

Short Marketing Chains and food security: the case of El Mercado el 100

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Abstract

The health emergency in Mexico City (CDMX) has made it vital to revitalize food supply models such as Short Marketing Chains (SMC), which can be constructed via organizations such as El Mercado el 100 (M100). This article analyzes M100's potential to contribute to the food security of local spaces in CDMX. Additionally, the article defines how these organizations responded to the current health emergency. SMC organizations such as the M100 are models of agrifood associativity that emerge with renewed strength in times of crisis, promoting local food security in cities.

Keywords: food security; Short Marketing Chains (SMC); food supply; food markets; health emergency.

1. INTRODUCTION

The food system in Mexico City (hitherto CDMX) is made up of flow and distribution networks built around a variety of commercial organizations that serve both retail and wholesale vendors: supermarkets, public markets, street markets and "organic and agro-ecological food retail spaces" (Pardo and Durand, 2018, p. 473). These last retail organizations are beneficial to the population, especially when facing a complex panorama such as the health emergency created by the SARS-CoV-2 virus.

Faced with the pandemic, Mexican federal and local authorities implemented a variety of measures to contain the virus such as limiting movement, slowing down manufacturing operations, closing retail and commercial exchange spaces, as well as stopping activities relating to tourism and leisure.

Many stakeholders, organizations and other Alternative Food Supply Chains (hitherto AFSC), such as the M100 farmers market, had to reassess their strategies pertaining to food production, distribution and sales in CDMX, in order to contribute to the city's food security. However, factors such as vendors' limited production capacity, government uncertainty, difficulty in accessing raw materials and sales points can increase the vulnerability faced by these AFSCs and their stakeholders, as well as limiting access to healthy food and increasing preexisting conditions of local food insecurity, which has a negative impact on the local economy of major cities.

This study therefore focuses on analyzing the potential of food supply chains operating as SMCs such as El Mercado el 100 (M100) to contribute to the food security of CDMX neighborhoods as well as defining how these supply chains are impacted by adverse conditions such as the health emergency.

This research paper is divided into five sections, including the introduction. The first reviews the theoretical concept of food security and its scale, as well as that of SMCs. The second section describes the methodology used and puts forward results and discussions. The third section focuses on the M100 case study, as well as survey results obtained. The document concludes with a section on final observations.

2. THEORETICAL FRAMEWORK

Food security: Different Perspectives

Despite a global consensus on nutrition being a key issue for nations, the paradigms relating to food security and food systems have changed significantly over the last two decades of the XXI century. On the one hand, the social and environmental role that agriculture plays has been revitalized, moving from the preconception that it is solely an activity related to food production to becoming a key element in local and regional development. Furthermore, the relationships between stakeholders within the food system were reevaluated with particular emphasis on that between the farmer and consumer. The AFSCs established elements of interest by creating "connections between rural and urban areas through alternative food movements, created in opposition to a move towards globalization [and] defining themselves as an innovative medium for the creation of a sustainable food paradigm" (Marsden & Morley, 2014, as quoted in Reina-Usuga *et al.*, 2018, p. 184).

In this context, food security is a multidimensional concept (Urquía, 2014) described during the World Food Summit held in 1996 as follows:

"...Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Food and Agriculture Organization of the United

This concept presupposes the existence of a series of dimensions –*availability, access, utilization and stability*– that are necessary, but not sufficient, to achieve food security and that will, on paper, be operationalized in the following paragraphs.

1) Availability. The tenet of *availability* is that food exists in all nations in sufficient quantities to satisfy current and future food demands. This then “addresses the ‘supply side’ and is based on the level of food production, stock levels and net trade” (FAO and UE, 2010, p. 5).

With this in mind, and in order to analyze and operationalize this perspective, we propose undertaking an analysis of *availability* considering several factors that can impact the stock levels of food items, namely:

- a) Production volume: the basis for establishing the production and capacity to stock food.
- b) Sales volume of food items; a study of economic sustainability in the agri-food sector can be indirectly created using this data.
- c) Establishing a minimum threshold of capacity and conditions that support production such as the availability of land and its tenure (whether it be on an ownership basis, rented or communal land); access to labor; infrastructure (storage and processing spaces); machinery or production and processing equipment; public or private financial support for production, processing or commercialization.
- d) Adverse environmental conditions and the response capability to these that can impact negatively on food production, such as climate change (droughts, flooding, pest infestation or illnesses, changes in the harvest season, heatwaves, excessive wind, changes to the growing cycle).

