

The challenges of the new internet business entrepreneurs in a postpandemic world

Los retos de las nuevas emprendedoras de negocios por internet en un mundo pospandémico

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ABSTRACT

The covid-19 pandemic pushed many women into microentrepreneurship supported by social networks, digital tools and information and communication technologies (ICT), which has generated economic benefits and greater empowerment. With data from the National

Keywords

Entrepreneurs; ICT; social networks; covid-19; e-commerce

Survey on Availability of Information Technologies in Households (ENDUTIH) for the years 2018, 2019 and 2020, and using descriptive statistics tools and correlation analysis, we study the evolution in the management of digital social networks and ICT of women entrepreneurs in Mexico, with special attention to the so-called "new internet business entrepreneurs" (nenis, in Spanish) in the environment of the beginning of the pandemic. The objective is to know if the dynamism observed in this commercial practice is guaranteed once the pandemic is under control or if the formula will require adjustments to maintain its validity. Among the results, it is found that the level of technological inclusion is significantly higher in the nenis in relation to the rest of the entrepreneurs, but it will be necessary a greater training and formality in their activities to achieve a technological advantage and the development of a differentiation strategy in accordance with consumers who will be more and more demanding.

RESUMEN

La pandemia por la covid-19 empujó a muchas mujeres al microemprendimiento apoyado en las redes sociales, las herramientas digitales y las tecnologías de la información y la comunicación (TIC), lo que les ha generado beneficios económicos y un mayor empoderamiento. Con datos de la Encuesta Nacional sobre Disponibilidad de Tecnologías de Información en Hogares

Palabras clave

Emprendedoras, TIC, redes sociales, covid-19, comercio electrónico

(ENDUTIH) de los años 2018, 2019 y 2020, y utilizando herramientas de estadística descriptiva y análisis de correlación, se estudia la evolución en el manejo de las redes sociales digitales y de TIC de las emprendedoras en México, con especial atención en las llamadas “nuevas emprendedoras de negocios por internet” (nenis) en el inicio de la pandemia. El objetivo es conocer si el dinamismo observado en esta práctica comercial está garantizado una vez que la pandemia esté bajo control o si la fórmula requerirá ajustes para mantener su vigencia. Dentro de los resultados, se encuentra que el nivel de inclusión tecnológica es significativamente superior en las nenis con relación al resto de emprendedoras, pero será necesario una mayor capacitación y formalidad en sus actividades para alcanzar un aprovechamiento tecnológico y el desarrollo de una estrategia de diferenciación acorde con unos consumidores que serán cada vez más exigentes.

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INTRODUCTION

The measures imposed by governments around the world to halt the spread of the covid-19 pandemic and safeguard the health of the population and economic stability have had diverse social and economic consequences. On the one hand, they modified daily life and interpersonal relationships in fields such as consumption, education and work, where remote coexistence supported by technological tools has been normalized (Saldaña-Pérez *et al.*, 2021). They also led to job losses, disruption in supply chains and the closure of companies, which, together with other factors, has triggered an inflationary process that has the world on the brink of what could be one of the worst economic recessions in decades (Economic Commission for Latin America and the Caribbean, ECLAC, 2020).

This situation has pushed many individuals to create new sources of income through microenterprises, in most cases informal, among which stand out those whose marketing is strongly supported by digital social networks. In this sense, the pandemic has also prompted micro and small businesses to enter in an accelerated way to the management of ICTs, regardless of the socioeconomic conditions of the owners (Ostos, 2021). It should be added that in 2020, digital social networks were used in 66% of sales negotiations, seven percentage points above that observed in 2019 (Asociación de Internet MX, AIMX, 2020).

This retail dynamic has been taken advantage of by many women interested in entrepreneurship, especially those who were unemployed¹. Women who engage in these activities are known as *nenis*, an acronym for new internet business entrepreneurs (CONDUSEF, 2021). Guzmán (2021) points out that although 69% of women considered the term offensive or discriminatory in 2020, by 2021, 53% of women with this profile considered themselves part of the *nenis* sector, whose main characteristic is internet sales (Rivas-Rivas and Esmeralda-Zamora, 2021).

In its origin, this term may have sought to devalue this commercial practice (García, 2021), and even have a misogynistic connotation (Aguilera, 2021); however, it was the same debate around the concept that contributed to making the phenomenon of female entrepreneurship visible (Masse, 2021). Thus, the true popularity of the expression came hand in hand with a resignification, product of reflection and criticism by feminist groups (Aguilera, 2021), which highlighted its virtues and values.

Although entrepreneurship has helped a large number of women to better manage their time, increase their self-esteem, become economically independent and contribute to family resources, the fact that many of their skills are empirical represents a competitive disadvantage in the short term, which, added to changing economic conditions, may precipitate their exit from the market. To avoid this situation, the Mexican government has carried out several actions at the federal level in support of this group, which is part of the 5.2 million women involved in entrepreneurial activities in the country (Gazcón, 2021), and which in 2021 benefited around 13 million households (Universidad Nacional Autónoma de México, UNAM, 2021).

In this regard, the program Women in Digital Transformation, led by the Ministry of Finance and Public Credit (SHCP, by its acronym in Spanish) in conjunction with the Ministry of Economy and the National Women's Institute, which sought to promote the digital transformation of microenterprises run by women, recognizing their role in economic recovery, stands out (Ministry of Finance and Public Credit, 2021). Another example is the workshops for Digital Entrepreneurs, coordinated by the Productive Development Unit of the Ministry of Economy, which sought to increase the sales of women entrepreneurs through a better use of social networks and the strengthening of their business skills (Ministry of Economy Mexico, 2021).

Despite the media boom of the *nenis* (García, 2021), there is still much to be known about the learning and use of ICT skills by women entrepreneurs, especially between the pre- and post-pandemic periods, since this would allow us to identify the development potential that their projects could achieve once the new normality is assimilated. For this reason, it is worth asking whether the dynamism of this commercial practice, which during 2020 generated approximately 9.5 million pesos per day (UNAM, 2021), is guaranteed once the pandemic is under control or whether the formula will require modifications to remain in force.

