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PROBABILITY TO BUY AGRICULTURAL PRODUCTS FROM DIFFERENT SALES POINTS DURING COVID-19: AN EXEMPLARY SCENARIO ANALYSIS

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ABSTRACT

The world has been facing a challenge. We have remembered that our way of living might change due to outer effects in a very short time period. COVID-19 pandemic that entered into our agenda in the first quarter of 2020 had led to many changes in our daily routines. Survival of lives includes not only being alive but also maintenance of daily needs. The most important need of livelihoods is daily nutrition of course. Yet, both our demand and way of meeting this demand have been facing with challenges as well. When accompanied with rising product prices and amount of products purchased, the operation of the sector was motivated with online sales opportunities. Departing from this view, it was intended to compare changing marketing tool preferences of individuals for fresh agricultural products. In this regard probabilities of 499 individuals surveyed online to maintain their agricultural purchases on district bazaars, on supermarkets or malls and via online order and delivery was compared under different scenarios for Turkey. The findings indicated that with rising spendable income and share of income on fresh product expenditures, probability to use online tools had raised during the pandemic process. Besides, there observed clues that tendency for online shopping was higher under lower or no loss of income during the pandemic. Under these conditions, the tendency to make agricultural and fresh product purchases and tools and media of marketing seem to be more challenging for educated and relatively young population in the future.

KEYWORDS:
COVID-19, agricultural products, sales point, consumer preference, logit, scenario analysis

INTRODUCTION

Change is one of the main subjects of livelihoods and we face with change every day. People can predict forthcoming events frequently and adapt themselves to changes. But some occasions are unpredictable and it is both hard to adapt and it requires changing many attitudes in life. By the end of 2019, the world had faced with the novel Coronavirus (COVID-19). By the time the virus disease appeared, the apparent global effects were not even considered. Within the passing months, a lot of lives were lost, health management systems were devastated, and many industries were stopped at least partly due to lock-down measures and services sectors were shut down almost in everywhere. Besides, face-to-face education from primary to tertiary level seems to be delayed in many countries, and adapting the education system still requires too much time.

In addition to these overwhelming challenges, economic processes were disrupted both on the producer and consumer levels. However, livelihoods have to meet their nutrition demand and agricultural and food products supply systems have to be maintained. In this regard, the observed changing preferences and attitudes of consumers seem to affect the future of agro-food markets as well. Departing from this point of view, this research intended to measure changing sales point preferences of consumers in their agricultural purchases with a random sample surveyed online in Turkey. With the survey and analysis, it was aimed to understand in which way the individuals maintained their fresh product purchases during the COVID-19 pandemic process that they have passed through until the time the survey was completed. The factors affecting the way that the randomly surveyed 499 individuals have made purchases on district markets or bazaars, on supermarkets or malls and online via internet orders, were analysed within a binomial logistic regression modelling. The aim was to estimate probabilities to make agricultural expenditures from different sales points and to build scenarios for comparing these agricultural shopping methods. Therefore, the paper follows with the provision of general background information on consumption on pandemic times, and the comparative analysis results were provided and discussed.

BACKGROUND INFORMATION

Since the announcement of the COVID-19 pandemic, the change in individuals' consumption attitudes had become visible directly. There appeared new needs like masks or disinfectants and the suppliers of these products have been experiencing a rather significant rising market share. In addition, lock-down implementations lead to over purchases of both durable and non-durable products in supermarkets. Especially, sanitation products or durable consumer goods like flour and dried legumes were sold out worldwide [1].

The changing consumption attitudes of households have been measured within the process and some projections for future were set forward. In addition to home office working in many sectors and maintenance of collaborative activities through social media and recently developed software, rising home orders and home delivery for consumables had become visible and the change seems to be sustainable even after the pandemic [2]. This change seemed to bring new regulations for consumption in the close future departing from the USA example [3].