2) Access. The second dimension of food security entails a growing awareness that food production, or its physical existence, does not guarantee that people can consume it as “ways to access food include trade, barter, foraging for wild foods and community support networks”. (fao and EU, 2010, p.5) This is an extremely important point as it pertains not only to the actual existence of food supplies but the physical and economic ability needed to access them;

[...]we must bear in mind that access to food supplies depends on market conditions and the cost of food, as well as people’s purchasing power, all of which ties in with opportunities for employment and subsistence’ (fao and EU, 2010, p.1)

With this in mind, from the consumers’ perspective, prices are a key consideration in achieving access to food in the context of food security (Dowler *et al.*, 2011, as quoted in Chiffolleau *et al.*, 2019, p.183) Thus, *access* can be analyzed using factors that can influence this dimension, outlined below.

- a) The level of availability and access to means of distribution and points of sale. Here we evaluated the ability of stakeholders from the agri-food value chain to access physical spaces, whether public or private, for the exchange of food products.
- b) The quality of infrastructure and road conditions for the supply and transportation of products to points of sale which contributes to the topic of mobility, a necessary requisite for guaranteeing physical access to food supply.
- c) The use of other strategies to guarantee food supply (commercialization and sales, such as e-commerce, the use of broadcast platforms and food baskets).
- d) The pricing of products offered to the general public, in comparison to similar items being offered at exchange points, such as wholesale food markets or markets.
- e) Factors that can impact on prices which are a consequence of conditions such as the presence of intermediaries, production cost hikes, and an increase in commercialization costs.

3) Utilization. Here we understand *utilization* to mean “the way the body makes the most of various nutrients in the food”(fao and UE, 2010, p.6). This is a multi-dimensional concept as it involves aspects that go beyond food, including hygiene, access to sanitation, water and information about food safety. It is also reflected in the extent to which people benefit from food (in terms of quantity, caloric intake, in proportion and access to basic nutrients). The *utilization* dimension can be analyzed and operationalized as in the previous cases, by considering the factors that can influence both the quality and the safety of the food, as well the consumer’s knowledge regarding nutritional content, food safety, and the standard with which the food was produced and processed. These factors are as follows:

- a) Information on the final product of processed foods: nutritional information; list of ingredients; information pertaining to the farmer, packer, processor or importer. These factors are important in the consumer’s understanding of the nutritional content of the food products as well as of the hygiene and safety measures used during the production process. Moreover, as they are factors in the *utilization* of food, it is appropriate to include other quality stamps and certifications on food products if they are a government recognition of quality standards or specialized processing, such as organic or agro-ecological products. This section also includes other types of certifications awarded such as fair trade, good environmental practices, collective mark or stamps recognizing appellation of origin or territory.
- b) Other quality food labels, food origin labels, or certifications such as the Mexican Official Standard, or organic, agro-ecological, fair trade or good environmental practices certifications.

4) Stability. Given that the first three dimensions are necessary steps in achieving food security, *stability* is a cross-sectional dimension that can only be attained when the first three are sustained in the long term. Therefore variations, be they internal or external factors of the territory, do not compromise the supply of healthy food products for a region’s population. (fao and UE, 2010).

From a macro point of view, *stability* entails the existence of public policy designed to bolster production, balance access to food supplies and encourage the availability and acquisition of safe food products. However, factors that impact on small agri-food production units, primary producers or agro-industries exist. Thus, the element of *stability* can be analyzed from the following perspective:

- a) The existence of subsidies or stimulus packages to support agri-food's continuing activity. This point covers actions or strategies that public or private institutions need to undertake to increase the resilience of agri-food chains such as loans for farmers; direct or indirect stimuli for farming; building reliable supply and distribution networks; media and promotional campaigns; improvement of infrastructure; support to improve the safety and sanitary conditions of points of sale; technical support and mentoring to improve production or processing.
- b) Sociocultural factors and building social capital which requires valuing traditions, culture, traditional uses and customs relating to food preparation, building trust and collaboration networks with stakeholders and even the process of handing over to the next generation.
- c) Government stability, the certainty with which stakeholders take decisions relating to investment or purchasing, as well as to projecting sales and fostering productive decision-making. Government stability is reflected in the need for administrative continuity, including the existence of policies, productive and social strategies (Urquía, 2014) to develop agri-food activity under alternative supply structures.