¹ According to Guzmán (2021), 74% of women entrepreneurs with these characteristics have no other work activity.

Reference framework

In March 2020, the World Health Organization declared a pandemic of covid-19, which led to the suspension of those activities considered non-essential in the public, private and social sectors. According to Esquivel (2020), the slowdown in economic activity resulting from this situation produced a supply crisis that soon after spread to demand. Even though the crisis was generalized, it had a greater effect on the most vulnerable economic sectors, which intensified social and gender inequalities (Neidhöfer, 2020)².

At the macroeconomic level, during 2020 Mexico experienced a contraction of 8.3% in gross domestic product (GDP), while the unemployment rate reached 5.5% (ECLAC, 2021; INEGI, 2021), and labor informality grew by three million employed persons. According to information from the National Occupation and Employment Survey (ENOE), almost one million women were expelled from the labor market due to the pandemic (INEGI, 2020b)³.

At the Latin American level, self-employment increased from 5.7% to 9.9% between 2019 and 2020, while salaried employment decreased from 7.2% to 5.7% in the same period (Andrade, 2022). The above is due to the fact that many women found in self-employment the possibility of achieving a better balance between work, family and even studies, while generating an income, which in many occasions was the only one received by their family (Irais, 2021).

Guzmán (2021) notes that, in the case of women, the three main motivators for entering into commercial activities during the pandemic were the generation of extra income (43%), helping to cover household expenses (34%) and compensating for the loss of work due to covid-19 (8%), which suggests that their decisions are a defensive reaction to personal difficulties and an adverse economic situation (Alvarez-Sousa, 2019). For Tokman (2011), part of the population of lower economic strata, especially unemployed women, end up working in small-scale productive units (including self-employment) in the informal sector in the face of social inequity and lack of opportunities (Ibarra-Olivo *et al.*, 2021). According to data from the Mexican Institute for Competitiveness (IMCO), 82% of female entrepreneurs in Mexico work informally, compared to 75% of male entrepreneurs (Aguilera, 2021).

According to Masse (2021), formality could increase the income of these entrepreneurs by up to 2.5 times, while declaring and paying taxes would allow them to sell to companies and access credit and financing. Despite the above, the author considers that formality and training are very costly in terms of time and money for someone who must dedicate more than 50 hours a week to unpaid tasks. From the above, it can be deduced that the reservation salary of family members, age, gender and household characteristics are factors that may partly explain the choice of the informal sector for labor performance (Ibarra-Olivo *et al.*, 2021).

² One of the sectors that was most affected during the pandemic was the service sector (such as tourism services, social services, retail trade, etc.), which is highly feminized (Beltrán and Corti, 2020).

³ Other sources put this indicator at 1.3 million (Aguilera, 2021).

In parallel, the tools of the information society have encouraged the adoption of electronic commerce (e-commerce) as a mechanism to maintain the economic activity of small producers during the pandemic, when traditional trade became a second-order strategy (Rodríguez *et al.*, 2020). Thus, social networks and messaging services have favored the success of commercial transactions due to their connection properties⁴, this also happens, at times, with digital commerce platforms (Guzmán, 2018), especially when they are part of promotion and sales strategies, that is, when social-commerce or s-commerce occurs (Duro, 2021)⁵.

According to the Asociación de Internet MX, in 2019 almost eight out of ten internet users had made some online purchase in the last year (11% more than in 2018). In addition, 92% of the population with online purchase history would have made some new purchase in the last three months (AIMX, 2020)⁶; this suggests that the first purchase has an impact on the occurrence of subsequent ones. In terms of frequency, in 2019 the average buyer did so every month, as opposed to 2018 when they did so every 45 days (AIMX, 2019), although it should be clarified that this value is sensitive to the type of product. It also highlights that in 2019 25% of buyers belonged to the low socioeconomic stratum (AIMX, 2019), while during 2020 the lower-middle made more purchases (34%)⁷ of these, 51% were made by women (AIMX, 2022).

For 2019, AIMX data show that 95% of internet users have at least one social network, within the main ones are WhatsApp (87.9%), Facebook (83.1%), Instagram (34.2%), YouTube (41.6%), TikTok (15.3%) and Twitter (12.1%)⁸. 96.7% of Internet users connect to social networks by smartphone, 9.0% by computer, 2.7% by tablet and 1.2% by Smart TV (AIMX, 2019); by 2019, 85% made purchases from their smartphone and 60% from a laptop, indicators that went to 89% and 54%, respectively, by 2020. According to Saldaña-Pérez *et al.* (2021), up to 67% of online transactions could have been completed via a cell phone.

On the other hand, by 2022, 28.9% of Internet users would click on advertising, which represents five percentage points less than in 2021, when confinement was stricter. In relation to email, 30.3% of the internet population stated that they receive them in the form of advertisements; of these, 4.0% always open them, 57.1% never do and 39.0% do not usually open them, but do not rule out doing so if the information becomes more eye-catching, which is an area of opportunity for micro-enterprises. Of

⁴ The vast majority of *nenis* are excluded from sales through digital platforms as this is a formal marketing channel (Ostos, 2021).

⁵ In its simplest form, e-commerce and s-commerce may not directly incorporate digital payment mechanisms, as is the case with many *nenis*.

⁶ It should be noted that the information from AIMX refers to data from Internet users in general and not exclusively to communities of women entrepreneurs and their markets.

⁷ The lower socioeconomic levels are larger in size so that, even assuming a lower purchasing capacity, they can occupy top positions in purchasing volume.

⁸ There is some debate about whether virtual platforms such as WhatsApp or Twitter are really social networks. For this paper we used a very general and broad definition of the term, so they are included within social networks.

those who buy after seeing online advertising, 64.7% also do so online and 35.3% prefer the physical store (AIMX, 2022).