The changing online and offline consumption volume was estimated for 214 cities of China [4]. It was understood from monitoring and evaluation of credit card operations that daily offline consumptions for goods and services fell by 32 % within the 12-weeks period. The fall in spending for services was much higher as 64 % for entertainment and 59 % for travel. Yet, face to face transactions for goods had declined significantly as well. The overall declination signed a reduction in the GDP of China by 1,2 % in comparison with 2019. The difference estimate findings also indicated a shift to online spending for consumer goods.

The effect of the pandemic was measured for Japanese households utilising credit card operation records focusing on sustainability of online consumption after the pandemic [5]. It was understood that most of the audience that had rising tendency for online shopping were composed of people having experience prior to the pandemic. Yet, there appeared new online shoppers and rising share was more for younger households. However, the findings did not infer a significant rise which will sustain after the pandemic. This inference was attributed to already high online consumption tendency of Japanese households.

Credit card transactions were observed for French consumers to compare online and offline consumption activities from the end of January to mid of April 2020 [6]. It was found out that despite the declining offline consumption for many sectors, the rising online consumption activities involving home delivery seem to compensate loss for consumption. Considering our main interest, purchases from grocery stores, markets and food stores had declined at beginning. The declination remained for offline purchases and it was compensated with online transactions afterwards. Therefore, consumers tended to shift online consumption in France within the considered time period. It was inferred that the online shopping tendency will be sustainable for many sectors involving agricultural purchases. Another inference was related with purchases of fresh products in the USA. 900 grocery shoppers were surveyed online and on-time change in consumer preferences was detected [7]. As much the COVID-19 process continues consumers' willingness to buy grocery products from the shop declines. This brought development of online order and home delivery systems for grocery stores into the agenda.

This situational change confirmed by the recent literature was valid globally and Turkey was no different. This was related not only with health considerations but also with trust in economics and maintenance of economic activities (Baltaci and Akaydin, 2020). Besides, households had directed their spendable income mostly on necessities within the process [8,9]. Mainly middle and upper classes have been shopping online for technological devices, textiles, or some sort of durable products before the pandemic as well. Yet, the changing attitudes were also visible on agro-food purchases, even for fruits and vegetables. Within the process, many households started to avoid from shopping in fresh markets or district bazaars for their FFV requirements [10]. Therefore, with lock-down implementations, neighbourhood markets that belong in supermarket chains had started to receive online orders and make home delivery as well.

However, demand and supply for agricultural products, especially those that are non-durable should be evaluated in order to estimate the future of the market. These products have low supply and demand elasticity and there expected no significant change in demand of households or services sectors. Meanwhile, countries had realised the importance of fresh product supply systems and the sustainability of farming practices [8]. Checking out the fresh fruits and vegetables supply system in Turkey, farmers used to bring their products either to wholesale markets or preferred direct sales, through personal communication or street vending. One of the main customer groups of wholesale markets and dealers has always been the services sector (hotels, restaurants and cafes) in Turkey. It is definite that the demand from organised retailers (outdoor catering services, touristic enterprises, public institutes, and educational institutes) had declined within the pandemic process. In the meanwhile, neighbourhood markets or exporters had become more important customers of the wholesale marketing system [11].

Yet, home orders and delivery had become a visible developing services branch throughout the

world [12] and the trend has been the same for Turkey as well. In the process, the credit card operations could be monitored and used as clues for improving online services. With regards to these transactions, the statistics published by the Interbank Card Centre provided us with some insights. The statistics indicated that 24 % of credit card operations took place online in Turkey in April 2020. Besides, it was found out that around 5 million credit cards were used for online transactions for the first time between March and April 2020 [13]. Therefore, households that were not very fond of online purchases, had started to involve in these sorts of activities and many people started to buy even their necessities online [14]. The challenge cannot be related just with durable products with respect to shrinking services sector and rising tendencies to cook and stay at home. Therefore, many households had started to buy fresh products online as well [15,16]. Accordingly, online purchases have become a developing tendency and modern commercial tools have been acknowledged even by those that call themselves as traditional customers [1].