However, to achieve food security the dimensions need to be integrated to create sustainable and functional food supply systems using alternative structures consisting of "production, collection, storage, production, consumption [and] commercialization of food products" (Bassols *et al.*, 1994, p.36). Furthermore, it is important to consider that the previous food security construct has a broad analytical scale, at a macro level and on a national scale. It is therefore important to add that although this construct can provide suitable theoretical elements for the analysis of each of the pillars, for the effects of this study, the scope of impact that AFSCs such as M100- an example of an SMC- should be understood and recognized, applied to the aforementioned pillars they may be specific to a micro scale.

This should not be considered a weakness, but as a window of opportunity to encourage and strengthen these alternative organizations, highlighting the contribution to and importance of these markets to local food security in urban areas.

Short Marketing Chains for Food Security

SMCs are defined as "forms of commerce based on the direct sales of fresh or seasonal products [with no or low intermediation] between farmers and consumers". This encourages geographical proximity, boosts family agriculture, reduces the links on the food value chain and builds trust (Padilla and Oddone, 2016). These SMCs are "spatial concentrations of agricultural exploitations, businesses or institutions in a network that specializes in one subsector or several subsectors of certain agri-foods, according to territory." (Delgadillo and Sanz, 2018, p.10) These SMCs main characteristics are based on proximity to production, distribution, marketing and consumption areas, as well as the 'great participation of small stakeholders [that consist of units of] household [and] artisanal economy and flow orientated towards local and regional markets" Azevedo, 2009, p.11)

According to Goodman *et al.* (2012), the perception of an unsustainable industrial food model, specific to and characteristic of a globalizing food supply model, could have created the emergence of movements and food production and consumption sites based on ethical and responsible principles centering on organics. Their organizations, such as the SMCs, "represent a promise of separation, [transcending] the long chain supply models, that represent the social construction of new economic models" (Chiffolleau *et al.*, 2019, p.182). These new models counter hegemonic and homogenizing consumer tendencies characteristic of globalization's commercial processes such as "transnational agri-food businesses [heralding] changes in food consumption based on the expansion of prepared and industrialized food" Pensado, 2003, p. 204), coupled with changes in food patterns, an increase in the importation of food products with doubtful nutritional value, fast food chains becoming mainstream and an increase in self-service chains.

With changes in the dynamic relating to food production, processing, distribution and consumption at this time, food supply alternatives arose that can be considered as options as they represent exchange points for agri-food goods. These goods can be classified as artisanal, traditional, agroecological or organic and their marketing dynamics promote SMCs, fair trade and the distribution of benefits among stakeholders. These types of organizations, with the SMCs being of particular interest, stimulate territorial development and question the traditional, dominant agro-industrial model. (Renting *et al.*, 2003).

Given the concept of the SMCs is polysemic, it is important to mention two of the lenses through which these organizations were approached analytically.

From the point of view of supply, SMCs are built on *face-to-face* interactions between farmers and consumers (Korhonen *et al.*, 2017). They can be comprised of self-sufficiency systems such as collective vegetable gardens and certain types of urban farming, community gardens or personal gardens. Other examples are commercial exchange chains, farmers markets, organic or agro-ecological street markets, markets based on barter, roadside sales and community farming. On the other hand, seen through the lens of demand or consumption, SMCs create a new emphasis on origin, food quality, transparency, traceability, access and the price of the food, aspects which directly impact on consumption.

3. METHODOLOGY

For the purpose of this research paper, we reviewed the concept of food security and operationalized the dimensions based on a case study (Yin, 2003). In order to go deeper into the case study, a non-probabilistic survey, using snowball sampling, was used and M100's legal representative established as the communication channel. The survey was designed as a semi-open survey, in e-form, and was applied to producers, processors and vendors belonging to M100 during the month of July 2020.

At present, M100 is comprised of 46 producers belonging to different fields (prepared foods, fruits, vegetables, personal hygiene products, arts and crafts, ceramics and cleaning products). However, given that our focus was to contribute to existing knowledge around agri-food practices, we decided to only include producers working with food. Initially, we asked the legal representative to share the survey with vendors so that they would participate. At the end of the research period, (October 2020) the questionnaire had been answered by about ten vendors at the M100.

