Supplementing household income through self-supply and exchange: The case of a multiple exchange fair in Mexico City, 2016

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Abstract:

For approximately 40% of Mexican households, income alone is insufficient to meet basic expenses. As a result, some families fulfill their needs through self-supply, the practice of producing goods either for direct consumption or eventual exchange. This paper demonstrates the effects that the self-supply practice has on household savings. The authors find that the practice of multiple exchange, which includes a combination of exchange, production, and self-supply, is a key mechanism that enables Mexican households to better meet their needs. Data from a survey given to participants of a trade-and-exchange fair in Mexico City in 2016 was used; the participants' self-supply levels exceeded Mexico's self-supply average, positively influencing their monetary savings.

Global economic conditions show an increasing concentration of both wealth and the means that produce it. Consequently, income inequality among the world population is blatant. In turn, the economic dependency generated through inequality leads to political and social conflicts (Lomelí and Murayama, 2012). According to Piketty (2013), wealth concentration, inequality, and dependency conditions have significant effects at national, organizational, and individual levels. Mexico, like all countries in the Latin American region, suffers from the great problem of inequality (Ayvar et al., 2013). Esquivel (2014) describes a process in which inequality is closely related to poverty, pointing out that Mexico's inequality owes a great deal

to the indebtedness of the lower economic tiers, which struggle to prevail within a cycle of work, income, debt and spending. Loans, remittances from family members working abroad, transfers (gifts) given from home to home, and government assistance programs become key elements of survival in a situation where monetary income alone is never enough to live.

Official statistics from the National Survey of Household Income and Expenditure (ENIGH) in Mexico show that approximately 40% of the population in Mexico has a deficit, in terms of income (Y) for paid work net of consumption (C).[1] This income deficit, in turn, creates a deficit in household saving levels (S).[2] Families in this situation are thus compelled to make use of their own backyard production to fulfill basic needs through several different means. Key among these is a practice known as self-supply (SS), which is the production of consumer goods and services that individuals/businesses engage in for the purpose of either direct consumption by households or exchange (INEGI, 2019). When such goods are exchanged, we refer to this practice herein as collective self-supply.

Self-supply has been facilitated in Mexico since 1995 with the advent of *ferias de multitrueque*, or multiple-exchange fairs (MEF).[3] These fairs – comprising associations of producers of various consumer goods and services – are aimed at satisfying participants' basic consumption needs, thus helping to resolve the widespread issue of household savings shortfalls. Lopezllera (2004) describes these as "associative communities" that "link events and solidarity meetings based on free giving and that increase well-being […]. that reflect events where individuals interact and (are) strengthened […] without measure or calculation" (Lopezllera, 2004, p. 5). Likewise, participants limit their dependency upon monetary income by producing, consuming, and exchanging with each other (Lopezllera, 2004). In the context of these fairs, consumption and exchange are carried out through community currencies (CC), or producer-created currencies, which are recognized and accepted only within specific local and regional boundaries (Primavera, 1999).[4] Community currencies are based entirely on producers' goods and serve only as units of account and means of exchange (Primavera, 2001).

This project is centrally focused on the practice of self-supply by the fair participants, and specifically upon how this practice affects income efficiency. Thus, the central question of the research is how the practice of self-supply has impacted household savings in Mexico City in 2016, based on data obtained from the case study of a multiple-exchange fair in that city. In the sections that follow, we first present our research question and then discuss the theoretical framework in which we carry out our inquiry. After detailing our methodology and its operationalization, we then present and discuss our results. We proceed to a concluding discussion with recommendations for future research.

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[1] Statistics come from the National Survey of Household Income and Expenditure (Spanish acronym: ENIGH), applied by the National Institute of Statistics and Geography (Spanish acronym: INEGI) in Mexico. Income (Y) here is considered monetary income for work, as stipulated by the ENIGH, without considering remittances or transfers. Without these, the current monetary income is insufficient to cover family spending in a large part of the Mexican population (INEGI, 2019). Consumption (C) refers not only to regular spending on consumption but also to regular spending not intended for consumption (ibid.). For clarity, letter C will be used in this paper to refer to all private household expenses.

[2] Savings (S) here refers to the surplus or deficit, derived from the difference between monetary income and current expenditure in households (INEGI, 2019). According to Orozco (2014), if the income exceeds the expenses, there is a surplus of money; if the expenses exceed the income, there is an income deficit.

[3] Multiple exchange refers to the fact that an exchange of goods is made multiple times through community currencies, which expands the limitations of traditional direct exchange (Lopezllera, 2004).

[4] The local and regional economy in which a community currency circulates, which is accepted only within certain geographical limits, promotes other types of activities aimed at satisfying basic local needs (Primavera, 1999).

