Food Supply Using E-Commerce on Pandemic Times: New Habits

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ABSTRACT

Due to Covid-19, many of the traditional food chains did not able to fulfill their customers due to the sanitary measures: quarantines, border lockdowns, capacity facilities reduction, etc. This situation generated increased use of alternative means such as delivery service, online stores, and traveling fairs. The latter is part of the short food supply chains, SFSC, which at the beginning of the pandemic was used to respond to the shortage of products and crowded markets. This work tackles new food supply habits by consumers in Lima, the capital of Perú, and the e-commerce role. Before the pandemic, SFSC exists mainly in rural zones, now it has a 16% preference, and e-commerce increased its utilization by 13,84 times, mainly by A/ B /C socio-economical young population. The most valuable characteristics recognized are the use of protocols to prevent the spread of viruses, quality products, and delivery speed.

Keywords

Short supply chain, COVID-19, pandemic, crisis, food supply, E-commerce.

INTRODUCTION

In the context of the pandemic, to comply with the health protocols proposed by the World Health Organization, many businesses such as markets, fairs, and supermarkets closed their doors or reduced the capacity of the facility. They must migrate from a 100% face-to-face model to one by teleworking in many cases (Mushtaq, 2020; Peña et al., 2019). Furthermore, because of social distancing measures, the number of shift workers in countless industries has had to be reduced to minimize contact between suppliers and customers to reduce chances of contagion (Kilpatrick and Barter, 2020; Muñoz, 2020). This caused it will promote alternative ways to offer their products using short food supply chains, virtual stores, delivery service, etc., which in many cases led them to further expand their market and be more successful in sales.

According to Sanabria et al. (2017), citing several authors defines the agri-food supply chain as a network of organizations that work together, in different processes and activities, in order to bring agricultural products from farm to table and meet demands' consumers, is made up of producers, wholesalers, distributors, brokers, service companies, retail companies, and consumers. There are several definitions of the short food supply chain (SFSC). The European Commission adopts the following widely accepted definition in one of its reports: The foods involved are identified and traceable to a farmer and the number of intermediaries between the farmer and the consumer should be 'minimal' or ideally zero (Kneafsey et al., 2013). However, Michel-Villareal et al., (2019) propose that, basically, the number of intermediaries or physical distance does not distinguish the short supply chain, but rather the connection between consumers and producers through integrated products with information. In addition, they guarantee product quality and customer satisfaction (Renting et al, 2003; Vachon and Klassen, 2002). For the INRN (2011), the advantages of short food supply chains are: (1) they contribute to diversify and increase the sources of income of farmers, (2) they help to develop closer ties between consumers and farmers, thereby reinforcing a sense of the importance of the agricultural sector for a sustainable society and (3) increases the supply of fresh, high-quality and relatively unprocessed food locally and thus promotes healthy eating. All these characteristics motivated national and local government authorities to promote and strengthen the use of many SFSCs at the beginning of the pandemic to deal with the state of food supply crisis generated by the pandemic; quarantines, border lockdowns, capacity facilities reduction, etc.

Latev (2011) said Latin America will be register the strongest e-commerce growth globally, over 2010-2015, although this will represent just 4 % of global e-commerce sales. Growth will be driven by an increase in online users, improvements in infrastructure, higher household PC and laptop penetration and improvements in safe payment and delivery services. For Suominen (2017) technologies riding on the Internet such as 3D printing, machine learning, radio frequency identification (RFID) systems, robotics, and the Internet of Things applications grow more ubiquitous. These technologies open significant opportunities for entrepreneurs and companies to create new business models and export services. According to BlackSip (2019) in Peru, the internet penetration rate is 72,9%, one of the highest in the region, on the other hand, the same report indicates that by the beginning of 2019 internet users who used the networks to search for food was 28% in the world, while in Peru it was only 4,21%. Ebanx (2020) report that widely used to the smartphones, internet providers, fintech services, greater usage of digital payments and banking services, pushing virtual markets, that contribute to the improvement of different operations such as production, distribution, and marketing, bringing a high level of service to the end customer (Ludwig, 2020).