Checking out a recent research conducted in Turkey with 200 households online, the elementary changes were observed [17]. Accordingly, 64,5 % of participants declared that their preferences towards online shopping had changed. While 52,5 % indicated that they started to make online shopping occasionally within the process, 46 % declared that they buy products online between one and three times per week. Besides, 61,5 % of the target group declared that they had started to buy agro-food products online as well. Another online survey conducted with 1.000 Turkish households by a private research company indicated that the households demand for pickles, sauces, packed food and flour and bread yeast had risen almost by 100 % within March and April 2020 [18]. These findings confirmed the need for food security of the individuals. In addition, demand for electronic devices to make yeast, bread or cake had risen significantly in March 2020, as measured by the number of searches recorded by Google [19].

Within the process rising tendency for online shopping of households on fresh agricultural products had been a significant observation. Accordingly, not the individual demand but the tools utilised to fulfil this demand seems to be changing [20]. Departing from this view, measuring the changing marketing tool or sales point preferences seems to be an important subject for the close future. Whether the observed rising tendency for online shopping will be sustainable or not should be clarified in order to organise supply systems of especially small size producers and suppliers. Accordingly, this paper aimed to measure the factors that were effective in preference of sales outlets to project potential changes for the future.

MATERIALS AND METHODS

The research data is based on an online survey conducted in the first two weeks of August 2020 via random distribution of the survey. The consumption data was collected from 499 Turkish consumers widespread in the country. The aim was to estimate the probability of individuals to maintain their agricultural purchasing activities in three different settings within the COVID-19 pandemic process. Agricultural purchases encompassed fresh and packed FFVs and animal products for the concerned analyses. The analysis aimed to search and compare the following probabilities.

- Probability to maintain agricultural purchases in district markets – bazaars during the pandemic
- Probability to maintain agricultural purchases in supermarkets or malls during the pandemic
- Probability to maintain agricultural purchases via online delivery systems during the pandemic

The probability to do so and factors affecting this probability were estimated departing from detected probabilities taking two variables, 0 and 1. Therefore, while the detected probability refers to taking an action (1) or not taking (0), estimated probability refers to a number ranging between 0 and 1 indicating the chance of occurrence by percentages. For the concerned analyses binomial logistic regression was used to estimate the non-normally distributed dependent variable including information on detected probability (0 and 1) which was developed by McFadden [21]. Logistic regression is used to estimate these sorts of models having a dependent variable with dichotomous nature and that invalidate classical OLS estimation assumptions [22,23].

In the estimated logistic regression equation, Y is the dependent variable taking 0 and 1 with regards to individuals' purchasing preferences. In addition, x represents quantitative and D represents qualitative independent variables that affect the detected probability via their parameter estimates.

The dependent variables of three equations were retrieved from five scaled preference data. The preferences were 1: none, 2: rarely, 3: occasionally, 4: frequently, and 5: very frequently. Therefore these three dependent variables were demonstrated in the Table 1 and incorporated independent variables were demonstrated in the consecutive Table 2.

$$log[Pr(Y = 1|x)] = \ln\left[\frac{Pr(Y = 1|x)}{1 - Pr(Y = 1|x)}\right] = \sum \beta_i x_i + \sum \alpha_i D_i + u_i$$

TABLE1
Estimated Dependent Variables

Y_b	1 if the individual has bought agricultural products from district markets/bazaars frequently or very frequently; 0 otherwise
Y_m	1 if the individual has bought agricultural products from supermarkets frequently or very frequently; 0 otherwise
Y_o	1 if the individual has bought agricultural products online frequently or very frequently; 0 otherwise

TABLE 2
List of Estimators

A_i	**Age of the participant**	Quantitative - Continuous
G_i	**Gender of the participant**	Binary - 1, if the participant is female
HHI_i	**Household Income**	Binary – 1 if the income is higher than 4.500 TL ($ 613,14)*
HHS_i	**Household Size**	Quantitative – numerical
VE_i	**Expenditure on FFVs and Food**	Quantitative – Continuous, TL
AE_i	**Expenditure on Animal Products**	Quantitative – Continuous, TL
TO_i	**Online Shopping Tendency**	Binary – 1 if the participant has a willingness to make purchases online hereafter
DI_i	**Downsizing in Household Income**	Quantitative – Continuous, TL

*: 4.500 TLs were considered as a moderate level of income for the analyses. Official exchange rate as of 31.08.2020 announced by the Central Bank of Turkey was $ 1 = 7,3393 TL. This rate is used hereafter.