1. Dependency, inequality and poverty in Mexico

According to Piketty (2013), wealth and income inequalities are largely the result of political actions more than natural, self-regulatory laws. He argues that capital concentration undermines democracy and strengthens the establishment of societies of owners in which inheritance acquires greater importance. In this view, inequalities can be reversed endogenously, through the organization of society or through actions taken by governments such as progressive taxation on private capital.

The issue of low savings has roots that go beyond the scope of household economies and even beyond the national scope (Lietaer, 2001). The conditions of a globalized market economy embrace most individuals on the planet and have different repercussions depending on each country and each family's position in the global, national or local economic scale (Amin, 1977).

ENIGH 1996-2016 of INEGI reveals the country's prevailing income inequality; it shows wide differences[5] among home income deciles.[6] Families belonging to deciles I and II have a historical deficit income for paid work in relation to their quarterly consumption in almost every year. On the other hand, in decile X, a quarterly savings average close to 44% is observed (see figure 1).

Deciles III, IV, and V fluctuate the most since they experience fluctuations in both deficit and savings. However, in the years in which a positive $Y - C$ relationship is observed in said deciles, it is very low and can be considered fragile. Such fragility means that household savings may not be enough to cover any unexpected contingency. From decile VI upwards, the levels of savings are presented more solidly (INEGI, 2019).

Thus, savings in these deciles are even greater than the total income in decile I in all years. From decile VIII, the average savings level is greater than the total income of decile II; decile IX shows a greater savings level than the total income of deciles I to IV combined. Finally, decile X has a greater savings level than the total income in deciles I to VIII combined and almost equal to the total income of decile IX (INEGI, 2019).

As shown in figure 1, in all cases, those deciles with an average deficit of income with respect to their average consumption are from I to V. Significantly, this means that approximately 40% of the population in Mexico has a deficit in household monetary income (INEGI, 2019).

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[5] The national survey divides all the respondents into ten parts (deciles), and groups them according to their level of income, with decile I being the lowest income and decile X the highest income (INEGI, 2019).
[6] Although data collection in the actual research was determined in Mexican pesos, all monetary values shown in this paper are translated into United States dollars (hereinafter USD) at the current approximate rate of 19.5 pesos per US dollar.

Figure 1 – *Income-consumption balance for the deciles showing a deficit in at least one year, in USD,*
1996-2016

In this scenario, individuals from the lower tiers of the income distribution tend to depend upon the great capitalists through jobs and/or on their governments through assistance programs (Hirschman, 1984).

2. Toward economic self-sufficiency

Economic self-sufficiency is never granted, so it needs to be achieved by actions that arise from the bases of society. This paper identifies elements of self-management, sustainable production and economic solidarity that have served as the engine of economic independence.

In this vein, Hinkelammert and Mora (2013) envision a renewed role for economic science, which they refer to as an "economy for life" that would have the ultimate purpose of granting conditions for the reproduction of human life and the environment: "[...] it must place human beings at the center of the analysis; the centrality of the living, free bodily subject [... must be]

the cornerstone of its arguments and its conception of the world" (Hinkelammert and Mora, 2013, p. 30).

These authors hold that, production decisions in the neoclassical economy are the result of harsh competition between producers seeking individual benefits; thus, their reproductive value for *life* is not reflected in the price of products, rather, only their production cost is. Such a social construct generates a fundamental contradiction in modern societies: as a consequence of the political will to promote a systematic increase of capital return rates over economic growth, extreme inequalities arise, generating a class of owners that reproduces itself and threatens the values of democracy (Hinkelammert and Mora, 2013).

In such a situation, inequality and wealth concentration would affect not only capital accumulation but also democracy itself, as stated by Piketty (2013). Hinkelammert and Mora (2013) thus emphasize the urgent need to develop an economic counterproposal outside neoclassical dynamics, which they call the "critical theory of reproductive rationality" and which should operate by "[…] allow[ing] a scientific, not tautological, assessment of the market system and guide[ing] an economic practice in communion with the conditions of possibility for the reproduction of human life, and therefore, of nature" (Hinkelammert and Mora, 2013, p. 350).

Investment decisions made by large capitalists are now more distant than ever from the social context that gave rise to them. It is necessary to find new ways of rooting workers at the center of their own lives and their communities (Kocka, 2015).

On the other hand, Piketty (2013) also proposes the establishment of a *modern social state* with the capacity to respond to social changes arising in societies; it must provide the necessary reforms in social-security systems, addressing increasing life expectancies as well as the growth of youth unemployment occurring worldwide. He considers this to be feasible only by diversifying forms of management, organization, and ownership toward breaking with capital-work exploitation relationships.

The purpose of these social movements is not only the reduction of poverty and inequality; it all comes along with an intended democratization of capacities in society, especially within the poorest people. This situation eventually produces self-sufficiency, convergence and social cohesion. Poverty and inequality reduction as well as democratization of social rights are a consequence of the return to distributive politics versus an illusory argument that inequality reduction is the consequence of a trickle-down effect that inevitably occurs when the economy grows (Ramírez, 2015).