Masse (2021) points out that the *nenis* sector is very diverse and includes from women who, with the support of collaborators, test some disruptive idea, to microentrepreneurs who sell handicraft products or professional and technical services on their own. According to Guzmán (2021), 80% of the group is between 18 and 34 years of age. This author points out that 81% concluded high school studies, although Rivas-Rivas and Esmeralda-Zamora (2021) and Hernández-Ramírez *et al.* (2021) observed that most of the women who develop this practice are university students seeking to become independent or unable to find work⁹.

The main items found in the *nenis*' sales catalogs are food and beverages, clothing, cosmetics, perfumes and accessories (often self-made) (Guzmán, 2021; Hernández-Ramírez *et al.*, 2021; Aguilera, 2021); sometimes the business even includes the sale of second-hand clothing (66.9%) (Guzmán, 2021). The *nenis* increase their economic independence and empowerment, that is, the expansion in the capacity of life options and decision making (Hernández-Ramírez *et al.*, 2021). In Aguilera's (2021) opinion, these women have discovered a new face of entrepreneurship in difficult times, based on innovation, creativity and effort. 55.4% of the women interviewed by Guzmán (2021) say they are happy with their business regardless of their level of sales, and 92.6% also consider themselves satisfied with their sales income.

Most *nenis* are involved in all the activities involved in the commercialization of products, from their acquisition or manufacture to the preparation of the delivery or the handling of incidents, including transmissions via streaming on social networks, where auctions, lotteries or other similar dynamics are usually held, while anecdotes are told in a warm, friendly and empathetic tone (Rodríguez *et al.*, 2020; Hernández-Ramírez *et al.*, 2021). This is one of the strengths of the *nenis*, considering that by 2020, before the heyday of these new entrepreneurs, 49% of purchase attempts by electronic means were abandoned due to lack of information (AIMX, 2020).

People interested in what these entrepreneurs offer comment on the publication or "set aside" the product, initiating commercial interaction (Torres, 2021). After responding to the interest of potential customers and answering any doubts they may have, the price and delivery are agreed upon; the scale of business largely determines the mechanism of travel and payment¹⁰. The sales process concludes when the entrepreneur and her client meet at the agreed point and the commercial exchange takes place; it is here that the physical interaction takes place.

It should be noted that, although the *nenis* organize themselves into business networks, collaborate, give each other recommendations and "tag" each other (Hernández-Ramírez *et al.*, 2021), the market they serve is limited, so it is important to

⁹ It is worth mentioning that the findings of Guzmán (2021) refer to women entrepreneurs in the center of the country, while those of Rivas-Rivas and Esmeralda-Zamora (2021) refer to women entrepreneurs in rural areas.

¹⁰ Guzmán (2021) points out that up to 95.2% of the *nenis* propose crowded places or places close to their homes to complete the transaction, which reduces time, cost or risk.

consider the competition factor. Even in the same group of friends or acquaintances there may be several people selling goods, so that, beyond price, possible differentiating elements also come into play, such as the novelty of the products, the timeliness with which they can be delivered and the amenity of their promotion.

Methodology and data

Based on information from the National Survey on Availability of Information Technologies in Households (ENDUTIH) of the National Institute of Statistics and Geography (INEGI) for the years 2018, 2019 and 2020, descriptive statistical tools and a correlation analysis were used to study the evolution of access, knowledge and use of ICTs, as well as e-commerce developed by a representative sample of new female entrepreneurs in Mexico. ECLAC mentions that in order to understand the micro determinants of informality it is useful to resort to household surveys (Ibarra-Olivo *et al.*, 2021), from which the variables used in the research were defined (see Table 1).

Table 1. Classification of variables used in the study

	Descripción de la variable	Respuestas
Evolution of sociodemographic indicators	Age range:	15-24 years old 25-34 years old 35-44 years old 45-54 years old 55-64 years old
	Socioeconomic stratum:	Low Medium-Low Medium-High High
	Educational level:	None (no academic degree). Basic (preschool, primary, secondary)

		Upper secondary (high school, professional, technical, job training). Higher (university technician, bachelor's, master's, doctorate).
	Relationship to the head of household:	Head of household or spouse of the head of household.
Evolution of social network usage indicators	In the last three months have you used social networks?	Yes No
	Do you use Facebook?	Yes No
	Do you use Instagram?	
	Do you use WhatsApp?	
	Do you use YouTube?	
	Do you use Messenger?	
Do you use Twitter?		
Evolution of e-commerce indicators	In the last 12 months you have made online...	Purchase Sales
	How often do you make online sales?	Frequently (at least once every 15 days) Sporadically (once a month or less)
	How often do you shop online?	Daily Weekly

		Biweekly Monthly Semiannually Annually
	Percentage of women entrepreneurs who have installed apps to access instant...	Instant messaging Social networking
	In the last 12 months, have you made any online payments?	Yes No
	Have you installed apps to access mobile banking?	Yes No
Evolución de indicadores de uso, disponibilidad y habilidad de TIC	In the last three months have you used the Internet?	Yes No
	Level of ICT use (in relation to smartphone, computer, laptop, tablet and internet)	Null (does not use any) Low (use only two or less and internet) Medium (uses only three and internet) High (uses all and internet)
	Level of ICT availability (in relation to the devices: smartphone, computer, laptop and tablet)	Null (none) Low (has 1 of 4) Medium-low (has 2 out of 4)

		Medium-high (has 3 out of 4) High (has 4 out of 4)
	Why do you not have a computer, laptop or tablet?	Lack of money Not interested Don't know how to use it Use another device Is broken / out of order Other reason
	How often do you use ICT?	Daily Weekly Sensually Quarterly Semiannually
	Skill level when using ICT (in relation to tasks performed with computer, laptop, and tablet).	Very low (0-1 out of 8) Low (2-4 out of 8) Medium-low (5-6 out of 8) Medium-high (7 out of 8) High (8 out of 8)

Source: own elaboration with information from INEGI (2018,2019, 2020a).

The sample we considered for the analysis was composed of Mexican women between 15 and 64 years of age belonging to the economically active population (EAP) of urban entrepreneurs (Masse, 2021) who reported having a job as self-employed or employers, being heads of household or spouses of heads of household, and residents of urban areas. Among the women who met these criteria, those who sold online and used social networks, i.e., *nenis*, were identified.

