Volume 8, Issue 15 – July – December – 2022

ECORFAN

Journal-Republic of Peru

ISSN-On line: 2414-4819

ECORFAN®

ECORFAN Journal-Republic of Peru, Volume 8, Issue 15, July – December 2022, is a journal edited semestral by ECORFAN. La Raza Av. 1047 No.-Santa Ana, Cusco-Peru. Postcode: 11500. WEB: www.ecorfan.org/republicofperu/,journal @ecorfan.org. Editor in Chief: SUYO-CRUZ, Gabriel. PhD. ISSN-2414-4819. Responsible for the latest update of this number ECORFAN Computer Unit. ESCAMILLA-BOUCHÁN, Imelda. PhD, LUNA-SOTO, Vladimir. PhD. La Raza Av. 1047 No.-Santa Ana, Cusco-Peru. Postcode: 11500 last updated December 31, 2022.

ECORFAN Journal Republic of Peru

Definition of Journal

Scientific Objectives

Support the international scientific community in its written production Science, Technology and Innovation in the Field of Social Sciences, in Subdisciplines of business, administration-administrative, management-SME, management-tourism, hotel, management-financial, administration.

ECORFAN-Mexico SC is a Scientific and Technological Company in contribution to the Human Resource training focused on the continuity in the critical analysis of International Research and is attached to CONACYT-RENIECYT number 1702902, its commitment is to disseminate research and contributions of the International Scientific Community, academic institutions, agencies and entities of the public and private sectors and contribute to the linking of researchers who carry out scientific activities, technological developments and training of specialized human resources with governments, companies and social organizations.

Encourage the interlocution of the International Scientific Community with other Study Centers in Mexico and abroad and promote a wide incorporation of academics, specialists and researchers to the publication in Science Structures of Autonomous Universities - State Public Universities - Federal IES - Polytechnic Universities - Technological Universities - Federal Technological Institutes - Normal Schools - Decentralized Technological Institutes - Intercultural Universities - S & T Councils - CONACYT Research Centers.

Scope, Coverage and Audience

ECORFAN Journal Republic of Peru is a Journal edited by ECORFAN-Mexico S.C in its Holding with repository in Republic of Peru, is a scientific publication arbitrated and indexed with semester periods. It supports a wide range of contents that are evaluated by academic peers by the Double-Blind method, around subjects related to the theory and practice of Business, administration-administrative, management-SME, management-tourism, hotel, management-Financial, Administration with diverse approaches and perspectives , That contribute to the diffusion of the development of Science Technology and Innovation that allow the arguments related to the decision making and influence in the formulation of international policies in the Field of Social Sciences. The editorial horizon of ECORFAN-Mexico® extends beyond the academy and integrates other segments of research and analysis outside the scope, as long as they meet the requirements of rigorous argumentative and scientific, as well as addressing issues of general and current interest of the International Scientific Society.

Editorial Board

Arbitration Committee

Assignment of Rights

The sending of an Article to ECORFAN Journal Republic of Peru emanates the commitment of the author not to submit it simultaneously to the consideration of other series publications for it must complement the Originality Format for its Article.

The authors sign the Authorization Format for their Article to be disseminated by means that ECORFAN-Mexico, S.C. In its Holding Republic of Peru considers pertinent for disclosure and diffusion of its Article its Rights of Work.

Declaration of Authorship

Indicate the Name of Author and Coauthors at most in the participation of the Article and indicate in extensive the Institutional Affiliation indicating the Department.

Identify the Name of Author and Coauthors at most with the CVU Scholarship Number-PNPC or SNI-CONACYT- Indicating the Researcher Level and their Google Scholar Profile to verify their Citation Level and H index.

Identify the Name of Author and Coauthors at most in the Science and Technology Profiles widely accepted by the International Scientific Community ORC ID - Researcher ID Thomson - arXiv Author ID - PubMed Author ID - Open ID respectively.

Indicate the contact for correspondence to the Author (Mail and Telephone) and indicate the Researcher who contributes as the first Author of the Article.

Plagiarism Detection

All Articles will be tested by plagiarism software PLAGSCAN if a plagiarism level is detected Positive will not be sent to arbitration and will be rescinded of the reception of the Article notifying the Authors responsible, claiming that academic plagiarism is criminalized in the Penal Code.