RESULTS

Descriptive Layout. Firstly, it is important to note that many demographic characteristics of the correspondents were collected via the online survey implemented in August 2020. Around 60 % of the correspondents were female. Most of the survey participants were settled in the Mediterranean province of Antalya with 44 %. Although the sample was random, geographical dispersion was limited due to the time restriction of the survey. As the group was analysed with respect to education level, it was understood that the average education level was significantly high. College or bachelor's graduates referred to 54 % of the audience and this group was followed by post-graduates with 30 %. This finding can partly be explained by the methodology used, online survey. Yet, due to low variation in inhabitancy and education information of the group, these were not considered as factors explaining the probability to make agricultural shopping in targeted centres. The average age of the group was 39, but many age groups were represented in the sample. When the household size was overviewed, it was understood that 45 % of individuals were living in households with 4 or more members. Yet, 59 % of the audience indicated that they do not have children and they mostly live with their families or companions as friends.

Lately, data related to employment information of the audience were checked. It was understood that 300 people (60 % of the group) were employed on full-time basis while 12 % were either student or non-employed and 8,82 % were retired. 5 % of the audience were working part-time and the remaining 14 % were out of labour force. This inference continues with the distribution of calculated household income demonstrated in Figure 1.

Accordingly, 43 % of participants seemed to have a household income between minimum wage (2.318 TLs = $ 315,83) and $ 885,64. Yet, 52 % of participants declared that they have a monthly household income more than $ 885,64, which could be referred as more than moderate income. The detected more than average household income level can again be attributed to online survey implementation procedure.

The change in the employment status of the participants and their family members during the pandemic process were surveyed as well. It was understood that 15 % of individuals have a family member (either herself or another member) who has lost his or her job at least partly. Yet, 54 % of those who lost their jobs were still unemployed at the time of the survey, while 39 % declared that they lost their jobs temporarily (between 1 and 3 months). Among those having lost their jobs, 80 % (70 participants) declared receipt of no compensation wage. While 8 % of the audience indicated receipt of compensation wage between 3 months at most, 12 % declared they have been receiving this supportive payment by the time of the survey. In addition to changing employment situation, the

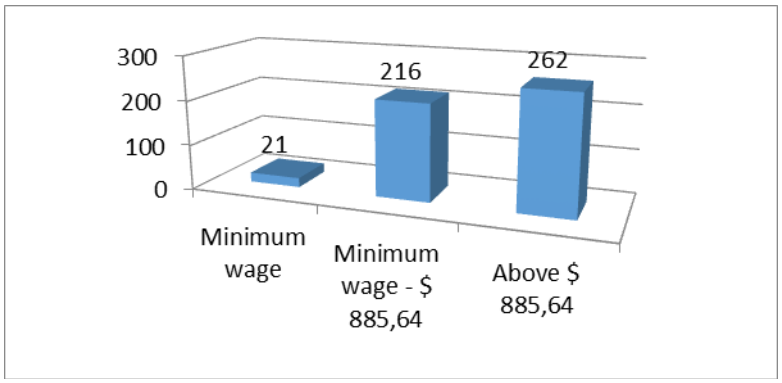


FIGURE 1
Income Scales of Surveyed Participants

changing household income was considered as well. It was understood that 70,67 % of participants have lost more than $ 136,25 of their household income. This group was followed with loss between $ 68,26 and $ 136,25 by 9,33 % and lower than $ 68,13 with 8 %. This signed possible changing consumption attitudes and preferences. After this brief explanation of the sample, the comparative probability estimation in terms of different sales points were made and evaluated.