The multiple-exchange fair system is clearly defined with Hinkelammert's concept of reproductive rationality. Its two points of greatest divergence from the market economy are the prevailing system of use-values of goods as well as its ultimate purpose, which is the reproduction of life as opposed to capital accumulation. The fair system can also be considered as existing parallel to capitalism. It operates within different dynamics and with different purposes but with the possibility of complementing it, as demonstrated in the discussion below.

2.1. Multiple-exchange fairs

Trade and exchange through fairs have become a source of self-employment and subsistence in times of economic crises (Cortés, 2008). They allow people to limit their economic dependency on exploitative, poorly paying jobs by producing and consuming on their

own. They also alleviate the problem of inequality by contributing to the consumption and satisfaction of needs, largely bypassing the use of money, to which some people have limited access. They represent a form of *collective self-supply*, since individual self-supply is combined with the exchange of goods in a network, allowing a certain community to obtain basic satisfiers through independent work, apart from the capitalist system (Collin, 2009).

In Mexico, these fairs are organized networks which meet on a regular basis. There, producers of mostly hand-made goods and personal service providers, now called *prosumers*,[7] use a community currency in the form of printed tickets. The community currency receives a name and represents the means through which goods and services are exchanged among fair members. The rules for its use and its exchange rate with the Mexican peso (MXN) are determined by the fair members. The community currency (CC) is given a monetary value only for cases in which prosumers decide to combine MXN and CC in a transaction.

Products and services are exchanged either through the community currency only or complementing it with Mexican pesos. The latter happens in cases in which a prosumer had to invest a certain amount of money in the product or service offered and would like to recover such investment. This also happens when the products or services to be exchanged have completely disproportionate characteristics and a direct exchange would not be logical according to the labor and/or materials employed in their production (e.g., exchanging an apple for a piece of furniture). Nevertheless, the purpose of these fairs is to induce a sense of equitable exchange and solidarity, not a sales-oriented, accumulation approach. Therefore, the community currency does not represent a monetary value per se but, rather, it serves as a note of credit indicating that the holder has previously shared a product and has the right to use any other good or service from someone else. Goods and services in a fair are assessed not by a monetary value but instead by their use value.

In the case of transactions combining official and community currencies (MXN and CC, respectively), sellers decide both the price of the product and the percentage of community currency accepted over such price (Lopezllera, 2004). In each fair, however, sellers must adhere to an established minimum of these percentages, since sales using pesos alone are not accepted.[8] The community currency has an expiration term, and every fair establishes their own terms; in the case study discussed in this paper, the term is annual. The fair meets once a month, but members can keep their community currencies all year and are allowed to exchange during the month with other fair members on their own. At the end of the year, their community currencies expire, and the corresponding compensations take place in a final meeting.

To maintain a balance in the circulation of the community currency, each prosumer is given an equal number of tickets at the beginning of the fair's term. This number is decided on a consensual basis by the fair members and calculated based on the total offer of participating products and services (Lopezllera, 2004). At the end of the event, each producer must return the same number of tickets to the fair's administrative committee, whether they are exchanged or not (in each transaction the ticket is endorsed).[9] In the case of a surplus or shortage of tickets, adjustments are made by the administrative committee. They take products from those

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[7] This is what participants in these fairs call themselves since they are producers and consumers at the same time (Lopezllera, 2006). This term was originally coined by Alvin Toffler (1980).

[8] In the case studied here, the minimum is 20%.

[9] Depending on the rules and customs of each fair, they are endorsed either by the buyer, the seller or both (Lopezllera, 2006).

participants with shortages of community currency and give them to those with an excess, corresponding as much as possible to the value of said excess or shortage (Lopezllera, 2004).

Finally, the number of signatures on the back of each ticket are added up by the same administrative committee to calculate the total benefit – in terms of the exchange rate assigned between pesos and CC tickets – that has been generated (e.g., if the exchange rate is $100 pesos per ticket, a ticket with 10 signatures is said to have generated $1,000 pesos in use-value). The purpose of this is to assess the benefits generated in the fair, regardless of the price that all products and services would have outside in the marketplace. This practice has proven to be successful because every time a CC ticket passes from one hand to another, it generates a benefit to the recipient of the good or service, without the need for money. Thus, each time a ticket is endorsed, a higher wealth (W) is generated for the fair's global worth; if the tickets do not carry many signatures, the fair's worth will be lower at the end of the term (Lopezllera, 2004).[10]

3. Methodological approach

In order to determine the impact that self-supply had on household monetary savings, we identified the main challenges involved in establishing a multiple-exchange fair, as well as the variables that may intervene in its successful realization. We chose the case of the Mixiuhca multiple-exchange fair in Mexico City because of its proximity to the city of Morelia, where the authors reside. Also, this fair has a number of participants and a diversity of offered goods and services that make the research convenient and feasible.