Arbitration Process

All Articles will be evaluated by academic peers by the Double Blind method, the Arbitration Approval is a requirement for the Editorial Board to make a final decision that will be final in all cases. MARVID® is a derivative brand of ECORFAN® specialized in providing the expert evaluators all of them with Doctorate degree and distinction of International Researchers in the respective Councils of Science and Technology the counterpart of CONACYT for the chapters of America-Europe-Asia- Africa and Oceania. The identification of the authorship should only appear on a first removable page, in order to ensure that the Arbitration process is anonymous and covers the following stages: Identification of the Journal with its author occupation rate - Identification of Authors and Coauthors - Detection of plagiarism PLAGSCAN - Review of Formats of Authorization and Originality-Allocation to the Editorial Board-Allocation of the pair of Expert Arbitrators-Notification of Arbitration -Declaration of observations to the Author-Verification of Article Modified for Editing-Publication.

Instructions for Scientific, Technological and Innovation Publication

Knowledge Area

The works must be unpublished and refer to topics of business, administration-administrative, management-SME, management-tourism, hotel, management-financial, administration and other topics related to Social Sciences.

Presentation of the Content

In a first article we present *Process in the evaluation and selection of advertising media for new products through the business model: Barriers and challenges of digital marketing* by ANTONIO-VIDAÑA, Paula Rosalinda, OLVERA-JIMÉNEZ, Carlos Alejandro and ALCUDIA-CHAGALA, Lorena, with adscription at Universidad Tecnológica del Centro de Veracruz, in the next article we present *Commitment of the Companies with the International Sustainability Agreements and their Compliance in Mexico* by CARMONA-GARCIA, Laura Georgina, AGUIRRE- RODRÍGUEZ, Jaime and LÓPEZ-GUZMÁN, Lorena Araceli, with adscription at Universidad Autónoma de Chihuahua, in the next article we present *Knowledge and acceptance of the Crowdfunding Platform* by DÉCARO-SANTIAGO, Laura Angélica, SORIANO-HERNÁNDEZ, María Guadalupe and SORIANO-HERNÁNDEZ, Juana Gabriela, with adscription at Universidad Autónoma del Estado de México, in the last article we present *Modelling the international demand of US receptive tourism in Mexico*, by OMAÑA-SILVESTRE, José Miguel & QUINTERO-RAMIREZ, Juan Manuel, with adscription at Colegio de Posgraduados, Campus Montecillo and CONACyT.

Content

Article **ECORFAN Journal-Republic of Peru**
December 2022 Vol.8 No.15 1-8

Process in the evaluation and selection of advertising media for new products through the business model: Barriers and challenges of digital marketing

Proceso en la evaluación y selección de medios publicitarios para nuevos productos a través del modelo de negocio: Barreras y desafíos del marketing digital

ANTONIO-VIDAÑA, Paula Rosalinda†*, OLVERA-JIMÉNEZ, Carlos Alejandro and ALCUDIA-CHAGALA, Lorena

Universidad Tecnológica del Centro de Veracruz

ID 1st Author: *Paula Rosalinda, Antonio-Vidaña* / **ORC ID**: 0000-0002-1175-0611, **CVU CONACYT ID**: 673436

ID 1st Co-author: *Carlos Alejandro, Olvera-Jiménez* / **ORC ID**: 0000-0001-7567-7890, **CVU CONACYT ID**: 1190759

ID 2nd Co-author: *Lorena, Alcudia-Chagala* / **ORC ID** : 0000-0003-1912-1622, **CVU CONACYT ID**: 367120

DOI: 10.35429/EJRP.2022.15.8.1.8 Received August 15, 2022; Accepted December 30, 2022

Abstract

MSMEs have been forced to innovate their sales processes, venturing ever more vehemently into the digital world, especially in social networks. The global lockdown due to a pandemic accelerated what had seemed uncontrollable before, digital marketing grew rapidly in the face of the large number of companies that had to close their physical businesses. Those that already had websites or managed social networks had a certain competitive advantage if they had a certain virtual positioning, it helped them to continue operating by implementing home deliveries. This article aims to identify the process of a digital business plan that allows selecting the sales and communication channel through technological dissemination tools to position and, consequently, sell products/services. The methodology used was mixed cross-sectional and descriptive. Results were obtained that allowed the identification of various effective steps for MSMEs in the sales channel, according to the accumulation of recent experiences with those who have practiced digital marketing. The foregoing allowed the construction of a process with intentions of favorable impact on market competitiveness, as well as scientific recovery for the insertion of social networks as an effective means for positioning companies and brands, specifically for MSMEs..