The indicators were calculated for both samples: the entrepreneurs consisted of 4 867, 756 and 2 065 women for the years 2018, 2019 and 2020, respectively; and the *nenis* totaled 731, 141 and 504 participants for the years 2018, 2019 and 2020,

respectively. The object of study is delimited to the analysis of the behavior of Mexican urban women entrepreneurs (including *nenis*) regarding the management of their social networks and their level of access, use, availability of ICTs and how all this has been conjugated with their skills for conducting business practices during the years 2018, 2019 and 2020.

Results

The correlation analysis of the variables shows that the use of a desktop computer, laptop and tablet has a moderate positive association with each other, but a negative association with the use of a smartphone. In fact, having a laptop is what most increases the probability of having access to the rest of the devices (followed by tablet, computer and smartphone). On the other hand, as might be expected, those who have access to the Internet are more likely to have devices that allow them to take advantage of this service.

It should be noted that the level of availability of ICTs is directly related to their use (.5642) and to the level of knowledge about them (.6143); likewise, the level of education is positively related to availability (.5190), knowledge (what one knows how to do with technologies) (.5650) and the use of ICTs (.6069). Similarly, the frequency with which one buys and pays by Internet are related variables (.5659), as are the use of telephone applications and electronic banking (.6527)¹¹.

The graphical part of this section presents the frequencies of responses to the questions used for each year, as a proportion of the total number of respondents. Figures 1, 2, 3 and 4 refer to female entrepreneurs, while Figure 5 refers to *nenis*.

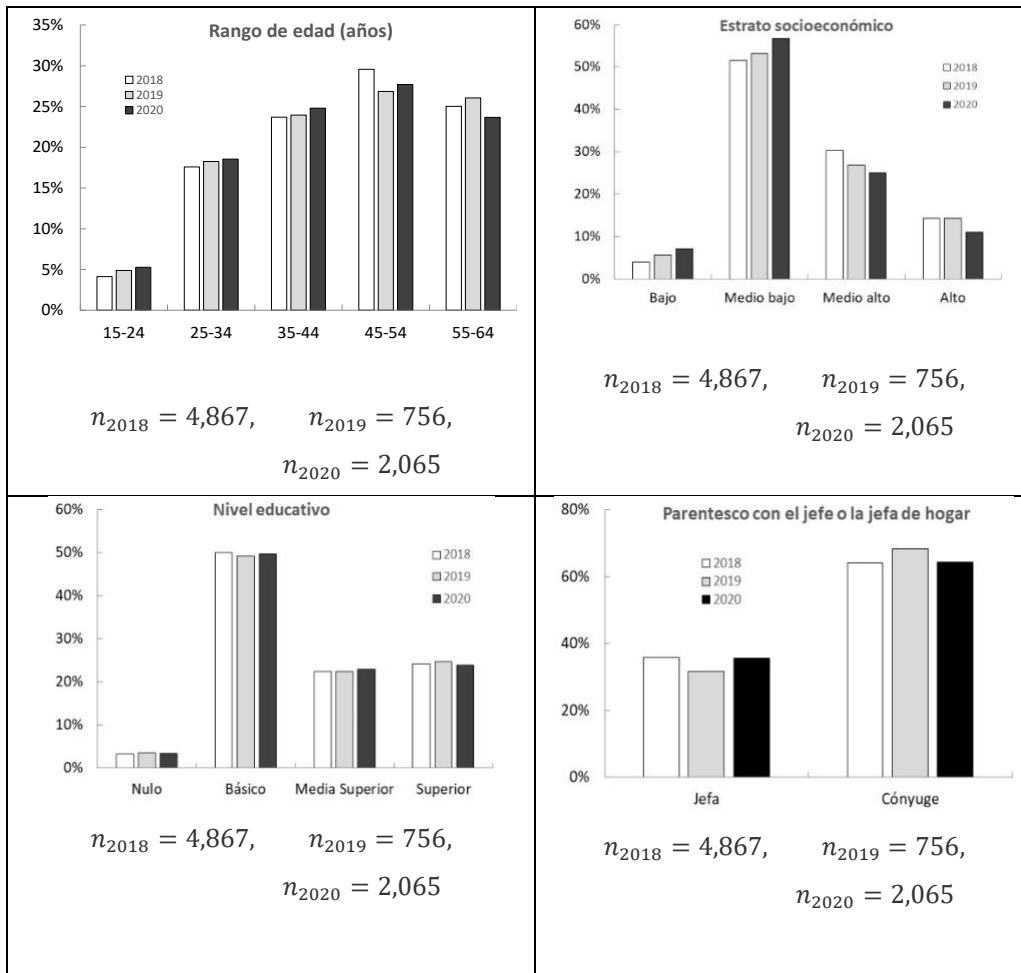
As can be seen in the graphs that make up Figure 1, over time women between 15 and 44 years of age have obtained greater representation among female entrepreneurs; despite this, the segment with the highest participation at the national level is that of 45-54 years of age, with an annual average of 28.8%. During the period under investigation, the participation of the low and lower-middle socioeconomic strata increased, the latter being the most frequent (with an annual average of over 50%), while the distribution of educational level does not show significant changes. In this area, the basic level is the most frequent (49.9%), followed by the higher level (24.2%)¹²; while the null educational level is the least frequent.

With respect to the kinship variable, on average, 35.3% of the women entrepreneurs identified themselves as heads of household, a percentage very similar to that of the *nenis*. In fact, this is not very different from that of working women at the national level, so being head of household does not appear to be a condition that particularly predisposes to entrepreneurship.

¹¹ These findings correspond to female entrepreneurs in general (it is likely that some of these associations are stronger for the specific case of *nenis*).

¹² These results are partially consistent with those of Hernández-Ramírez et al. (2021), Masse (2021) and Guzmán (2021). The underlying differences highlight the existence of regional differences.