In order to determine the relevance of variable self-supply in income and to contrast the economic activities carried out in the Mixiuhca fair with Mexico's reality, we analyzed a range of official national statistics, as follows: the national survey 2016, which provides insight into the magnitude of the research problem and the evolution of self-supply as an alternative to monetary income; and the Minimum Urban Welfare Lines in Mexico 2016 (Spanish acronym: LBMU) , established by the National Council for the Evaluation of Social Development Policy (Spanish acronym: CONEVAL), which helped assess the minimum income needed to survive in a Mexican *urban* context and compare them with the fair's figures.[11]

It was important to determine if the impact of self-supply on participants' income in the fair was stronger than that at the national level. If the impact of self-supply on income in the fair was stronger than the national average, then the fair would be shown to be an effective means of alleviating the stagnant situation of those in the lower deciles of the distribution.

To determine the extent to which the fairs represent self-supply actions, we used ethnographic methods to conduct a case study in which we asked prosumers if they did, in fact, produce their own goods. Our fieldwork also allowed us to make connections with specific people who are involved in the organization of the fair. These relationships enabled us to gain their trust and confidence, which was necessary for carrying out the next phase of research, which was obtaining their income figures, among other personal information.

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[10] In this paper, wealth (W) is referred to as the total benefits generated by the exchange in the fair in terms of their use value with no use of Mexican pesos, whereas the fair's total offer includes self-supply, exchange, as well as sales in pesos.

[11] This is not the national average income. The LBMU is a national index that establishes the minimum monetary income with which a person can satisfy basic survival needs in an *urban* environment in Mexico (CONEVAL, 2019).

To carry out our research, we used in-depth interviews of key actors in the fair, and we also distributed copies of the survey to a representative sample of the total population. Prior to distributing the final survey, we administered a pilot version in order to test the validity of our survey instrument as well as its relevance for the rest of the sample. After finalizing the pilot survey, we then carried out a census of participants, resulting in a total population of 95 participants in the Mixiuhca fair. Based on the stratified random[12] sampling methodology of Bryman (2012), we would need a minimum sample of 76 surveys in order to obtain a confidence level of 0.95 that included participants from all product/service categories. Based on our initial census, we obtained 10 different product/service categories. We then assigned a number of surveys to each category, according to the percentage they represented in the total population, to make up the final sample of 76 surveys.[13]

We conducted in-depth interviews in person with members of the organizing committee, using mostly open-ended questions. Interviews consisted of three sections: the first section referred to the fair's general information, the second focused on its management model, and the third focused on numerical results per period.

The participant survey was also made up of three sections. The first was based on sociodemographic data that accounted for the participants' profiles. In the second, we investigated the socioeconomic status of the participants: it was crucial to define the economic decile in which average respondents belong because the levels of income, consumption and self-supply throughout the nation's deciles shown in the national survey had been previously analyzed. The third section focused on obtaining numerical data representing the *collective self-supply* (production and exchange) activities of each fair participant, among other data like investment, sales, consumption levels and generated wealth per individual.

The most significant information that we obtained were the levels of self-supply and exchange, shown in table 1; thus we could deduce the degree of self-sufficiency achieved by families through the fair. To determine the effect of self-supply on household monetary savings, we used the Pearson correlation method, because scale variables were integrated into the statistical analysis (Hernández, 2010). Another reason for the choice was to allow a more accurate analysis since specific numbers were obtained through the interview in relation to the respondents' income and expenditure. The fact that there was no extreme value that could violate the assumption of normality in this correlation model was also considered (Hernández and Mendoza, 2008).

In summary, the goal was to observe how the value of savings is ultimately derived from the self-supply practiced in the fair. It was essential to make sure that the generalization of findings had a solid foundation and that the results were supported by valid and reliable indicators and instruments beyond the object of study. Therefore, this case study shows evidence of the feasibility of carrying out larger projects using the same model.

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[12] This technique consists of dividing and subdividing a population into two or more representative segments and then linking the results obtained from each group and subgroup, i.e., the fair's different product/service categories (Bryman, 2012).

[13] Arts and crafts: 37%, 27 surveys; food and beverages: 29%, 22 surveys; clothing, footwear, accessories: 11%, 8 surveys; health products: 9%, 6 surveys; general services: 7%, 5 surveys; literature: 3%, 2 surveys; cleaning supplies: 1%, 1 survey; automotive and home supplies: 1%, 1 survey; rentals: 1%, 1 survey; others: 1%, 3 different goods, 3 surveys.

4. Self-supply as a reinforcement of household economies

In order to place the research in context, we provide longitudinal data on self-supply behavior in Mexico from 2002 to 2014, which also shows its contribution to household income.