Lima, the capital of Peru, represents 29,7% of the total population of the country and concentrates more than 49,8% of the national gross domestic product. It is a modern city, evidenced by the fact that it attracted a large national migrant population, representing 37,6% (2 860 059 inhabitants) of the province of Lima. According to INEI (2014) in Lima, the number of new licenses for commercial establishments is concentrated in local stores and restaurants, which represents a potential market for the use of e-commerce, as a facilitating tool to continue operating in the context of a pandemic.

FOOD SUPPLY HABITS DURING THE PANDEMIC

The new context of the pandemic generated new habits, the concerns related also generated changes in people's habits, behavior, and values. About this a study carried out by Kantar (2020) in Latin America identified the following: (1) due to the confinement, 84 % Latin Americans declared their intention to only leave home for the extremely necessary, for instance; purchases in supermarkets, bank transactions, … Furthermore, 72% of the people expressed their intention to avoid crowded places, (2) confinement generated new habits in which "family moments" are given greater importance and majority people became more homelike, however a group of people expressed their desire to go out and make up for lost time, and (3) in terms of consumer demand, the new values and concerns generated the need for new places of purchase and manner to choice products, such as: prefer business where known the needs of consumers and adapting to them, places where adapts their products and / or services to the expected security of customers, reviewing product label-content, taking in count communication about sustainable actions, focus on the appropriate channels and categories and connect the purpose of the brand with the new values of consumers and people chose to make larger purchases to avoid going out frequently. In Peru, the following information was obtained by Kantar: on March 16 (start quarantine) the percentage increase in the number of products per purchase was 19%, on March 23 it was 22%, on March 30 it was 38% and on April 6 it was obtained a 50% increase percentage. Due to this, suppliers had the arduous task of identifying which products are the most necessary, in addition to knowing news inventory turnover, the flow of replacement of these products was adjusted.

According to (Jarzębowski et al, 2020; Navereau, 2007), after uninterrupted years of the establishment of large commercial areas in the periphery of urban cities as Spain and France, currently, the public and private actors coincide in the same discourse in favor of a trade closer to consumers. In a pandemic context, SFSC could represent a solution in times when there are many limitations in terms of customer mobility, and food availability in large traditional suppliers; markets and supermarkets, allowing them to be closer to consumers (Hernández, 2020: Ekcert, 2020). Below are 4 cases of short supply chains in Peru run in the context of the Covid-19 pandemic, before the sanitary emergency, they have a presence mainly in rural villages far from Lima:

- Farmers Market in Peru, the initiative of 300 farmers families formed by the Association of Agricultural Producers and Cattlemen of Cusco Region (ARPAC) on January 17, 2004, to be able to sell their products in more favorable markets and change the conventional system of intermediaries. This initiative gathers approximately 5 000 farmers throughout Cusco, of which more than 40% sell their products directly, this market gathers about 25 000 consumers, most of whom are urban. By 2012, 5 000 small and medium-sized producers passed from selling 850 tons (by 2004 they sold 170 tons), this represents increased the income of producers to $ 280, exceeding the Peruvian minimum wage at that time of $ 259 (Agroferias campesinas, 2020).
- Rural agro-fairs, began in 2012 by the Peruvian Society of Gastronomy APEGA and financed by The Multilateral Investment Fund of the IDB Group, to make it an easily accessible channel for producers who were required an organic certification to take part in local fairs. In the current pandemic context, the fairs follow security protocols such as; facilities were set up to avoid conglomeration of people, each seller was requested to wear a protective mask and take rapid Covid-19 tests every 20 or 30 days (Guittard, 2013).
- Itinerant markets "From the Farm to the Pot", organized by the Rural Agrarian Productive Development Program (Agro Rural), a unit attached to the Ministry of Agriculture and Irrigation of Peru (MINAGRI). Its main objective is to bring near producers to markets, this has been achieved thanks to a collaboration between agricultural producers and local authorities (district, provincial and regional municipalities) throughout the country. By May 18, 2020, MINAGRI estimates that around 456 873 households have been favored with a 15% and 20% reduction in final food prices. In addition, approximately 6 000 farmers have benefited from the income of around US$ 4,2 million in 319 itinerant markets (Vadillo, 2020).

During the pandemic, all the types of SFSCs mentioned and other local ones increased their exhibition points and participating partners, increased their commercial offer, expanded the options of means of payment, incorporated sanitary control protocols. However, due they depend on the use of the public space, the service to customers, always it is limited in its expansion.