The questionnaire was made up of 49 questions divided into 6 broad categories, including questions to garner knowledge of each of the vendors and of their activity. Additionally, the four pillars of food security were operationalized using the elements mentioned in the theoretical section on *availability, access, utilization* and *stability*, from the perspective of the conditions or stimulus needed to continue in agri-food activity. We also researched the conditions, actions, production and marketing strategies of those surveyed prior to the health crisis caused by the Covid-19 health pandemic, as well as during the pandemic (ongoing at the conclusion of our research).

The information gathered in the surveys allowed us to collate a database which was structured by theme. The quantitative information was analyzed using Microsoft Excel spreadsheets. The answers were reviewed and integrated into the analysis by selecting points of convergence that highlighted the differences between each of the producers.

4. RESULTS AND DISCUSSION

The EI 100 Market in Mexico City

The M100 is a Civil Association that was established as a permanent marketing alternative, with no intermediaries between producers and consumers, and was the first of its kind to be awarded the Participatory Organic Certification given by the Agricultural and Rural Development Ministry (sader) and the National Service for Agrifood Health, Safety and Quality (SENASICA) (Time Out Mexico, 2020; M100, 2020). The M100 is comprised of 46 producers, 89% of whom work in the food sector and the remaining 11% in activities such as ceramics, arts and crafts, personal care, and the sale of biodegradable cleaning products (M100, 2020).

The market opened in 2009 (López and The Universal Agency, 2011) and was named EI 100 because of the criterion that their products must come from regions no more than 100 miles away (160 kilometers). However, despite the market being envisioned as focusing on local goods produced in an area close to Mexico City, consumer dynamics led to the distance criteria becoming more flexible (Salgado- Sánchez and Castro-Ramírez, 2016). Currently, 50% of the products come from Mexico City, 32% from Mexico State, 7% from Morelos, 2% from Puebla, Veracruz and Queretaro respectively, and 5% from Tlaxcala (M100, 2020).

The M100's organizational structure is one of internal collaboration, focusing on the inclusion of stakeholders and trust-building between the producer and consumer, as well as producer-producer. This is a commercial association model with no intermediaries and is therefore a solid example of an SMC coming to fruition. Furthermore, this food supply model fosters a sustainable relationship between the countryside and urban consumer areas such as cdmx, creating a space that encourages family agriculture, diverse ways of working and fair trade through responsible farming practices and consumption.

El Mercado EI 100 and food security in CDMX within the framework of the health crisis

The focus of the online survey's questions was information-gathering and to establish the contribution that this supply structure makes to food security in cdmx's neighborhoods, as seen from the point of view of the pillars previously described. Other areas of interest were the challenges and opportunities faced when selling food products in Mexico City before, during and after the Covid-19 health crisis. The survey results, answered by about 10 vendors, can be seen below.

It is important to note that 40% of the vendors who answered the questionnaire were women and 60% were men. Given the focus on contributing to knowledge regarding the food sector, 100% of those surveyed produced agri-food goods or utensils used in the food sector. It is, therefore, important to highlight the heterogeneous nature of the vendors and their relative activities (products made from prickly pear, cereals and grains; edible plants; fruit; vegetables; vanilla and other pods; organic eggs and coffee; coffee and coffee-based products; cocoa and cocoa-based products; utensils used in the food sector). The range of surveyed vendors validates the information relating to the M100 because even if the food sector vendors who did not take the survey vary from those profiled in this study, they do offer products from the above categories. The survey results show that 50% of those who answered actively take part in all the pillars of the agri-food value chain; only 20% are involved in primary production; 10% solely in food processing and a final 20% in food processing and sales activities. This shows a producer with a complete understanding of agri-food chain's links, which could contribute to comprehensive product development strategies being devised.

80% of the agri-industrial and production entities owned by those surveyed are family run. 40% of them were launched in the last 5 years and 60% opened in M100 during that same time span.

Joining M100 meant greater earnings from increased sales for these producers. It also brought an increase in their production capacity and the possibility of obtaining agroecological or organic certification as well as access to courses relating to production. All of the above contributed to job creation.

The availability dimension in the M100 for food security

As stated in the section on theory and methodology, *availability*, as a food security dimension can be operationalized from a series of factors that impact on food production levels.

In this context, the results of this survey showed that the units' production volume is limited, a trend that has continued over the last few years, with a slight uptick. However, this makes it difficult for producers to get into chains such as supermarkets or self-service stores so that they can scale successfully.