4.1. Statistical behavior of national self-supply

Figure 2 shows that the total self-supply from the last 12 years had a variable contribution to the national income, fluctuating around 0.76%, with 0.66% being its lowest value in 2014 and 0.94% its maximum value in 2012.

Figure 2 – *Average percentage of total self-supply share in the national income, 2002-2014*
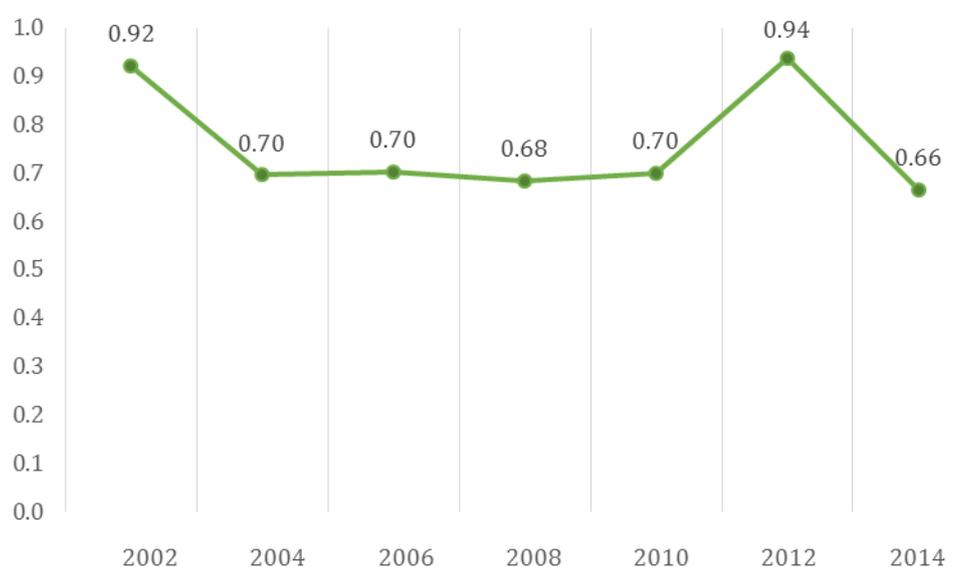
Source: elaboration on data from INEGI (2019).

Figure 3 shows that the highest percentage of self-supply share in household income is present in deciles I and II with 3.52% and 2.10%, respectively. In a second ranking, the level of participation of self-supply in deciles III to VI ranges around 1%. Finally, the highest income deciles present the lowest average levels of self-supply. The average percentages of self-supply in deciles VII to X combined do not reach the 3.52% level observed in decile I alone.

These results confirm that families with lower monetary income, such as those belonging to deciles I and II, tend to depend more on the goods that they produce through their own businesses, orchards or workshops to complement their economic sustenance in levels that range around 2% and 3.5% of their income.

Figure 3 – *Average percentage of self-supply share by decile in the national income, 2002-2014*
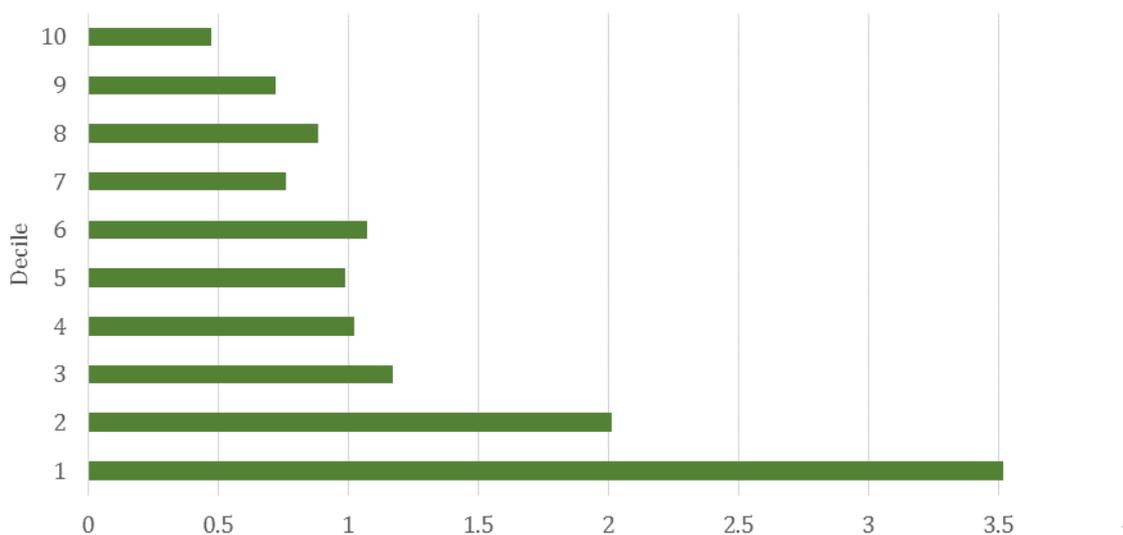
Source: elaboration on data from INEGI (2019).