Advertising media, Social networks, Business model, Digital marketing

Resumen

Las MiPyMEs se han visto obligadas a innovar sus procesos de venta, incursionando cada vez con mayor vehemencia en el mundo digital, especialmente, en las redes sociales. El encierro global por pandemia aceleró lo que desde antes se vislumbraba incontenible, el marketing digital creció velozmente ante el gran número de empresas que tuvieron que cerrar sus negocios físicos. Las que ya contaban con sitios web o manejaban redes sociales tuvieron cierta ventaja competitiva si contaban con cierto posicionamiento virtual, les ayudó a seguir operando al implementar entregas a domicilio. Este artículo tiene por objetivo identificar el proceso de un plan de negocio digital que permita seleccionar el canal de venta y de comunicación mediante las herramientas tecnológicas de difusión para posicionar y, consecuentemente, vender productos/servicios. La metodología utilizada fue mixta de corte transversal y descriptiva. Se obtuvieron resultados que permitieron identificar diversos pasos efectivos para las MiPyMEs en el canal de venta, según el cúmulo de experiencias recientes con quienes han practicado el marketing digital. Lo anterior permitió la construcción de un proceso con intenciones de impacto favorable en la competitividad del mercado, además de recuperación científica para la inserción de redes sociales como medio eficaz para posicionamiento de empresas y marcas, específicamente para MiPyMEs.

Medios publicitarios, Redes sociales, Modelo de negocios, Marketing digital

Citation: ANTONIO-VIDAÑA, Paula Rosalinda, OLVERA-JIMÉNEZ, Carlos Alejandro and ALCUDIA-CHAGALA, Lorena. Process in the evaluation and selection of advertising media for new products through the business model: Barriers and challenges of digital marketing. ECORFAN Journal-Republic of Peru. 2022. 8-15: 1-8

† Researcher contributing first author.

Introduction

This article shows a research that allows to identify the appropriate advertising medium for the dissemination of a new product through the implementation of a business model, in this case the product to be promoted is derived from the Momordica Charantia plant that aims to regulate glucose levels in order to provide a benefit to society.

The research offers an innovative perspective aimed at future ventures, allowing us to understand the importance of the functions and uses of technological resources and the progress that is being made over the years, so it is also important for companies to adapt to new media/positioning tools. It was considered that for its implementation, phases were established for the generation of the proposal, giving the scope and impact according to the phase for a newly created MSME in which the process was built on which to base decision-making, providing value in relation to other processes in obsolescence.

The aim is to contribute to the problems faced by new businesses that do not consider this alternative, and in the verification of the hypothetical assumption: If the preference of the different media used to advertise a new product that consumers and companies use to offer or purchase products is analysed, in order to determine the best proposal for creating and designing the product portal, then it would ensure that the promotion and marketing of the product would achieve a greater impact for the company thanks to potential consumers by boosting brand recognition.

A theoretical framework underpinning the proposal is presented along with the methodology. With the information gathered and based on the analysis of results and a reflection and scope of the discourse, the process was proposed.

1. Theoretical framework

The implementation of the Freemium business model allows to attract an important group of users when there is a high level of satisfaction, allowing a positive disclosure and favouring the business model, but the benefit or the feasibility that the results are positive depends entirely on the way it is implemented.

This model has a great social impact because, by offering free services, it allows greater accessibility to tools and knowledge that would otherwise not be available. Through the Canvas model for the analysis of the Freemium model, it is also possible to analyse other types of models that companies can implement (Flórez Fernández, 2014).

On the other hand, thanks to a comparative analysis of the statistical data and economic information available, it could be observed that the different players in the advertising market are taking a series of measures to optimise campaigns on online video websites, and this also applies to the video advertisements that appear on some advertising brands. Most of the content of this medium is uploaded for free and YouTube makes profits thanks to the brands that manage to promote themselves at the beginning of the videos, therefore if advertising videos are implemented on the brand's website it will help to attract the attention of users, but not only that, it can also serve as a support to describe how to use the product and its benefits (Larrañeta Rubio & Ruiz Molina, 2009).

The new media have certain characteristics such as: the great capacity for segmentation, the possibility of obtaining high profitability, their versatility, the production of content, among others. All of these characteristics lead to better results when offering products to the market. Thanks to the qualitative analysis on the benefit of online media in companies, it can be concluded that the communicative capacity of online media and the increased consumption of these media by the population opens the debate on the need to rethink the approach to media planning, let's say, traditional, whose structure and work processes were developed when the media were offline. Companies need to update and try to reach more segments with the help of new tools provided by technology (Papí Gálvez N., 2014).