According to Vargas (2020), e-commerce has been the privileged purchase option during the pandemic in 2020, since having to be at home, its use has facilitated the acquisition of mass consumer products. The online restaurant consumption category grew 10 190 % according to (Bravo, 2020a), other small and micro businesses also launched their own websites (repair services, personal care, home maintenance, etc.). Facebook pages were used to receive orders and to make your offer visible, marketing your products, communicate with your customers, promote your promotional campaigns, etc. 44% of Peruvian shoppers made their first purchase on the digital channel in the last year, 83% of them plan to continue shopping online during 2021, it is expected to grow 121% between 2019 and 2024 (Bravo, 2020b: Sandoval, 2020).

METHOD

The approach used in this research is quantitative, according to (Hernández-Sampieri et al., 2014) because it has the characteristic of collecting information through instruments. In this case, it used surveys, in order to reinforce and verify to what the aim of this research; to have a clearer picture of how Peruvian customer habits have changed during the pandemic in the context to supply food and e-commerce role. The type and level of research are of a pure theoretical type, with a level qualified as descriptive (AECT, 2020; Vara-Horna, 2012). Also, it is descriptive research, characterized by the collection of limited information or data, referring to large or broad groups. It was chosen online surveys because it is an easy manner to release them to target group. This type surveys, in the social and private sector market research is widely used (Spitz, Niles & Adler, 2006). The survey has been designed following the criteria proposed by Harlow (2010) in terms of the content of the questions, duration, and accessibility of the survey, and subsequent exploitation of the data found.

Data Collection

According to Velasquez and Rey (1999), the sample is the representative part of the population, which must meet certain requirements and conditions. In this case, the study sample is 150 people of legal age, who live in the city of Metropolitan Lima. To collect information was used virtual surveys, due to the context in which this work was developed and the health measures required by quarantine. The instrument used was a virtual questionnaire using Google Forms. In APEIM (2020), the districts of Metropolitan Lima have been classified into eleven zones, in this work, it is also possible to know the percentage of the population of each zone by socio-economic level: A, B, C, and D.

The first questions of the survey allowed to identify the respondents by age, district, and socioeconomic level, and later the questions had the objective of gathering information on how to make purchases before and after the pandemic. Finally, the surveys were disseminated through instant messaging applications such as WhatsApp and Instagram. According to (Badii et al., 2008) for the total population of 10 775 738 in Metropolitan Lima, considering a precision of 3%, it is necessary to take a sample of 150 respondents at a confidence level of 70.20 %.

RESULTS

The results obtained were the following; the districts of Lima, where online shopping is most popular in times of pandemic are the districts that are in Zone 6 (Jesús María, Lince, Pueblo Libre, Magdalena, and San Miguel) and Zone 7 (Miraflores, San Isidro, San Borja, Surco and La Molina); to a lesser extent the districts of Zone 4 (Cercado, Rímac, Breña, and La Victoria) and Zone 2 (Independencia, Los Olivos, and San Martín de Porras).

According to APEIM (2020) and results from survey, we can conclude that economic sector A, B, and C make online purchases more frequently than socio-economic population C, and D, belonging to zones 2, 4, 6 and 7.

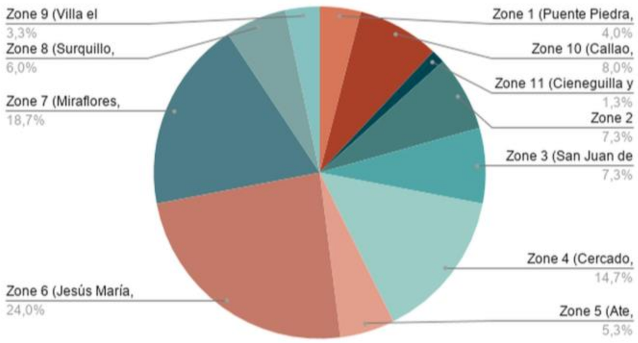

Figure 1. District of Residence

Regarding the age range of the surveyed population, they are from 18 to 24 years (58.7%) predominate and to a lesser percentage people from 24 to 39 years (25.3%).