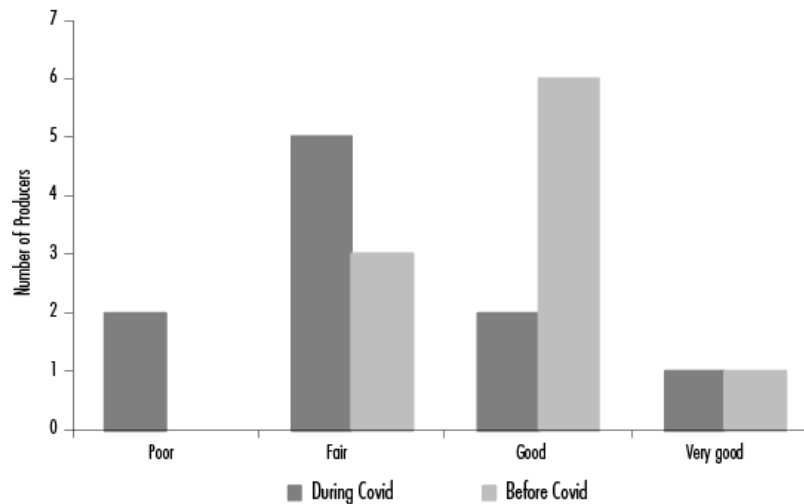
The *availability* of food products in this market can be impacted by production volume, land tenure and the acquisition or use of workspaces, be they owned, rented or collective. It is interesting to note that 60% of the producers surveyed owned their place of work, whilst 40% rented, representing a vulnerability factor for renters.

Factors relating to climate change such as droughts, flooding, infestations, changes in the length or intensity of seasons (such as heatwaves or excessive wind) can also directly impact production levels. Those surveyed were asked about these issues. The results showed that 60% of those surveyed suffered a negative impact on their production levels due to droughts or the length of the low-water season, whilst 40% had been affected by flooding. 50% reported problems in production levels due to infestations and 60% negative impact on production due to heatwaves.

When looking at the producers' turnover as an indicator of economic sustainability, there was a downward trend. This decrease sharpened due to limits on movement being put in place in cdmx and a reduction in domestic demand for food, from the beginning of the health crisis. As a result, sales shrunk by up to 70%, an important consideration given that M100 represents the main income perceived by 80% of the vendors.

Similarly, when looking at the impact of the health crisis on production (see figure 1), it is noteworthy that the perception of availability of and ease of access to raw materials (seeds, compost, fertilizers, or irrigation systems) has become more negative, moving from being seen as "Good" or "Very Good" for 70% of those surveyed (7 out of 10 of the farmers) to 30% (3): from "Fair" 30% (3) to 50% (5) and rated "Poor" by 20% (2).

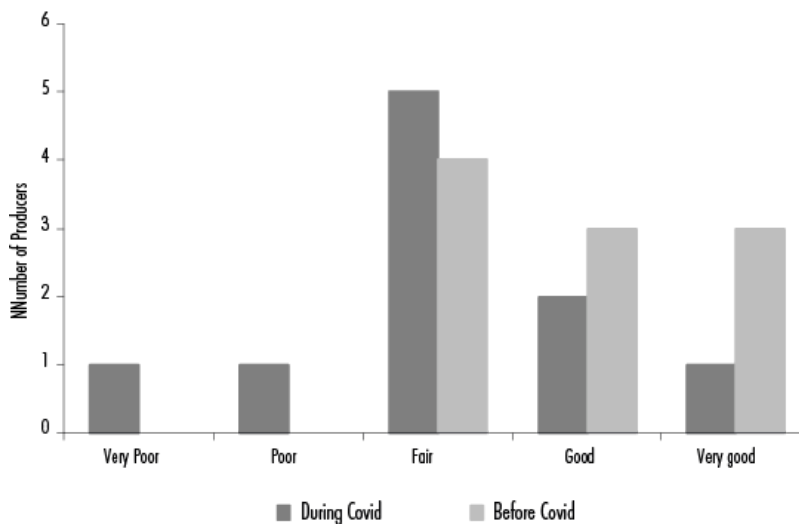
Figure 1. Perception of availability and ease of access to raw materials prior to and during Covid-19, 2020



Source: prepared by the authors based on the surveys

Furthermore, when looking at availability and access to labor (see figure 2), the level of availability changed from "Good" or "Very Good" from 60 to 30% (6 to 3) and from "Very Poor" to "Poor" from 0 to 20% (0 to 2). This is due to the restrictions placed on movement affecting staff needed for sowing, farming, harvesting and food processing.

