whose buying behavior is mild towards online channels: interviewees made less than six purchases in two months, with 59% of individuals recurring to online e-commerce websites three times in two months, 17% six times, 17% zero purchases in the last two months. Only 8% of the sample bought items online more than 12 times in the last 2 months. As far as categories are concerned, the items that are preferred by the components of the sample are electronic devices and small house appliances (17%), clothing and accessories (17%), published goods (books, magazines, cd, dvd, 14%), trips and hotels (14%), tickets for events or public transport (10%). The question allowed respondents to indicate more than one answer. The analysis of the first (most frequent) answer allowed us to identify the salience of different categories of goods: 41% of the respondents shop frequently

(indicate as a first choice) for clothing and accessories, 24% report books, CDs, DVDs and magazines, 19% small house appliances and electronic devices (fig. 1).

Fig. 1: Most important categories bought online - first answer

Consumers in the sample use different payment methods and instruments: credit card is used as the preeminent payment method by 36% of the sample, Paypal by 31% of the respondents, pre-paid cards by 26% of the respondents.

The survey aimed also at analyzing how frequently and why consumers interrupt their purchasing experience by abandoning the cart in the process. The phenomenon is quite frequent in the sample with 83% of respondents stating that they left the process at least once. Consumers do not complete the purchases they initiated mainly for reasons related to insecurity: 31% of the interviewees state that they were not sure enough about the quality and features of the product, while 17% were convinced to abandon the process by the shipping costs that were judged as too expensive. As far as this latter reason is concerned, e-commerce platforms and websites that specify shipping costs only at an advanced stage in the process tend to discourage users to buy since they perceive that the final cost is too high. Other recurring reasons explaining the interruption of the purchase process are the presence of the same item at lower prices in other websites (11%), the lack of the preferred method of payment (10%), a mandatory process of subscription to the website or an overly long one (9%), and finally doubts regarding the security of the payment process (6%).

4.3 Food and beverage online purchases

Buying food and beverage online is relatively infrequent among respondents to the survey: in fact, 155 respondents (15% of the total) bought food or drinks on an e-commerce website or platform at least once. Women tend to buy groceries and beverages online more frequently

(68%), while age tends to discriminate buyers *vis-à-vis* non buyers: 40% of respondents reporting that they bought at least once food and beverages online belong to the age classes 20-29 and 30-39, followed closely by respondents aged 40-49 (39%).

Respondents in the sample buy certain types of items more frequently than others: items with longer expiration dates are those that are preferred and bought repeatedly by respondents in the sample, with a particular emphasis on coffee and tea (14%), sweets and cookies (12.63%), wine (10.88%), pasta (8.07%), beer or other alcoholic beverages (8.07%), oil (7.72%) cereals (7.02%). Consumers in the sample buy groceries online mainly because they cannot find the items they selected in physical stores (30%); some of them rely on e-commerce websites to save time (26%), to save money since online prices are lower than those in physical retail spaces (23%), and finally to purchase typical local foods (10%) from other regions or countries.

When asked whether there are categories of goods that they would not buy online, respondents in the sample indicate fresh vegetables and fruit (20.88%), meat and poultry (17.01%), fish (16.49%), cured meat (8.51%), water (6.70%), frozen foods (6.70%). The reasons behind the exclusion of these categories from their online shopping list are manifold: the risk of receiving deteriorated fresh food (43%), the absence of a physical, direct, non mediated contact with the items to be purchased (33%), the risk that goods might break or lose their quality during transport (9%), the lack of opportunities to read the labels in advance (6%), the lack of the opportunity to be aware of the expiration date before receiving the good at home (5%).

Consumers (n=1361) were then asked to express their judgment on the importance (measured through a 4-point Likert scale, with 1 being absolutely not at all important, 2 slightly important, 3 important, 4 very important) 6 different factors in influencing their purchase decisions related to food and beverage.