4.2. Assessment of self-supply effects in the case study

To evaluate the existing levels of self-supply in the studied fair, it was necessary to review the survey responses corresponding to the three major stages incorporated in the self-supply process: production, exchange, consumption.

1. As for production, 35.5% of the respondents fully produce their good or service, 47.4% do it partially, and the rest do not produce at all. This indicates that most participants have an active participation in the production of their goods or services.
2. In terms of exchange, 60.5% of participants exchange between 50% and 99% of their products. This shows that exchanges are also very significant in the self-supply process.
3. In terms of consumption, 84.2% of the respondents reported having increased their consumption through the fair, with the bulk of them (56.6%) increasing consumption between 50% and 99%.

Finally, according to the figures declared in the survey and based on the annual report of total generated wealth provided by the fair administrators, it was found that 60.6% of the participants had an estimated monthly self-supply of between $6.92 and $9.71 USD. The monthly weighted[14] average self-supply observed in the total number of the respondents during the year 2016 was $6.24 USD, greater than the amount of the average self-supply of the latest national survey (year 2014) for all deciles together, which was $1.85 USD per person per month (see table 1).

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[14] It is a weighted average in the sense that it is calculated per participant, instead of just averaging by the number of categories.

Table 1 – *Frequency analysis of monthly self-supply per participant, in USD*

	Frequency	**Percentage**	**Cumulative percentage**
11.16	1	1.3	1.3
9.71	23	30.3	31.6
6.92	23	30.3	61.8
4.13	15	19.7	81.6
1.34	14	18.4	100
Total	76	100	

* These amounts were asked in the survey as categories of estimated self-supply.

Tables 2 and 3 show the real self-supply contribution of Mexicans in deciles I and II in monetary terms. The average monthly contribution of self-supply per person is contrasted with the minimum acceptable urban income (LBMU).

The average quarterly income per household was taken from each yearly national survey (from 2002 to 2014) and divided by three for the average monthly income per household. The result was then divided once again by three, which is the average number of people per household declared by the national survey, to arrive at the average monthly income per person. This exercise was carried out for both deciles I and II because most fair participants fall in these deciles according to their declared monthly income in the survey. The figures show that between 2002 and 2014 for these two deciles, the average monthly self-supply per person in Mexico ranged from $0.82 to $1.59 USD. For decile I, this represents a higher percentage of their total income. It is also observed that this self-supply contribution in this time series fluctuated between 1% and 1.75% of the minimum acceptable urban income. As the differences between these ranges do not turn out to be statistically significant, it could be stated that these levels remain constant.

Table 2 – *Percentage of self-supply in the minimum urban income* (*LBMU*) *decile I, in USD*

	2002	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**
Average quarterly current income (thousands)	523,144	589,830	1,081,435	791,685	933,861	1,014,579	1,121,066
Surveyed households:	2,465,017	2,584,508	2,744,535	2,787,462	2,955,677	3,155,937	3,167,100
Monthly income per person	$23.59	$25.33	$43.79	$31.54	$35.13	$35.74	$39.33
Self-supply	$0.83	$0.89	$1.54	$1.11	$1.24	$1.26	$1.38
Average monthly LBMU	$73.17	$80.70	$88.03	$96.04	$107.31	$116.14	$127.88
Self-supply share in the monthly LBMU	1.13%	1.11%	1.75%	1.16%	1.15%	1.08%	1.08%

Source: elaboration on data from INEGI (2019) and CONEVAL (2019).

Table 3 – *Percentage of self-supply in the minimum acceptable urban income* (*LBMU*) *decile II, in USD*

	2002	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**
Average quarterly current income (thousands)	930,160	1,075,104	1,731,370	1,440,388	1,643,444	1,782,426	1,954,624
Surveyed homes	2,465,017	2,584,508	2,744,535	2,787,462	2,955,677	3,155,937	3,167,100
Monthly income per person	$41.93	$46.22	$70.09	$57.42	$61.78	$62.75	$68.57
Self-supply	$0.84	$0.93	$1.41	$1.15	$1.24	$1.26	$1.38
Average monthly LBMU	$73.17	$80.70	$88.03	$96.04	$107.31	$116.14	$127.88
Self-supply share in the monthly LBMU	1.15%	1.15%	1.60%	1.20%	1.16%	1.09%	1.08%

Source: elaboration on data from INEGI (2019) and CONEVAL (2019).

To assure that most of the goods and services offered at the fair mainly came from self-supply, i.e., backyard production vs. buying goods to resell them, the following data was gathered: a total of 93.4% of prosumers invest less than $100 MXN (approximately $5.00 USD) in producing their good or service; only 3.9% of them invest more than $100 MXN per product; two of them (2.6%) declared that they stay in the $100 MXN average. The aim of the study is therefore not biased by monetary investment.