Figure 1. Evolution of sociodemographic indicators



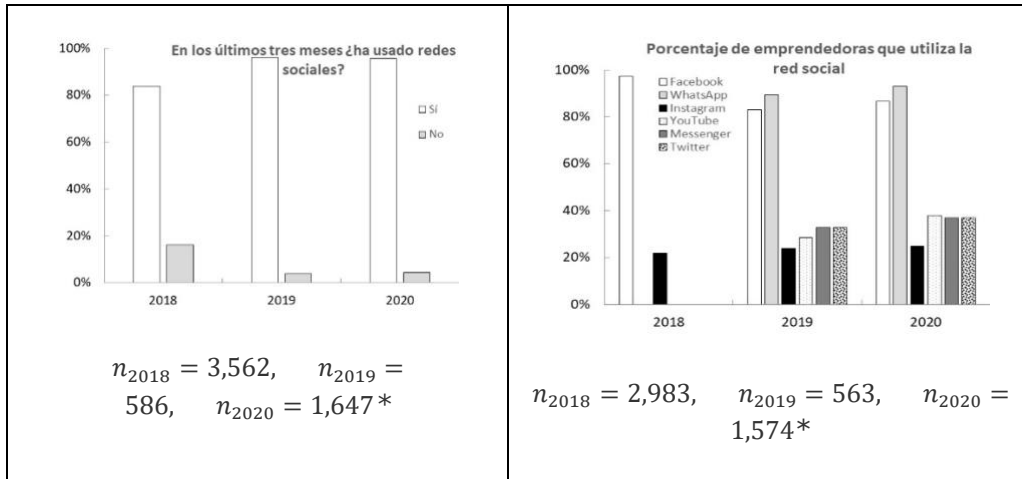
Source: own elaboration.

Figure 2 shows that there has been an increase of almost twelve percentage points in terms of the use of social networks during the observed period. The most frequently used social network in 2018 was Facebook, being an option for 97.8% of the sample, a platform that begins to show a slight downward trend for 2020, when it became an alternative for only 86.6%. This social network is being displaced by WhatsApp, which at the end of the period was positioned as the most preferred among the sample members (93%).

Figure 3 shows that internet purchases by self-employed women or female employers have increased, as has the percentage of those making internet sales (from 21.1% to 30.8% in the period studied). For the purposes of the research, these data represent *nenis* who emerged during the pandemic, whether or not they had previously engaged in entrepreneurial activity.

In any case, the percentage of women who buy is higher than the percentage of women who sell, although this differential is much smaller than that observed for all Internet users in the country.

Figure 2. Evolution of social network usage indicators.



*Of those who have used social networks in the last three months. Due to the design of the ENDUTIH questionnaire some indicators could not be calculated for 2018.

Source: own elaboration.

Beyond the general increase in purchases, the frequency with which these are made has also been increasing; in 2020 the proportion of female entrepreneurs who bought monthly, biweekly, weekly and daily was higher than in 2018. On this, Saldaña-Pérez *et al.* (2021) find that the most common online purchase is clothing, made by up to 59% of the population. At the same time, more and more women pay through the internet (28.6% in 2020) and install banking applications (37.2% in 2020), in contrast, the downloading of other types of applications, such as messaging or social networks, presents a slight downward trend¹³.

On the other hand, of those who sold online, 60.2% did so frequently in 2020, while this was only 38.3% of the time in 2018¹⁴. This suggests that, although many *nenis* were already operating before the pandemic, the phenomenon led to an increase in their volume of operations. According to Hernández-Ramírez *et al.* (2021), at least 39% of the *nenis* could have had commercial activity since before the health emergency¹⁵.

Figure 4 reveals that women entrepreneurs have increased recent internet use, rising from 73.2% to 79.6% over the period, although this increase does not appear

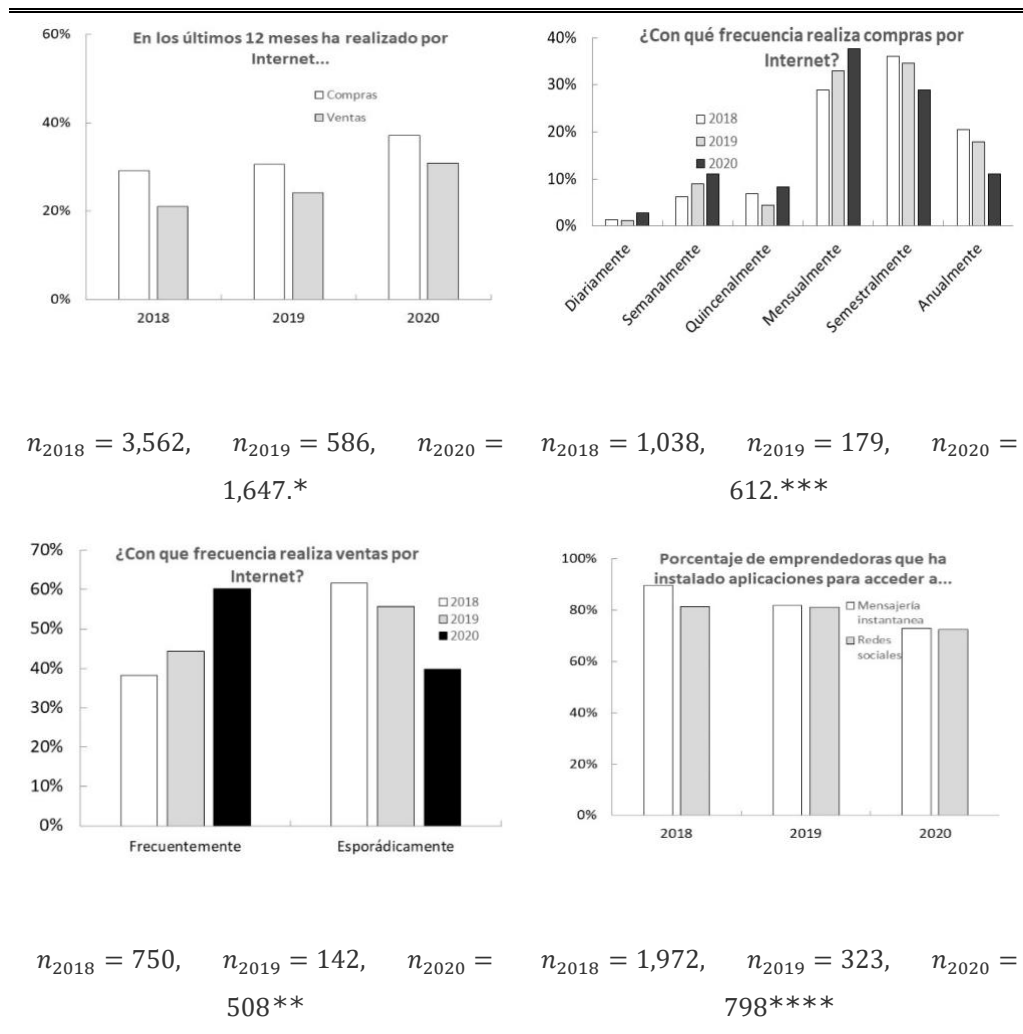
¹³ Perhaps online banking applications took longer than social networks or messaging services to reach high levels of market penetration because of distrust in money flows and because the network effect in the former is more moderate.