The aspects respondents were required to ponder were the following:

- The online availability of items otherwise difficult to be find in physical stores located close to the customer;
- The availability of typical local foods;
- The opportunity to read food labels before the actual purchase of the good;
- The variety of items offered by the website;
- The possibility to clearly define the timing of the delivery of the good purchased online;
- The delivery of food and beverage during weekends and the night.

Figure 2 synthesizes the perception of the respondents. The availability of products that are seldom available in stores close to the customers, the opportunity to read food labels in advance and the opportunity to buy typical local foods are the factors that most likely motivate customers in shopping online. The last two factors, the possibility to clearly define the timing of delivery and the availability of delivery services at night and in the weekends, do not show a clear predominance in terms of perceived importance.

Fig. 2 - Relevant factors in consumers' online purchase decisions

5. Logistic regression model and results

The research question motivating the paper is whether some socio-demographic characteristics explain the propensity of individuals to buy food and beverage online. To attempt at answering the research question we estimated a logistic regression model.

In the remainder of the paper we will present two models: a general one that considers “online purchase” as the dependent variable, and a second one that will consider “online purchase of food and beverage” as the dependent variable. Both the models consider the following socio-demographic characteristics: gender, age cohort, level of education, profession, area of residence, size of the family (measured by the number of family members) (see table 1).

Table 1- model variables and categories

Socio-demographic variables	Reference category	Category included in the model
Gender	Female	Male
Age group	Age 5 (60-69)	Age 1 (20-29) Age 2 (30-39) Age 3 (40-49) Age 4 (50-59)
Education	Low level (elementary school	Middle Education (higher

	license/lower middle school license)	secondary school license) High Education (tertiary education credential)
Profession	Employee	Student Unemployed Housekeeper Freelance worker Retired
Area of residence	Urban	Rural
Family size	Large family (5 or more family members)	Small family (1-2 family members) Average family (3-4 family members)

Tab. 2 – Results: online purchase

	Estimate	Standard Error	p-value	Odds Ratio	Marginal Effects
constant	-0.427	0.234	0.067		
Male	0.359	0.167	0.032	1.433	0.055
Age1	1.056	0.248	<0.00005	2.876	0.141
Age2	1.467	0.251	<0.00005	4.295	0.190
Age3	1.392	0.238	<0.00005	4.023	0.188
Age4	0.635	0.239	0.007	1.890	0.091
Middle Education	0.619	0.179	0.0005	1.858	0.103
High education	0.929	0.217	<0.00005	2.534	0.133

As far as the first model is concerned, the general one, all coefficients except the constant are positive, indicating that, relative to the reference category, the propensity to buy online is positively influenced. Focusing on the odds ratio column, all the values are higher than 1, to indicate that the propensity to buy online for the considered categories is always higher than that of the reference category. The odds ratio of the variable “age” is particularly high, with a propensity to buy online that is 2 to 4 times superior than that of the reference category represented by the 60-69 age group. Similar considerations hold for the education variable: the propensity to buy online for respondents with a middle or high education credential is 1.0 to 2.5 superior than that of respondents with lower education attainment.

Tab. 3 – Results: online purchase of food and beverage

	Estimate	Standard Error	p-value	Odds Ratio	Marginal Effects
constant	-2.000	0.124	<2e-16	0.135	
Male	0.322	0.189	0.0891	1.380	0.0418
Age3	0.435	0.181	0.0173	1.539	0.0564

When the second model is considered, the one focusing on the online purchase of food and beverage, the results indicate that all the coefficients are statistically significant and, the constant aside, are positive. This means that, relative to the reference category, the propensity to buy online is positively influenced. Focusing on the odds ratio column, similarly to the first

model, the values are higher than 1, indicating that the propensity to buy food and beverage online for all of the considered categories is superior to that of the reference category. When gender is considered, males show to be more likely to buy food and beverage online than women. When age is considered, the propensity to buy food and beverage online for respondents aged 40 to 49 is 1.5 times higher than those not belonging to the same age group.