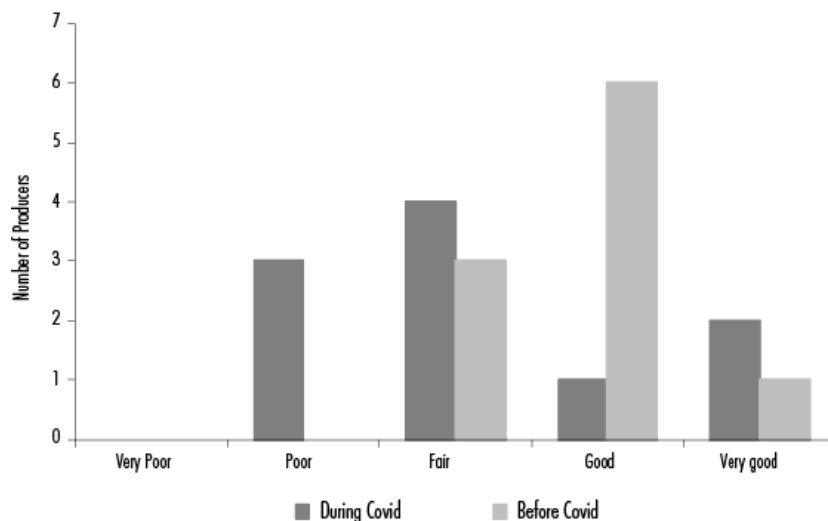
Figure 2. Perception of the level of availability and access to labor before and after Covid-19, 2020



Source: prepared by the authors based on the surveys.

When looking at the access to spaces for production, storage and processing the rating changed from “Good” or “Very Good” from 70% to 30% (7 to 3) and the “Poor” rating increased from 0 to 30% (0 to 3) (see figure 3).

Figure 3. Perception of the level of availability and ease of access to infrastructure prior to and during Covid-19, 2020



Source: prepared by the authors based on the surveys.

All the above created a reduction in production volume for 60% (6) of the participants. Thus, even if these food supply units have the potential to contribute to the *availability* dimension of food supply as a pillar of food security, when faced with adverse external conditions such as the health crisis, the conditions needed for them to work, and their food production capacity, is made very vulnerable. This could affect one of the links of the food supply chain in urban areas.

The access dimension in the M100 with regards to food security

Access to foodstuffs in the M100 can be affected by factors such as access to distribution; the infrastructure of roads needed to supply and transport products; strategies (traditional and alternative) to sell food products or establish price points. Therefore, and following the methodological proposal relating to identifying and operationalizing *access* to food, the results of the survey show that 40% (4) thought that the current state of roads, highways and streets needed to supply and transport products is “Very Good”. However, 20% (2) thought that these were not sufficient due to CDMX being densely populated and a commercial exchange point with restricted mobility that is difficult to transit. Furthermore, from the start of the health crisis, the rating given to availability and access to distribution methods and sale points changed from “Fair” for 80% of those surveyed (these kinds of markets being established in public spaces has always caused an element of administrative difficulty) to “Very Poor” or “Poor” for 60% (8 to 6). This is due to the restrictions placed on movement, stores being made to close and social distancing measures.

In so far as ease of movement for supply or sales during the health crisis, 30% of those surveyed considered it to be "Good" or "Very Good" due to the reduction in traffic. However, 60% (6) thought it "Bad" or "Fair" due to restrictions in public transport, which put producers who did not own their own vehicles at a disadvantage when sourcing supplies or selling products.

One of the main challenges for survey participants was managing production costs and their repercussion on sales prices which, seen in conjunction with the population's purchasing power, becomes a relevant point with regards to accessing food.

It is therefore important to mention that based on the survey's results, the absence of intermediaries has allowed 70% (7) of the producers to offer better prices. However, due to the pandemic, the same percentage of those surveyed had to modify (raise) their sale prices. The raise could in turn mean that the food products offered become thought of as "luxury goods."