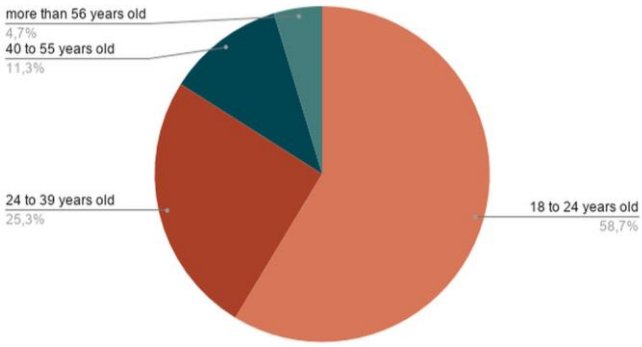

Figure 2. Age of Population

Habits after and before the Pandemic

In Figure 3, it can see how often people have bought during and after the pandemic. Customers prefer to reduce frequency bought, biweekly and monthly food supply has increased, daily and weekly shopping have decreased, this new habit avoids Covid-19 contagion by exposing to crowed places. Traditional habits of the food supply by Lima families have decreased by the quarantine and lockdown.

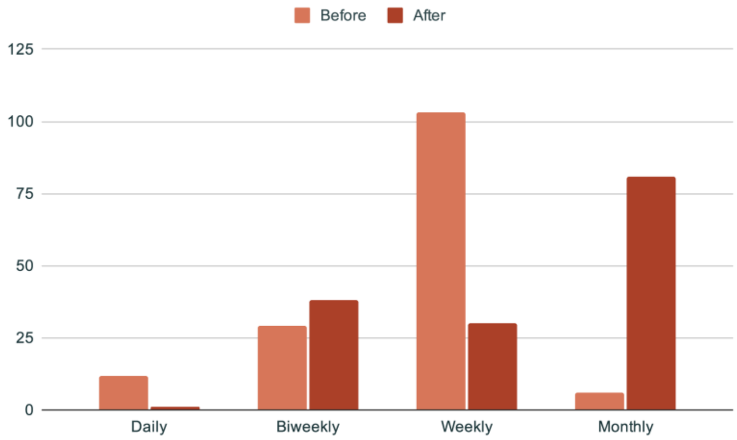

Figure 3. How often did you buy your food products? (after and before pandemic)

As can be seen in Figure 4, e-commerce has increased the most than other supply options because people avoid getting infected, and e-commerce assures social distance, meanwhile, purchases in supermarkets or traditional markets have decreased, the most decreasing is at traditional markets because it has been a delay in adopting sanitary controls. Online commerce has been very important during the pandemic, which does not mean new business, that it means adoption of technology by local traders.

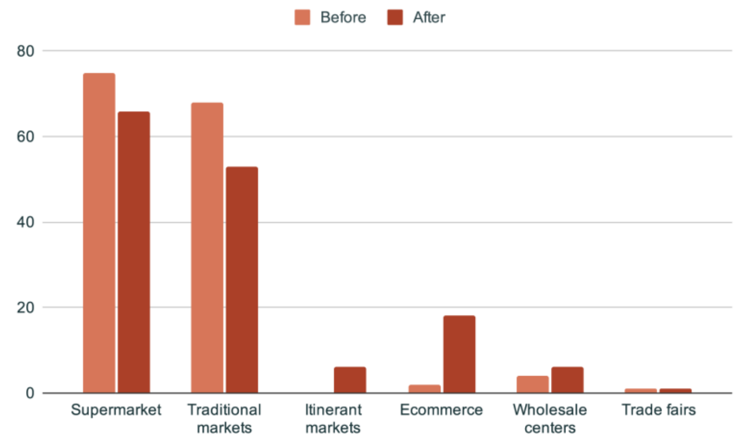

Figure 4. What was the supply center that you used the most? (after and before pandemic)

People value the most when buying by online those protocols for preventing the spread of COVID-19, the quality of the products and the speed of delivery, in a lower percentage the variety of products and the variety of payment methods.