6. Discussion

The findings of our analysis allowed to develop a profile of online consumers according to their general online shopping behavior first and then according to their food online shopping behavior. What emerged from our survey is that males are more willing to buy online, especially those that are employed and are aged 30-49.

The first estimated model singles out three relevant socio-demographic characteristics that influence individuals' online shopping behavior: gender, age and education. As far as the online shopping behavior in general is concerned, the study suggests that women are more inclined to buy goods and services in the "tourism", clothing and apparel, and books/cd/dvd/magazine categories. On the other hand, men, especially in the age group 30-49, are more inclined to buy small home appliances and electronic devices. Age influences the choice among different categories: youngsters in the age group 20-29 are more inclined to buy products belonging to the tourism, clothing and accessories categories.

The second estimated model, then, focused on the online shopping behavior of food and beverage items. In general, data related to the purchase of food and beverage items online allowed us to register that women are more inclined to buy pasta and grains, while men are more inclined to shop for wines and sweets. In both cases, the items are packaged goods, with long expiry dates, that consumers probably already bought repeatedly and know extensively. When motivations to buy online are considered, the availability of rare or typical products that are not easily accessible in physical stores in the residence area consumers live in is the most important. Fresh items, such as fruit and vegetables, meat and fish, are not among those preferred by customers since they fear that the logistic process might deteriorate them. The second estimated model highlighted how two socio-demographic variables influence the propensity to buy food and beverage online: gender (with a prevalence of men) and age (with a prevalence of people aged 40-49).

7. Concluding remarks

The development of updated and effective e-commerce platforms to sell food and beverage online represents a promising avenue for the development of the industry and for the competitiveness and growth of food and beverage firms, especially in countries like Italy, characterized by a prevalence of small- and medium-sized firms and by the multiplicity of typical local foods appreciated in global markets. Nonetheless, consumers still put a prize on the physical and direct visual contact with food and beverage items, are still worried by the risk of food deterioration during the transport of these items and are still not completely convinced of the reliability and security of e-commerce websites and of online payment methods. These

and other impediments are currently slowing the speed of e-commerce adoption by firms and the transformation of firms' business models.

Data in the paper shows that the relatively contained share of "high-tech" consumers that more enthusiastically buy on e-commerce websites privilege items that have longer expiry dates, both in known categories as well as in those that are new and never tried before, especially when the internet allows them to buy typical local foods of other regions or items that are not easily available in their area of residence.

As far as the consumers' online purchase preferences for specific food categories are concerned, our results are consistent with those of Wang et al. (2018): consumers had weak online purchase intentions toward fresh food products such as meat, eggs, vegetables, fish and seafood.

Italian consumers, as well as consumers from other countries (Chintagunta et al., 2012; Wang et al., 2018) appear to be more willing to purchase packed food when shopping online.

Our results provide some useful bases for customer segmentation and targeting in e-commerce platforms. We note that (cf. Lissitsa and Kol, 2016), despite the centrality in the e-commerce discourse of younger generations, the most promising prospects for marketers are relatively older customers. Our findings highlighted how the propensity to buy food and beverage online is affected by the consumer's age, in particular the higher propensity is associated with individuals aged between 40-49 years. This is in contrast with the findings from a recent study on a specific product category (organic products) (Bryła, 2018) that highlights that being younger increases the chance of shopping online for organic food. Even Kaur et al. (2017) found out that consumers' attitudes towards online grocery shopping differ significantly with respect to their age: in their study, the respondents in the age group 25 to 34 significantly differ from the respondents in the age groups 15 to 24 years and 35 to 44. Middle-aged individuals have positive attitude towards online grocery shopping as compared to young aged people.

With regard to gender, the estimated model indicates that male consumers have a higher propensity to buy food and beverage online. This is in line with the results of Kooti et al. (2016). Our investigation allowed us also to collect additional information that might be useful to design the online strategies of food and beverage firms. On the one hand customers claim to appreciate complementary services such as the opportunity to read food labels in advance (especially women), the possibility to receive food at home in specific time slots (especially employees). Finally, the use of e-commerce websites by these consumers is not excluding their loyalty to physical stores: more than half of the sample, in fact, still shops frequently in physical retail spaces and visit physical stores at least once a week.