This is confirmed by the following study comparing prices offered to the public by M100 and similar products being offered at other sales points such as the wholesale food market in CDMX. When looking at prices for comparable items, products considered to be basic and more highly consumed in CDMX (The Ministry of Social Development [SEDESOL], 2016) showed a price increase ranging from 50 to 200 %. Faced with this, stakeholders in AFSC using SMC models such as M100 need to create strategies to deal with two issues. On the one hand, they need plans that address reducing production costs and the search for scale economies; there is some progress here given that their structures are free of intermediaries. On the other hand, a greater effort to increase awareness and promote the consumption of food products like those found at M100, thought of as safe, healthy, local and benefiting the farmers' families' lives, is needed. Effort of this kind requires comprehensive, binding strategies that can at times exceed the primary stakeholders' capabilities.

Due to the health crisis, M100 began to shift to e-commerce, both using the communal M100 platform and individually.

Thus, the results of this study show that another of the main challenges faced by the producers at M100 is the need to make changes in logistics and production to deal with the new hygiene and sanitary protocols required. Additionally, a constant and complete transformation in dealing with consumers and food suppliers has been necessary. Faced with restrictions on movement, 100% of those surveyed said that they had had to use other commercialization and sales strategies, most notably the use of Information and Communication Technology such as e-commerce platforms, creating web pages, using social media, e-messaging and home deliveries.

When looking at access to food, 50% of those surveyed thought that commercialization conditions could be improved if points of sale were strengthened, increasing sanitary measures and guaranteeing the safety of consumers as they return to M100, due to the change in health norms in cdmx.

The utilization dimension in M100 with regards to food security

Recognizing that *utilization* as a pillar for food security does not only involve the food's safety, nutritional quality, and healthiness, but can also show that these factors are well-known to consumers. Utilization is multidimensional and deals with products meeting the identification and information requirement for sale and consumption. When looking at products offered by those surveyed at M100, 80% contained the brand or product name, 50% had nutritional information and 70% had the producer or packers' contact details.

In so far as stamps or quality labels, it is interesting to note that 30% of the producers have official certifications that guarantee production quality standards such as the Mexican Official Standards (nom), whilst 40% have begun the process of getting them. However, 90% (9) of the producers do not have recognition for fair trade, which could be due, in part, to not knowing enough about this type of certification.

Information on food origin is present and visible in 50% of the products belonging to those surveyed, whilst the denomination of origin (institutional protection) is only present on the products of 20% (2) of those surveyed.

When looking at the results, it is important to consider how functional these institutional protection entities are. At times, the interest in obtaining these certifications can be based on the following factors: requests made by demand which motivates supply to obtain certification; the technical or production capacity of the units to fulfil quality requirements and standards requested by the certifiers and finally, but no less relevantly, the cost of the certifications and the stakeholders' financial ability to access them.

The stability dimension in the M100 with regards to food security

Finally, the *stability* dimension with regards to food security can be framed by its own definition. It establishes that the previous conditions (*availability, access and utilization*) should exist at every moment and for every person. It therefore becomes a transverse element that can be influenced by multiple factors. These factors, in the case of supply structures with an SMC approach, are the existence of the support and stimulus needed to continue agri-food activity; the presence or absence of sociocultural or traditional elements that can impact on agri-food activity and work; building trust networks between stakeholders, which is itself a characteristic of SMCs; a stable governmental environment that offers certainty for the development of their activities.

These elements were used in this document as indirect indicators of *stability* and operationalized in the survey. The results showed that 80% (8) of those surveyed stated that they had received no support, whilst only 20% (2) mentioned using direct support coming from local government institutions.

On the other hand, 80% (8) of the participants considered that their work, in the framework of M100 and as an SMC structure, increases trust in other stakeholders and with consumers. They have been able to build loyalty with consumers by exchanging knowledge and experiences around food production and processing, which is one of the M100's greatest strengths.

Another factor relevant to the search for *stability* and continuity in agri-food businesses, is transfer from generation to generation. It is important to note that of those surveyed 40% (4) think that the younger generations, usually children or direct family members, show no interest in continuing the food traditions, or in reproducing or conserving food know-how, which could put the business at risk, as well as leading to the loss of cultural and traditional heritage.

In addition, 40% (4) think that given the adverse panorama caused by the pandemic, there is not enough economic or financial security to allow for purchasing or investing in production, and this scenario is repeated when it comes to sales projections. Similarly, 60% (6) of those surveyed thought that changes to the area where the M100 is permanently located, in this case the Cuauhtémoc municipality, impact negatively on food commercialization. This can be explained by the fact that political changes, in general, are accompanied by changes in administration. This disrupts the logistic and operational procedures needed for the M100 to function, as well as the use of public spaces, as negotiations have to be established with new actors and new local administrations.