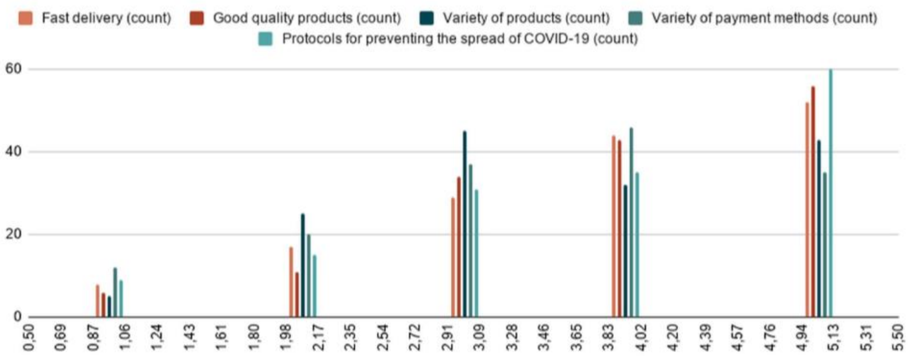

Figure 5. On a scale of 1 to 5, what do you value the most when buying online?

The highest percentage of people who use virtual means, spend in purchases weekly, a range of 100 to 200 soles, is 32,7%; continues the group of people who spend from 0 to 50 soles (28.7%) and in a range from 50 to 100 23,3% of the total of people surveyed. (exchange rate on 08 February 2021; 1,0 sol is 0,52 US$).

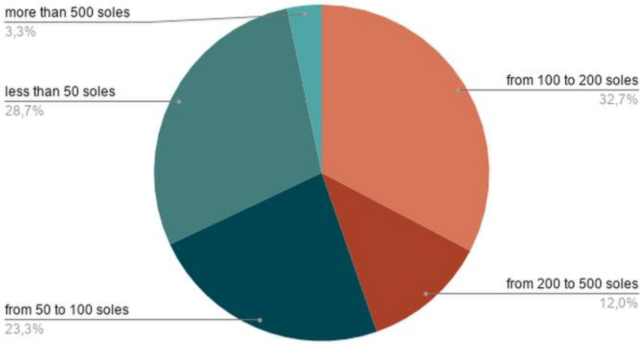

Figure 6. Approximate weekly spending on internet purchases

According to the survey carried out, the biggest disadvantage that virtual commerce brings is the delay in deliveries, no match between products features in the virtual platform and the real product, and some frauds or scams to sellers. However, a considerable percentage indicated that they had no problems.

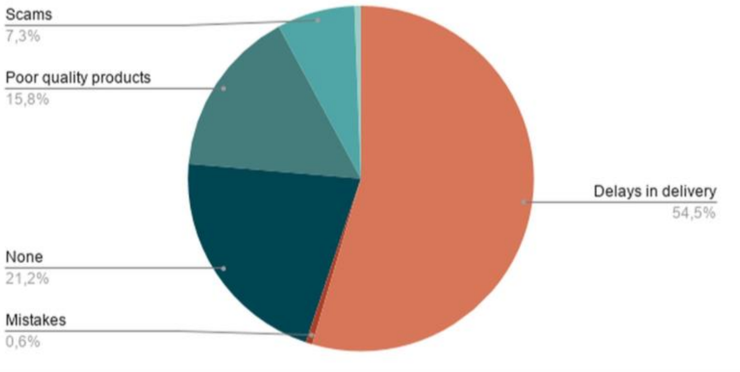

Figure 7. Do you have any inconvenience when making your purchases online?

For this part of the analysis, the socio-economic levels have been grouped by the highest percentage of the population that they represent in each analyzed zone. In Figure 9, it can be observed that in socioeconomic levels A / B, the use of supermarkets decreased by 25% after the pandemic, with the use of e-commerce having a greater reception with an increase of 15%, itinerant markets (or SFSCs) increased by 20%. Regarding the socioeconomic level B / C, the use of traditional markets decreased by 20% and e-commerce increased by 20%, even in the C / D levels they have been incorporated users to e-commerce, which shows the widespread use of this medium for the supply of food, seeking to ensure social distancing.