Finally, the report issued by the fair administrators at the end of the year was reviewed. It calculates a total generated wealth of $12,725.28 USD in 2016. This represents a monthly average of $1,060.44 USD. Dividing the total generated wealth by the number of participants, which is 95, we find that each participant contributed an annual average of $133.95 USD, i.e., $11.16 USD per month.

Table 4 – *Frequency analysis of average investment per product*

	Frequency	**Percentage**	**Cumulative percentage**
Higher than $100 MXN	3	3.9	3.9
Average $100 MXN	2	2.6	6.6
Lower than $100 MXN	71	93.4	100.0
Total	76	100.0	

Note: 100 MXN equal approximately $5 USD.

This result is then contrasted with the data on the impact that national self-supply had on the latest minimum acceptable urban income (LBMU 2014). It reported an average monthly amount of $127.88 USD, and the national self-supply of the latest national survey was $1.85 USD, i.e., 1.44% of said amount (see tables 2 and 3). If the average monthly self-supply per fair

participant was $6.24 USD, and the monthly wealth generated by each of them was $11.16 USD as indicated above, their self-supply equals 59.59% of said generated wealth (see table 1). Thus, the self-supply practiced in the fair had a much greater effect on its generated wealth than that of the national self-supply on the average monthly LBMU.

4.3. Relevance of self-supply in the income of Mexicans: 2002-2014

As stated above, each prosumer in the fair contributed an annual average of $133.95 USD, or $11.16 USD per month, to the total amount of wealth generated in the fair. The descriptive frequency analysis obtained through the processing of raw data indicates that the fair participants' average monthly Y is $612.21 USD for paid work outside the fair.

It was observed that 44.8% of the respondents fall below this income average, while 26.3% of them fall above it and 28.9% fluctuate around it (see table 5). Therefore, the monthly amount of generated wealth at the fair equals 1.82% of the respondents' monthly monetary income. This means that, again, the wealth generated through self-supply actions in the fair showed a greater relevance to the participants' income than that of the national self-supply in the average income of all Mexicans from 2002 to 2014, which was 1.4% (see table 7 and figure 3).

Table 5 – *Frequency analysis of monthly income* (*Y*) *per participant, in USD*

	Frequency	Percentage	Cumulative percentage
0.15–256	10	13.2	13.2
256.1–513	24	31.6	44.7
513.1–770	22	28.9	73.7
770.1–1,000	14	18.4	92.1
Over 1,000	6	7.9	100.0
Total	76	100.0	

Table 6 – *Frequency analysis of monthly consumption* (*C*) *per participant, in USD*

	Frequency	Percentage	Cumulative percentage
0–154	2	2.6	2.6
154.1–256	25	32.9	35.5
256.1–513	19	25.0	60.5
513.1–770	27	35.5	96.1
770.1–1,000	3	3.9	100.0
Total	76	100.0	

The difference between income and consumption resulted in a monthly savings average of $113.54 USD per person (see tables 5 and 6). Participants' monthly savings showed a surplus for 78.9% of them, while 7.9% (6 respondents) were in a situation of deficit and 13.2% remained at their break-even point (see table 9). It is important to note that, if the savings coming from the participants' paid work is added to their self-supply obtained through the fair (monthly $6.24 USD per person), their percentages change. It is precisely the final goal of this

research to define whether the self-supply practiced impacts household savings, so this reasoning is essential. Adding their self-supply to their average savings, the percentage of respondents in surplus increased from 78.9% to 82.9%, while the percentages of those at a break-even point increased from 13.2% to 17.1%. The 6 respondents who were previously in a deficit situation were all found to be at a break-even point after adding their self-supply, moving the deficit percentage from 7.9% to 0 (see tables 9 and 10).

Table 7 – *Average percentage of self-supply share in income, by decile, 2002-2014*

Decile	Self-supply % of national income (ENIGH 2002-2014)
1	3.52
2	2.20
3	1.80
4	1.05
5	0.99
6	1.25
7	0.85
8	0.95
9	0.80
10	0.60
Average	1.40

Source: elaboration based on data from INEGI (2019).

As observed in Table 9, Pearson's *R* correlation value between variables self-supply and savings stands at 23.9%, which is an existing though weak correlation. Its probability of error shows an alpha value of 0.037. Therefore, the correlation is significant and proves its existence between these variables.

Table 8 – *Correlation of self-supply* (*SS*) *and savings* (*S*)

		Self-supply per respondent	Savings + self-supply
	Pearson correlation	1	0.239*
Self-supply per respondent	sig. (bilateral)		0.037
	N	76	76
	Pearson correlation	0.239*	1
Savings + self-supply	sig. (bilateral)	0.037	
	N	76	76

* The correlation is significant at the 0.05 level (two-tailed).