Furthermore, with regards to *stability*, it is important to mention that during a review carried out on livestock and farming metrics developed by international institutions such as the Interamerican Institute for Cooperation on Agriculture (IICA) not one local or federal strategy focusing on promoting or protecting these forms of food supply, or the SMCs, could be found. This is also true for the safeguarding of assets relating to agroecological, organic or small-scale family agriculture. These conditions, in concurrence with an absence of institutional continuity, can cause systemic weakness which impairs strategies created to strengthen small groups of farmers to achieve food security (Interamerican Institute for Cooperation on Agriculture [iica], 2020)

4. FINAL OBSERVATIONS

When looking at AFSCs using the SMC model, it is important to take into consideration that even though they do not offer a comprehensive solution to the problem of food security in CDMX's neighborhoods, they can be seen as a move towards establishing commercialization channels that favor and promote local development. Examples of this are trust building between the vendor and the consumer, establishing sustainable agro-ecological production processes, keeping the aggregate value in the farmers' own areas, and even the preservation of culinary traditions and knowledge of food.

However, it cannot be overlooked that structures such as the M100 that promote SMCs are to a degree inherently limited in achieving scale economy, despite being held up as positive alternatives for achieving a secure food supply for areas of large cities such as CDMX. This also applies to other small scale food producers such as family farms, which also suffer from limited technological capability and production capacity. Moreover, they face the constant challenge of combining artisanal tradition and standardized processes, even when obtaining quality, hygiene and food safety certificates which can lead to an increase in consumer trust and even the possibility of their products being placed in markets with a higher aggregate value. We observed that each small production unit's limited capacity for technology, production and even organization occasionally persisted as there is low incentive for change once they have joined organizations such as M100. Markets such as these have established a functional model that can be replicated but can have difficulties for scale. These windows of opportunity become smaller when adverse situations such as the pandemic occur. However, this does not apply to all the units surveyed nor all of those in the M100.

With this in mind, it is important to note that an analysis of SMCs' potential, as represented in the M100's contribution to the four dimensions of food security in places such as cdmx, allows us to establish that this market needs to pay attention to the aforementioned issues. This would create a window of opportunity by offering local consumers healthy, fresh, safe and seasonal food products. Thus, and this contributes to the *availability* dimension, food supply channels, sales points, means of distribution and commercialization of food products show potential for growth, even though there is room for improvement. Vendors sometimes miss this opportunity for growth due to the inherent characteristics of the organizational structures that they belong to. This can also restrict continual *access* to food products (*stability*). When considering continual *access*, once the issues cited are solved and production levels increase, production costs could decrease. This would result in more competitive prices for consumers which, in conjunction with a decrease or total elimination of intermediaries typical of an SMC organization, could create a virtuous cycle of sufficient income for producers and affordable prices for consumers. Moreover, the AFSCs under SMC models support and promote production quality and safety standards and organic agro-ecological systems. These SMC strategies support the *utilization* dimension of food security in cdmx's neighborhoods, increased by the constant efforts of each of the market's vendors to obtain quality stamps and certifications, increasing consumer trust in the goods purchased. This occurs hand in hand with a constant and *stable* process of creating a bond between the consumer and the producer.

The models of agri-food partnerships that have come back with double the impact are of equal importance. They demonstrate that food supply does not stop, is resilient, adaptable and flexible, even in times of adversity. This can be seen, on a small scale, in vendors perseverance who have created strong bonds between the productive rural areas and the urban consumer centers. It is therefore very important to acknowledge AFSCs' good practices using SMC models such as the M100. These are based on trust-building between the producer and consumer, allowing us to appreciate these open and inclusive partnership models in adverse circumstances.

Food security is a complex construct that is simultaneously broad, multifactorial and requires multi-stakeholder and multi-levels approaches. However, despite this, the AFSC's contribution (as cited in this report) must not be overlooked as it represents a step towards building a sustainable food supply model, based on local production and consumption.

The case study presented here allows us to observe that, despite the potential weaknesses of this type of food supply structure, the example given is extremely resilient. However, even when SMC structures such as this have high adaptive capacity, it is important to note that they need to strengthen their institutional frameworks to become sustainable and allow them to surmount not just the common adversities and continual difficulties faced by food businesses, but also to survive adverse circumstances of great magnitude, such as the health crisis in cdmx.

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