Probability to make agricultural purchases in district bazaars. Initially, it is noteworthy to indicate that 57 of 499 individuals maintained going to bazaars within the COVID-19 process. This refers to 11 % of the individuals and provides us with the inference that many households avoided to go open markets. Accordingly, the probability was estimated against selected indicators and the magnitudes of these effects were measured. Table 3demonstrates the estimation findings.

Referring to estimation outputs, it can be indicated that single significances of parameter estimates are low, which is not a serious consideration for binary estimation procedures. The Mc Fadden R^2 produced for this dataset was low. However, significance of parameter estimates has been measured by Likelihood Ratio test [24] which provided a 90 % joint significance data. Yet, two distinguished statistics indicated that the results can be interpreted. Hosmer Lemeshow statistic indicated the goodness of fit of parameter estimates with a probability value higher than 0,05 [25,26]. Andrews statistic confirmed the interpretability of results with again probability greater than 0,05 [27,28]. Departing from this evaluation, the estimated probabilities were calculated for different variations of explanatory variables via antilog transformation and scenario evaluation was made with respect to average agricultural expenditure per month [29].

Checking the scenarios set forward, the indicative findings are rather significant. The alternative probability of maintaining agricultural purchases on district markets during COVID-19 process was calculated for female individuals having a monthly income more than $ 613,14. The differentiation was made with respect to age, potential tendency to make online shopping after the process, and the value of monthly expenditures on FFVs. Accordingly, the possibility to shop on bazaars for a 30 years old female having tendency to shop on online ranges from 21 % to 14 % due to average FFVs expenditures. The same scale reduces to from 9 % to 5 % for individuals not having intention to make online shopping. When the female is 40 years old, the scale changed from 22 % to 16 % for ones having online shopping tendency and from 9 % to 6 % for those that do not have online shopping willingness. These findings led us to draw the consecutive indications.

- Younger females have a lower tendency to shop on bazaars, even though the scales are not quite different statistically.

TABLE 3
Probability to Shop on District Markets/Bazaars during the COVID-19 pandemic

Parameter	Estimate	Z-statistic (probability)
Constant	-1,39	-2,80 (0,00)***
TO_i – Online Shopping Tendency	-0,26	-0,86 (0,38)
G_i – Gender	-0,38	-1,29 (0,19)
VE_i – Expenditure on FFVs and Food	-0,0002	-1,82 (0,06)*
HHI_i – Household Income	-0,49	-1,47 (0,13)
A_i - Age	0,01	0,83 (0,40)
Mc Fadden R^2 = 0,03	**MDV= 0,11**	**H-L (prob)= 4,53 (0,81)**
LR (prob)= 10,98 (0,05)*		**Andrews (prob)= 5,09 (0,89)**

TABLE 4
Estimated Probability to Shop on District Markets/Bazaars during the COVID-19 pandemic

	VE=$ 68,13	VE=$ 136,25	VE= $204,38	VE= $ 272,51
Female, Age 30 Tendency for Online Shopping + $ 613,14 monthly income	0,21	0,18	0,16	0,14
Female, Age 30 No tendency for Online Shopping + $ 613,14 monthly income	0,09	0,07	0,06	0,05
Female, Age 40 Tendency for Online Shopping + $ 613,14 monthly income	0,22	0,19	0,18	0,16
Female, Age 40 No tendency for Online Shopping + $ 613,14 monthly income	0,09	0,08	0,07	0,06

- The possibility to make agricultural purchases on bazaars reduces significantly with respect to the amount devoted for FFVs purchases from their budgets. Reduction in the possibility for 30 years old females that allocate $ 68,13 or $ 272,51 of her income was 33 % and 44 % with respect to having the tendency for online shopping afterwards. The differentiation for 40 years old females was 27 % and 33 % respectively. This finding indicated that the reduction in the estimated probability is higher for younger females.
- The detected difference in favour of having tendency for online shopping even after the pandemic process needs further assessment as it is not in conformity with the expectations.