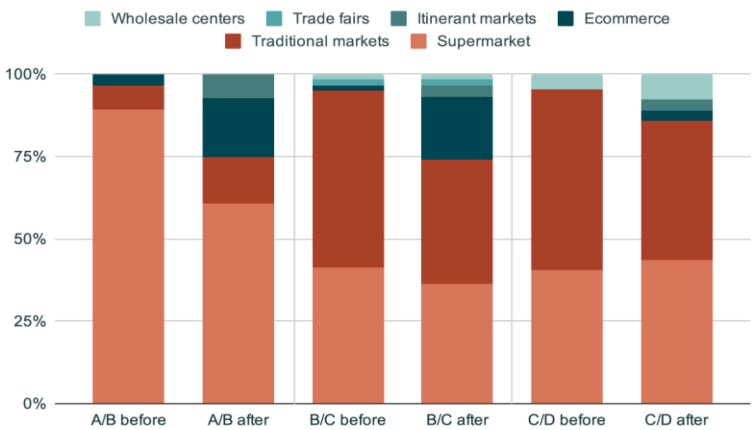

Figure 8. Means of the food supply by socioeconomic level before and after the pandemic

The frequency of weekly shopping after the pandemic decreased in socioeconomic level A / B by approximately

43% while shopping twice a week increased by 5% and monthly purchases increased by 20%. Weekly purchases in socioeconomic level B / C decreased by 60% and monthly purchases increased by 55%. Regarding the socioeconomic level C / D, weekly purchases decreased by 30%, and purchases twice a week increased slightly, however, monthly purchases have an increase of 50%.

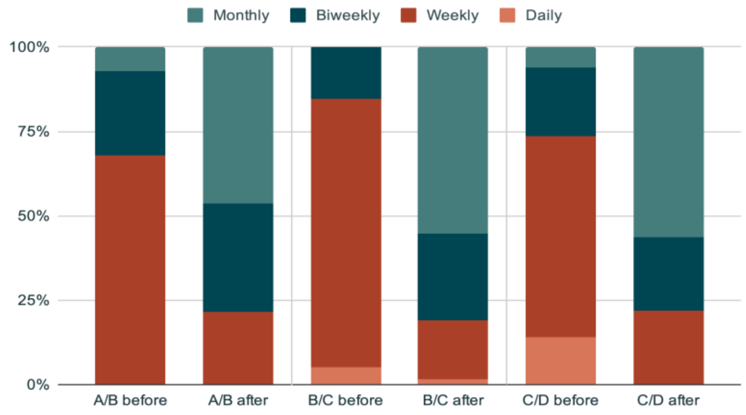

Figure 9. Purchase frequency by socioeconomic level before and after the pandemic

It is evident that even when monthly purchases mean the use of a larger budget, this is only possible if the families have permanent income and also if they have resources that facilitate the conservation of food (for example refrigerators) so the value of the increase in class C / D recorded here should not be representative of a reality, which indicates that only 76.3% of the population in Lima has a freezer or refrigerator (INEI, 2017).

CONCLUSION

The evidence found in this research shows that the use of e-commerce has increased widely, pushed by the health protection Government directives issued to avoid contagions; social distancing, avoiding crowded places, and use of protective equipment. This increase of activity around the use of e-commerce to commercialization have privileged their use for the supply of basic necessities, where the purchase of food has had a priority in the search for and spending of products marketed through online, which already had some marginal presence before the pandemic, for instance: (1) web pages of supermarkets such as Metro, Plaza Vea, Tottus, Wong, etc., (2) delivery applications such as Globo, Rappi, Fazil, etc., (3) local store web pages, and (4) social networks such as Instagram, Facebook Marketplace, WhatsApp. Especially the young population belonging to socio-economic levels A, B, and C have been the largest users that have been incorporated into its use. The purchase frequency that was used the most compared to the search for less exposure by users was the monthly frequency followed by the biweekly.

It is expected that the increase and predilection for the use of these means will continue while quarantines are still used to avoid the successive waves of infections that are occurring in 2021, the increase in spending for purchases is evident, higher frequency of use this means is occurring among the younger population.

It is estimated that the resources to be required to support these new habits in Latin America will have to be strengthened, for example, Internet transmission bandwidth, new shopping applications, integration with traditional media managed by the financial system, etc.

It is suggested to expand the sample of the survey to broaden the level of trust of the target audience, especially some socio-economical sector like C/D. As well as to consider the collection of data from the different regions of the country, which correspond to different sociodemographic characteristics due to the disparity that exists between predominantly urban and urban regions. rural areas, especially the latter located in the highlands and jungle areas of Peru.

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