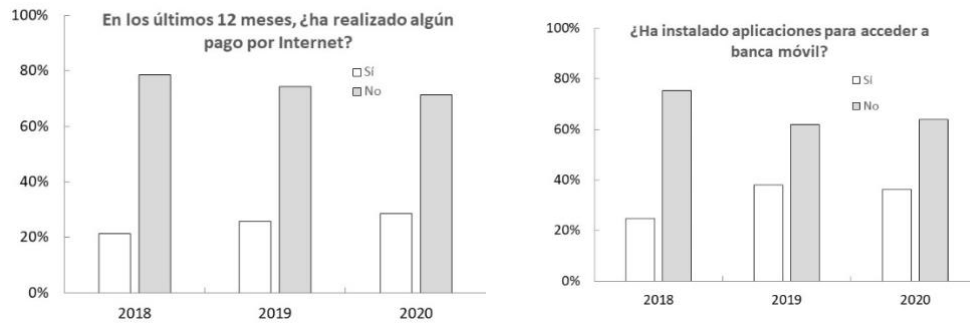
¹⁴ Something similar, although less marked, happened in the male group. They went from 19.9% to 24.8% of sellers and only 41% of those who did it frequently.

¹⁵ Since the definition of the concept incorporates the precision of having been born with the pandemic, the possibility of the phenomenon having arisen earlier is invalidated.

substantially higher since the arrival of the pandemic (growth between 2019 and 2020 has been only 2.2 percentage points). The level of medium ICT use (relative to the use of the Internet and three out of four devices contemplated) increased from 29.3% to 39.9%, while the levels of no, low and high use have decreased.

Figure 3. Evolution of e-commerce indicators





$n_{2018} = 3,562$, $n_{2019} = 586$, $n_{2020} = 1,647$ ****
 $n_{2018} = 1,972$, $n_{2019} = 323$, $n_{2020} = 795$ ****

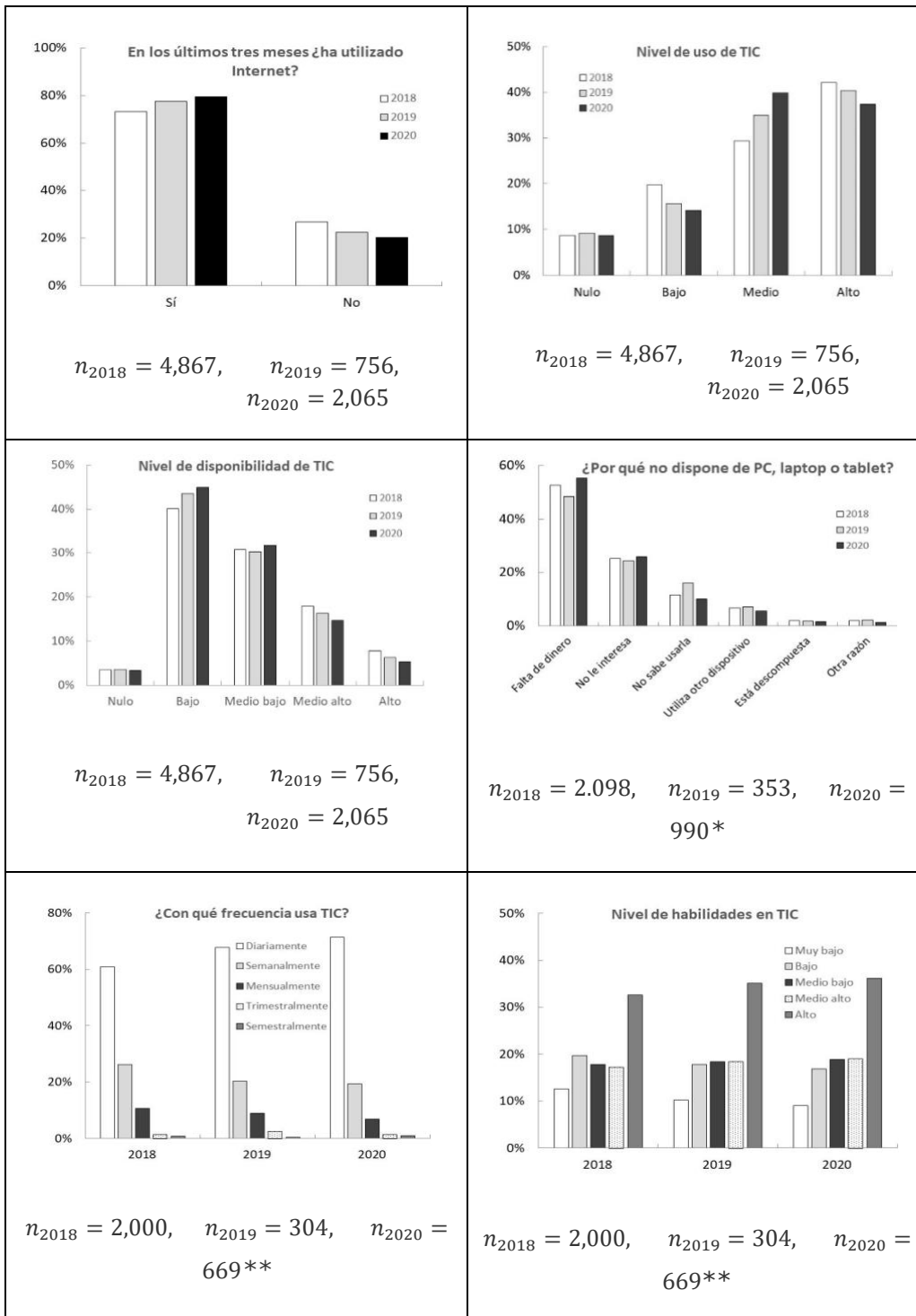
* Of those who have used social networks in the last three months. ** Of those who in the last 12 months have made online sales. *** Among those who in the last 12 months have made purchases online. **** Among those who have installed applications on their smartphones.