Probability to make agricultural purchases in supermarkets/malls. The number of individuals that maintained shopping for fresh agricultural products on supermarkets or market sections of shopping malls was 198. This meant 40 % of the overall sample. Therefore, the probability of an individual to shop on these stores was estimated against properly selected indicators and the findings were indicated in the Table 5.

Considering the statistical findings and referring to the methodological approach indicated in the analysis for bazaars, the probability to shop on markets were estimated on age, household income and household size and expenditure on FFVs and animal products. Using these estimates, different scenarios were produced for households that have one companion in the house and have more than $ 613,14 of monthly income. The differentiation was made with respect to monthly expenditures on FFVs and animal products and for two different age scales. The findings were demonstrated in the Table 6.

In the first instance, the expenditure of an individual who spends $ 68,13 on animal products per month and lives with one other person was compared for his/her age, taking 30 and 40 years as base, and for FFVs expenditure per month. For 30 years old individuals the probability ranged from 39 % to 43 % due to expenditure on FFVs, while the scale ranged from 34 % to 38 % for 40 years old. However, when the same comparison was made for those who spend $ 136,25 on animal products per month the possibility ranged from 35 to 40 % and

TABLE 5
Probability to Shop on Supermarkets/malls during the COVID-19 pandemic

Parameter	Estimate	Z-statistic (probability)
Constant	-0,50	-1,05 (0,29)
HHI_i – Household Income	0,35	1,49 (0,14)
VE_i – Expenditure on FFVs and Food	0,00011	1,09 (0,27)
AE_i – Expenditure on Animal Products	0,00028	-1,50 (0,13)
A_i - Age	-0,02	-2,51 (0,01)
HHS_i – Household Size	0,22	2,16 (0,03)
Mc Fadden R^2 = 0,02	**MDV= 0,39**	**H-L (prob)= 14,08 (0,08)**
LR (prob)= 16,40 (0,00)* **		**Andrews (prob)= 15,87 (0,11)**

TABLE 6
Estimated Probability to Shop on Super-markets/malls during the COVID-19 pandemic

	VE=$ 68,13	VE=$ 136,25	VE= $204,38	VE= $ 272,51
Age 30 + $ 613,14 monthly income Household size – 2 (fixed) Expenditure on Animal Products – $ 68,13	0,39	0,40	0,42	0,43
Age 40 + $ 613,14 monthly income Household size – 2 (fixed) Expenditure on Animal Products – $ 68,13	0,34	0,35	0,36	0,38
Age 30 + $ 613,14 monthly income Household size – 2 (fixed) Expenditure on Animal Products – $ 136,25	0,35	0,37	0,38	0,40
Age 40 + $ 613,14 monthly income Household size – 2 (fixed) Expenditure on Animal Products – $ 136,25	0,30	0,32	0,33	0,34

30 % to 34 % with respect to age and expenditure on FFVs. The inferences retrieved from the findings were discussed respecting the features of the purchaser.

- For individuals that spend more on animal products, the probability declined for both age groups and FFVs expenditure scales. This can be read as less dependence on vegetable or packed food consumption of individuals that prefer more protein content in their daily nutrition.
- Despite the declining probability to make agricultural purchases on bazaars with respect to rising share of expenditures on FFVs, the tendency to go to supermarkets or malls rises hereby. The declination for those that spend $ 68,13 for animal products rose by 11 % and by 14 % for those that spend $ 136,25 for both age groups. The rise is higher for people that spend more on animal products. This might seem controversial. However, the comparison was made within the group and overall declination in the possibility for all scales respecting expenditure on FFVs is valid. This finding just means a higher rise for people having higher expenditure on animal products.
- The aggregate difference can be set forward as 13 % declination in the estimated probability from ones that spend $ 68,13 both for FFVs and animal products to individuals that spend $ 272,51 on FFVs and $ 136,25 on animal products. Accordingly, this confirmed the declined tendency of individuals that depend more on protein-based consumption.