Table 9 – *Frequency of savings* (*income-consumption balance*)

	Frequency	Percentage	Cumulative percentage
Existing income surplus	60	78.9	78.9
Break-even	10	13.2	92.1
Existing income deficit	6	7.9	100
Total	76	100	

Table 10 – *Frequency of savings plus self-supply*: (*S*) + (*SS*)

	Frequency	Percentage	Cumulative percentage
Surplus	63	82.9	82.9
Break-even	13	17.1	100
Total	76	100	

In summary, the amount of monthly wealth generated individually through collective self-supply, added to the savings obtained only from paid work, reveals the final impact of the fair on the household economy. In no case was this impact zero or negative. This finally demonstrates that there was an increase in the savings of the fair participants in 2016 through their self-supply and exchange activities.

While the quantitative component of our research allowed us to achieve the general objectives of the research, raw data obtained through the surveys went far beyond what was expected, and there were findings apart from the main focus that yielded a more explicit idea of what the studied phenomenon implies. The most relevant of these was the discovery that the self-supply variable has a positive and significant correlation at 25.3% and an alpha value of 0.027 with the increase-in-consumption variable. In other words, participants who showed higher levels of self-supply (this translates into production and exchange) were prone to increase their consumption levels through the fair. This is an important finding, since not only is it being demonstrated that self-supply generates savings, but it also allows the participants to increase their consumption at home.

If prosumers participate in this type of production and consumption fair, they gain opportunities to exchange their products for other goods at the fair. By breaking the limitation of a monetary production economy through a community currency, said prosumers have more possibilities and better conditions to consume by producing something (i.e., active consumption vs. the passive consumption observed in traditional markets). Thus, these people will contribute to the total consumption of the fair, which in turn will trigger more production and a greater supply chain.

5. Conclusions

The present work demonstrates through a case study that fairs are mechanisms that have the potential to face the problem of savings deficit in Mexico. The multiple-exchange fair

system allows people to actively produce, exchange and consume, increasing their capacity to meet many of their needs without the need to increase their current monetary income (Silva and Alves, 2016). Although these fairs in Mexico have not yet fully resolved the total income deficit indicated by the national survey, the positive impact that these have on savings is a starting point that suggests an alternative model with great potential. Furthermore, it also shows that this system promotes self-management and exchange, which not only facilitates access to material goods, but also strengthens the social fabric of a locality or region (Coraggio, 2009). In short, these fairs contribute to economic welfare through savings.

Multiple-exchange fairs have made progress towards achieving an environment of good community living as they explore alternatives to capitalist development (Lopezllera, 2006). They constitute a strategy for responsible consumption in that they articulate diverse economic agents through the interweaving of wisdom and shared knowledge in their daily lives, in their genuine and organic relationships (Díaz et al., 2006).

These actions represent the motivation and mobilization of an economy that is propelled by popular movements (Dias, 2002). However, without group cohesion and without the assumptions of solidarity and moderation in the search for profit, it would not have been possible to obtain these results. According to Oliveira (2016), these activities are implemented based on the needs of life reproduction through a positive demand not generated by an indiscriminate supply of products. Likewise, they reinforce the union of individuals through cooperation, self-management, association, economic action and solidarity (Coraggio, 2007).

The multiple-exchange fair movement takes root in opposition to competitiveness, individualism and ambition for the accumulation of capital that leave the less competitive without any possibility. This situation causes concentration of wealth, on the one hand, and dispersion of poverty in the vast majority of the population (Coraggio, 2011). Having the spirit of solidarity and reciprocity, these fairs grant small producers the possibility of satisfying several different needs by offering only one good or service. That is the key benefit of practicing self-supply in a network.

It is also observed that multiple-exchange fairs are not necessarily incompatible with the capitalist model. The plurality component can be inferred from the perspective of Polanyi (2006), for whom this kind of economy prevails as a different model within the hegemonic market-oriented model of traditional economy. Only a plural type of economy enables the existence and growth of socio-productive and democratic models (Polanyi, 2006).

These fair networks serve as small samples that illustrate how the economy of entire societies can work with a combination of capitalist procedures and actions coming from the core of the different social classes. Expanding the diversity of products and services offered at the fair is crucial to reinforce them; this represents one of their greatest strengths. If participants have a wider range of goods and services to receive from the fair, their motivation to actively participate will be greater and the possibility of meeting a greater range of needs at home will increase. For example, a producer who grows apples at home can receive several different goods like soap, blankets or other agricultural products only by producing apples. However, if there is not a varied offering of products and services in the network, the possibility of satisfying a greater number of needs is limited. When a community generates its own value endogenously, economy of scale effects can be expected, where lower production costs imply greater benefits (North, 2007).

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