Source: own elaboration.

It is noteworthy that the percentage of women entrepreneurs with low and medium availability of ICTs is high and increasing, while medium-high and high availability is relatively low and decreasing. In addition, 31.8% of women entrepreneurs who do not have a computer, laptop or tablet have decided to do so due to lack of interest or because they use another device to meet their needs. This indicator increases to 46.7% in the case of *nenis* (see Figure 5). This could be due to the fact that users prefer to use few devices that allow them to do more things, which at the same time are more personal and mobile, characteristics that have been found in the use of the smartphone, which is already considered an ICT integrator device and, in that sense, a meta medium (Márquez, 2017).

Regarding frequency, the daily use of computer, laptop or tablet increased by ten percentage points between 2018 and 2020, although as already indicated, fewer and fewer women are using these devices (in fact, this statement is also valid for men, except in the case of the laptop). On the other hand, the percentage of women entrepreneurs with low or very low skills has tended to decrease, while the percentage of those with high skills has increased. In this sense, up to 36.2% of female entrepreneurs showed a high skill in 2020 from the point of view of what they know how to do with a computer, laptop or tablet; this figure is far from the 45.9% presented by the group of *nenis*, although in the latter case the growth rate is lower than that of female entrepreneurs (see Figure 5).

Figure 4. Evolution of ICT use, availability and ability indicators.