Probability to make online agricultural purchases. It was first important to note that 98 individuals referring to 20 % of the sample indicated that they used online tools for fresh product purchases. Considering the number of individuals that have willingness to maintain online purchases after the pandemic process was 209, it is possible to note that most of the targeted audience were satisfied with

TABLE 7
Probability to Shop Online during the COVID-19 pandemic

Parameter	Estimate	Z-statistic (probability)
Constant	-0,87	-1,42 (0,15)
G_i – Gender	0,29	1,18 (0,23)
HHI_i – Household Income	1,38	3,96 (0,00)***
VE_i – Expenditure on FFVs and Food	0,00034	0,33 (0,73)
DI_i – Downsizing in Household Income	-0,20	-1,29 (0,19)
A_i - Age	-0,04	-3,28 (0,00)***
HHS_i – Household Size	-0,10	-0,81 (0,41)
Mc Fadden R^2 = 0,06	**MDV= 0,19**	**H-L (prob)= 5,87 (0,66)**
LR (prob)= 29,01(0,00)* **		**Andrews (prob)= 5,63 (0,85)**

online tools and orders for this probability analysis. 73 out of 98 individuals confirmed the maintenance of online agricultural purchases hereafter. This can be read that 75 % of online purchasers considered the online tools as sustainable, while the remaining individuals had to do online shopping due to lock-down measures. Finally, the estimated probability to make online purchases for agricultural consumption was calculated with the same methodology. Yet, the tendency to maintain online purchases was not considered as an explanatory due to its high correlation with the probability.

Depending on the results, the estimated probability to make agricultural purchases online was explained by gender, age, expenditure on FFVs, household size and household income and reduction in monthly income during the COVID-19 process. The analyses lead us to set forward six scenarios to estimate the probability with respect to age and reduction in monthly income. Females having more than $ 613,13 household income and living with a companion was compared due to age, 30 or 40, and from lower than $ 68,13 and to more than $ 136,25 income loss. The final calculations were made with respect to the value of FFVs expenditures. The estimated probabilities and explanations were indicated in the Table 8.

The probability of an individual being more than 30 years old was higher when her share of FFVs expenditure was higher and it reduced by the rising lost income during the pandemic. The scale ranged between 36 % and 48 % for income loss lower than $ 68,13, between 31 %, 43 % for income loss between 68,13 and $ 136,25 and between 27 % and 38 % for loss more than $ 136,25. For females older than 40 years, the same scales started from a lower level. While the highest probability for females that lose less than $ 68,13 of her income was 42 % for the highest share of FFVs expenditures, the individual having lost more than $ 136,25 seemed to have a probability to shop online by 32 %. Accordingly, there are significant inferences withdrawn.

TABLE 8
Estimated Probability to Shop Online during the COVID-19 pandemic

	VE=$ 68,13	**VE=$ 136,25**	**VE= $204,38**	**VE= $ 272,51**
Female, Age 30 + $ 613,14 monthly income Household size – 2 (fixed) Downsizing in household income – $ 68,13	0,36	0,40	0,44	0,48
Female, Age 30 + $ 613,14 monthly income Household size – 2 (fixed) Downsizing in household income – $ 136,25	0,31	0,35	0,39	0,43
Female, Age 30 + $ 613,14 monthly income Household size – 2 (fixed) Downsizing in household income – + $ 136,25	0,27	0,31	0,34	0,38
Female, Age 40 + $ 613,14 monthly income Household size – 2 (fixed) Downsizing in household income – $ 68,13	0,30	0,34	0,38	0,42
Female, Age 40 + $ 613,14 monthly income Household size – 2 (fixed) Downsizing in household income – $ 136,25	0,24	0,27	0,31	0,34
Female, Age 40 + $ 613,14 monthly income Household size – 2 (fixed) Downsizing in household income – + $ 136,25	0,22	0,25	0,28	0,32