The study is exploratory and has limitations. In particular the sampling procedure, despite allowing for a large number of respondents, might require an additional wave of data collection among a sample that better fits the social characteristics of the country to validate the emerging results.

References

- Bryła, P. (2018). Organic food online shopping in Poland. *British Food Journal*, 120(5), 1015–1027.
- Brynjolfsson, E., Smith, M. D., & Hu, Y. J. (2006). From Niches to Riches: Anatomy of the Long Tail. *MIT Sloan management review*, 47(4), 67-71.

- Carpio, C. (2015). Trends in e-commerce for the food marketing system. *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources*, 10(023), 1–24.
- Casaleggio Associati (2018). E-commerce in Italia 2018. Report available at Casaleggio.it, https://www.casaleggio.it/wp-content/uploads/2018/05/Ecommerce_in_Italia_2018_Web.pdf
- Chintagunta, P.K., Chu, J. and Cebollada, J. (2012). Quantifying transaction costs in online/off-line grocery channel choice. *Marketing Science*, Vol. 31 No. 1, pp. 96-114
- Freathy, P., & Calderwood, E. (2013). The impact of internet adoption upon the shopping behavior of island residents. *Journal of Retailing and Consumer Services*, 20(1), 111-119.
- Hallikainen, H., & Laukkanen, T. (2018). National culture and consumer trust in e-commerce. *International Journal of Information Management*, 38(1), 97-106.
- Heinonen, K. (2011). Consumer activity in social media: Managerial approaches to consumers' social media behavior. *Journal of Consumer Behaviour*, 10(6), 356-364.
- Hernández, B., Jiménez, J., & José Martín, M. (2011). Age, gender and income: do they really moderate online shopping behaviour?. *Online information review*, 35(1), 113-133.
- Hofacker, C. F., Malthouse, E. C., & Sultan, F. (2016). Big data and consumer behavior: Imminent opportunities. *Journal of Consumer Marketing*, 33(2), 89-97.
- Kannan, P. K. (2017). Digital marketing: A framework, review and research agenda. *International Journal of Research in Marketing*, 34(1), 22-45.
- Kaur, H. and Shukla, R. K. (2017). Consumer's Attitude towards Online Grocery Shopping in Delhi City. *International Journal of Multidisciplinary Approach and Studies*, 1–12.
- Kim, Y., & Peterson, R. A. (2017). A Meta-analysis of Online Trust Relationships in E-commerce. *Journal of Interactive Marketing*, 38, 44-54.
- Kooti, F., Lerman, K., Aiello, L. M., Grbovic, M., Djuric, N., & Radosavljevic, V. (2016). Portrait of an online shopper: Understanding and predicting consumer behavior. In *Proceedings of the Ninth ACM International Conference on Web Search and Data Mining* (pp. 205-214). ACM.
- Li, C. (2010). Groundswell. Winning in a world transformed by social technologies. *Strategic Direction*, 26(8).
- Lissitsa, S., & Kol, O. (2016). Generation X vs. Generation Y—A decade of online shopping. *Journal of Retailing and Consumer Services*, 31, 304-312.
- Merrilees, B. (2016). Interactive brand experience pathways to customer-brand engagement and value co-creation. *Journal of Product & Brand Management*, 25(5), 402-408.
- Pascual-Miguel, F. J., Agudo-Peregrina, Á. F., & Chaparro-Peláez, J. (2015). Influences of gender and product type on online purchasing. *Journal of Business Research*, 68(7), 1550-1556.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.
- Wang, O., & Somogyi, S. (2018). Consumer adoption of online food shopping in China. *British Food Journal*, 120(12), 2868–2884.
- Weill, P., & Woerner, S. L. (2015). Thriving in an increasingly digital ecosystem. *MIT Sloan Management Review*, 56(4), 27