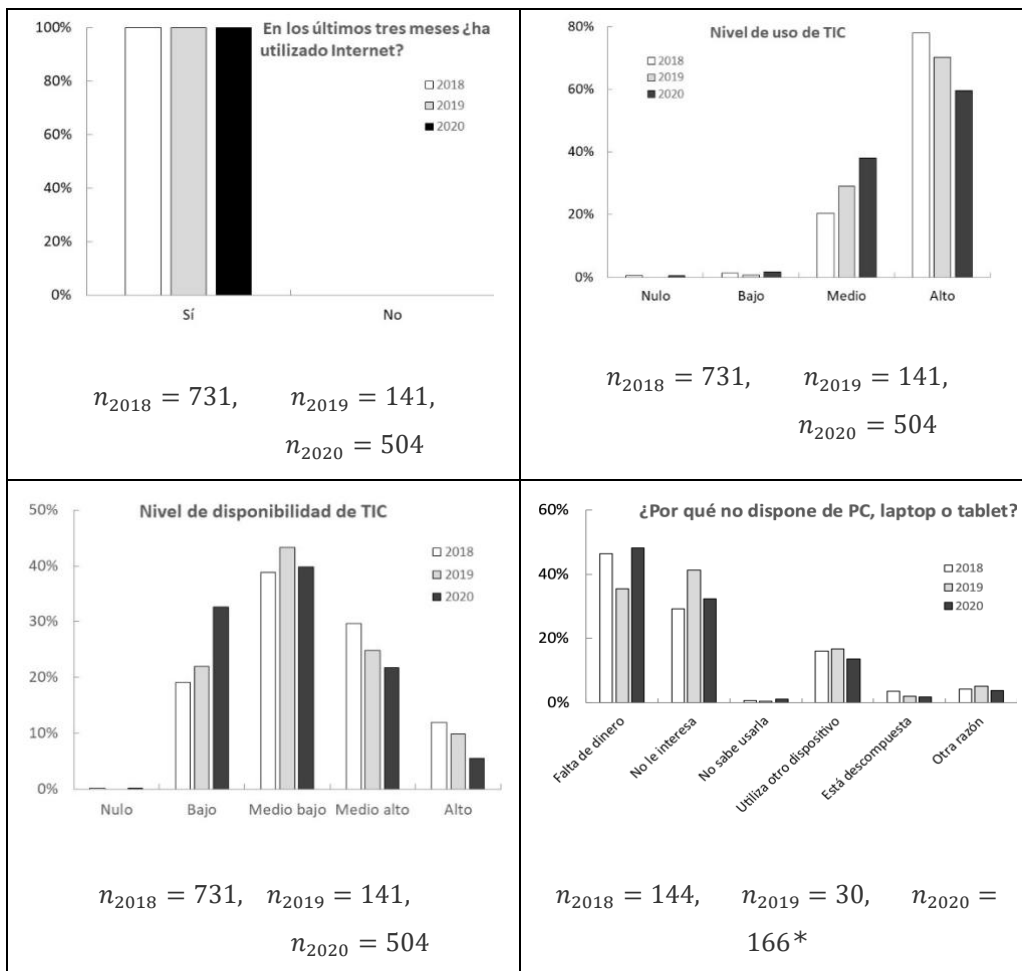


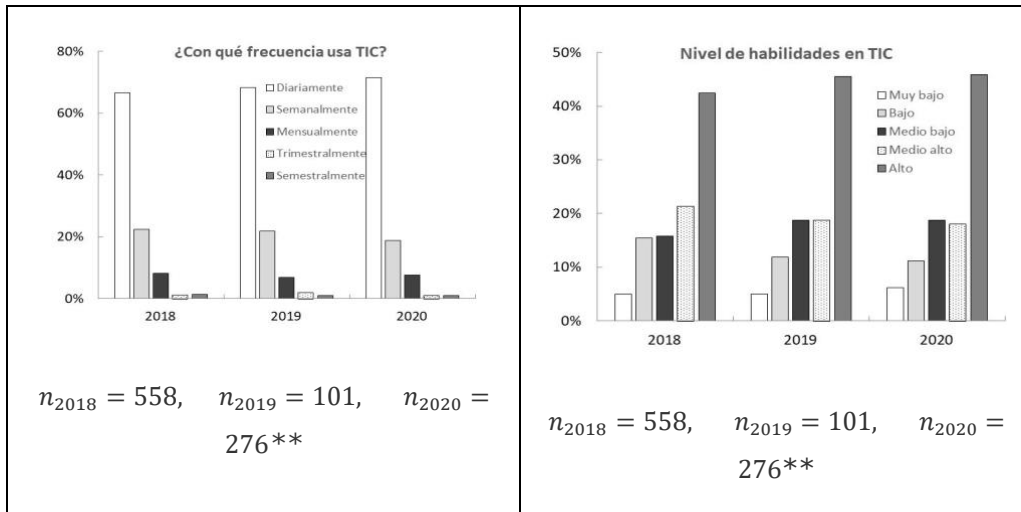
* Of those who do not have a computer, laptop or tablet. ** Of those who used a computer, laptop or tablet in the last three months.

Source: own elaboration.

Figure 5 shows that 100% of the *nenis* made recent use of the Internet during the analysis period (which contrasts with what was found for female entrepreneurs). Likewise, the categories of low or no ICT use by *nenis* are practically nonexistent, while high use is 32 percentage points higher than that of the group of female entrepreneurs on average per year. In both groups of women, the level of medium use increased its share during the period, while that of high use decreased. In any case, the annual variations indicate that the gap between female and male entrepreneurs is narrowing over time.

Figure 5. Evolution of ICT use, availability and ability indicators (*nenis*)





* Of those who do not have a computer, laptop or tablet. ** Of those who used a computer, laptop or tablet in the last three months.
Source: own elaboration.

One result that was to be expected is that the percentage of participation in the levels of no and low ICT availability is much lower among the *nenis* than among the entrepreneurs, while in the rest of the levels it is higher. In addition, among the reasons for not having devices, not knowing how to use them is reduced to less than 1% in the case of *nenis*. In relation to the skill levels in the use of ICT, it can be seen that, in comparison with female entrepreneurs in general, *nenis* have a higher skill level, with 43.8% of them reaching a high level in 2020 compared to 34.2% of female entrepreneurs. While in 2018 the frequency of ICT use was slightly higher among *nenis*, this difference would have been blurred in 2020.

Conclusions

The popularity of new Internet business entrepreneurs has grown notably as a result of the covid-19 pandemic declared in 2020, but evidence suggests that the phenomenon began some time ago, due to the economic, educational and family conditions of women who knew how to take advantage of their social networks, their ICT skills and their experience in some productive or commercial activity. This paper investigates the differences, similarities and characteristics of ICT use, knowledge and skills of women entrepreneurs in general and of *nenis* in particular during the period before and at the beginning of the pandemic, in order to infer about the future of their projects once society has become accustomed to the new normal.

In 2020, 18 out of every 100 female microentrepreneurs frequently sold online; this indicator is much higher than that corresponding to men. Although the level of technological inclusion and use of ICTs is significantly higher in the case of *nenis*, the gap with the rest of women entrepreneurs is narrowing over time for several reasons: first, the growing ease of access and use of digital payment and online banking channels; second, the technological convergence represented by the smartphone, with which many tasks can now be carried out in a mobile and personal way, for which a few years ago

several devices were required; and, third, the lack of knowledge and skills beyond the user level, which allow a true technological use.

Apart from the economic achievements they may attain, most of these women have found in these activities a means of personal fulfillment; however, it is likely that for many of them the lack of training and the informal nature of their projects will end up being a constraint to their development. In order to remain in the market, the owners of these businesses must have the means, motivation and skills necessary to respond to current circumstances. Therefore, it would be advisable to promote the implementation of a greater number of workshops and courses that increase the knowledge of women entrepreneurs about the activity they carry out, so that they have the possibility of making better business decisions, as well as encouraging their associativity and making their achievements more widely known, because this becomes a tool for empowerment and a source of inspiration for other women (Guzmán, 2018; Hernández-Ramírez *et al.*, 2021).

It is likely that in the near future many women (and men) will try to join this modality of work in search of economic and personal development, however, this might not be such a good idea due to the saturation of supply, the return to normality¹⁶ and the competition with large trading companies that handle a high volume of products, have sophisticated supply chains and take full advantage of their customers' information, can offer better prices, make more relevant and effective offers, and achieve greater efficiency in deliveries and transactions.

Among the areas of opportunity presented by the new microenterprises that rely on social networks are the formalization of their activity, training to achieve better management and greater and better exploitation of digital tools for marketing (for example, in terms of payments and advertising). It is important to take into account that, although the *nenis* have taken commercial advantage of technologies and social networks, they have focused on serving sectors of the population that are limitedly banked (and financially included), which, as they acquire more training tools, may not be as loyal to this commercial format.

Everything suggests that the generation of value for potential customers will depend on the degree of differentiation that these entrepreneurs can achieve in terms of price, variety and proximity to customers, which will require greater efficiency in their tasks, accompanied by the strengthening of their business skills and, in many cases, the formalization of their enterprises. In view of this, the question arises: will the new Internet businesswomen be willing to assume the costs of adapting to the new circumstances?

¹⁶ It can't be overlooked that the major growth of *nenis* originated from the suspension of essential activities in the public, private and social spheres.

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