- While the amount devoted for FFVs expenditures and the probability to shop online changes in the same line, the change with respect to rising income loss is vice versa.
- The rise for 30 years old individuals that have lost less than $ 68,13 of their income, having agricultural expenditures between $ 68,13 and $ 136,25 is 33 % on average. Despite starting from a lower estimated level, the same change for females that were 40 years old was 40 %.
- The rise for 30 years old that have lost more than $ 136,25, was 42 % and it was 46 % for those older than 40.
- Younger females with higher household income and lower declination in income during the pandemic process seemed to have higher tendency to buy fresh agricultural products online.

Evaluation and Conclusion. We have been living in an era that many things in our lives have been changing. The COVID-19 pandemic has many unfortunate effects on people and the operation of the global world. Yet, nobody is sure whether the health dimension can be controlled soon or whether the challenges we have been facing can be reverted. In addition to global and macro changes, our daily lives were affected as well. We are much less social and our intention to reach outdoor leisure activities has declined desperately. In line with these challenges, our consumption preferences and attitudes have been changing. Considering these micro-challenges, it was intended to determine how individuals had maintained their purchases and consumption of agricultural products within the pandemic process. The sales point preference of consumers and factors affecting this preference appeared as a concept to be assessed. Accordingly, with utilisation of survey data withdrawn from 499 individuals in Turkey in August 2020, the probabilities of individuals shopping on district markets, super-markets and with utilisation of online delivery services were estimated and compared within different scenarios for their agro-food purchases.

The findings were considerably interesting. It can be definitely inferred that young and educated part of the society has been shifting to online purchases of anything possible including agricultural products. There is not a significant difference for shopping on district bazaars with respect to age for females, if they do have a tendency or experience for online shopping. However, with the rising share of income devoted for vegetative products, the tendency to shop on bazaars seemed to decline within the sample. The dependence of individuals for shopping in super-markets or malls seemed to be higher. People seemed to shop in supermarkets more irrespective of their gender, if they are younger and if they spend less on animal products. When the probability of online fresh product purchases was considered, younger females that have lost less income compared to others and that devote more of their income to vegetable expenditures seemed to maintain their fresh product purchases via online tools more. As an important share of the audience (more than 70 %) indicated that they have lost more than $ 136,25 of their income, the possible shift leads us to consider future challenges.

These findings showed us that more individuals might shift to make online shopping for any sort of product. Up until now, online shopping was a preferable alternative for purchases of durable products as technical devices, textiles, furniture or sanitary products. These sort of purchasing attitudes have been mostly related with the need to save time. Yet, the pandemic had brought online delivery systems as alternative channels for nutrition demand as well. Online sales outlets might constitute an important supplier for both durable and non-durable agro-food product purchases in the close future. A sign for this challenge is developing delivery systems of retail chains. Online agro-food shopping might be more widespread as more retail chains have been adapting to online order and home-delivery. In addition to individuals that want to save time during their purchases, individuals having health and sanitation considerations will prefer online shopping more. This attitude change related with the COVID-19 pandemic process seems to be continuous. In other words, shopping tendencies and sales point preferences of individuals mostly with more than moderate income will maintain their shopping activities even after the pandemic ends. This can be understood from the rising tendency of younger population with relatively higher income and lower income loss to shop online.

Yet, within this comparative evaluation, it is not possible to infer that the whole society will decline face to face shopping. Many households have the intention to make agro-food purchases in physical outlets, and many people will continue to buy fresh agricultural products from bazaars or district markets. However, it is also apparent that the tendency to shift online purchasing has been rising and will become more widespread. Accordingly, both producers and primary and secondary level suppliers need to get prepared for this tendency of the society composed of educated individuals with higher income.

Departing from this brief field study, it can be inferred that the future of agro-food markets will be much more challenging and the whole system from production to final sales should get prepared. In this regard, producers and wholesalers of fresh products need to adapt to online marketing systems and improve their technological infrastructure and technology use.

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