Consumer habits have undoubtedly adapted to the digital era in which we are immersed, from the type of product that years ago did not have the experience of acquiring them through social networks, which today has become commonplace, bringing with it changes from the organisational structure of the Company.

ISSN-On line: 2414-4819

A whole reengineering is generated in its processes, such as from the adoption of platforms and networks, regulations for its design, elements to consider as a means of generating income (key element of the canvas model), which although it has been used in products that by strategy used direct marketing, broke with that scheme to insert new products using technological tools, reaching the digital media, such was the insertion of food, in this regard (Gastón Ares, Lucía Antúnez, *et al*. ,, 2022).

For the generation of value proposition interacts with the key activities, key partners, key resources, cost structure, the way in which the relationship with customers will be generated, it is important that the company segments its customers, the communication channels that will allow interacting with customers and sources of income, which will allow the company to establish the forms of payment, since today and before the phenomenon of COVID-19 it was necessary to adopt digital tools that allow home sales, and payment by card or even using intermediaries.

In this need to venture into e-commerce, the use of content managers for the design and creation of websites is denoted as a digital marketing strategy, with the aim of generating a new channel for promotion and sales, taking the support of (Ruíz, 2020) in which he mentions that, derived from the closure of physical shops, e-commerce has had an accelerated growth in some national sectors, thus generating a boom in this form of electronic transaction.

2. Methodology to be developed

A mixed analysis on digital market research allows obtaining results in different more realistic environments, which implies a lower risk when applying a digital model for the sale of a product, due to the complexity of real markets populated by a high number of heterogeneous agents that interact with each other repeatedly, learn and evolve over time, so it is necessary to be as updated as possible. Many companies choose to try to implement new techniques to achieve greater market reach (Moreno & Tapia Torres, 2005).

The company must efficiently obtain a new product that meets or exceeds the expectations of potential customers and introduce it to the market before its competitors launch their offer. Only a company capable of getting ahead of its competitors in the efficient development of new products that adequately cover the needs and expectations of consumers will be able to obtain a source of sustainable competitive advantages, but it must not only focus on the product but also on the way of making it known to the market, so it must look for the best option to achieve a significant impact (Álvarez Castaño, 2001).

The research that will be implemented in this project will be mixed, using a descriptive study, since the aim is to analyse information on the trends that currently exist among users of the different media/social media, their advantages, disadvantages and even the costs of promoting products, as well as a survey to find out how much they know about the Momordica Charantia plant and to have a more informed notion of the media they use in order to gather as much information as possible. As for the quantitative cut was established for the application of surveys virtually using the tool provided by Google for people aged 22 to 45 years with type 2 diabetes problems, in the area of the high mountains, considering a sample of 379 subjects, the technique used in addition to the collection of primary information was complemented with the technique of observation.

The type of sampling that was applied was non-probabilistic due to the fact that we intend to use convenience and snowball sampling since we will only focus on people with diabetic problems or people with diabetic relatives, so this type of sampling is the most appropriate for the collection of data to achieve the desired objective.

The finite formula for the total number of surveys to be conducted is shown below.

$$n = \frac{N * Z_a^2 * p * q}{e^2 * (N-1) + Z_a^2 * p * q} \quad (1)$$

According to its application, the resulting sample size = 379 persons to be surveyed was obtained.

ISSN-On line: 2414-4819

3. Results

The analysis of the different media was carried out, which allowed us to establish a first outline of the interaction in order to detect their contributions, advantages and disadvantages. The first to be analysed was Facebook, this social network was born as a project of some Harvard students, including Mark Zuckerberg, in approximately 2004. Its initial purpose was to connect Harvard students with each other and to keep up to date with peers. It quickly grew in popularity to the point where Facebook was no longer just for students and became one of the most popular social networks. Over the years it has grown to the point where it is now the king, with no competition.

The advantages have been that it is easier to connect with the right audience, it also has integrated chat and video chat options, as well as live broadcasts, and it presents the latest news from your contacts, which allows you to keep up to date.

However, among the disadvantages is the lack of control when creating profiles, there is a large number of fake profiles, nowadays the insecurity has generated that detonates false information, also privacy compared to other social networks.

Facebook is used by large and small companies of any sector to keep in touch with their customers through different types of content that facilitate the attraction of users to the profile or page of the company and the product being promoted (Martínez, 2020).

The second medium studied was Twitter, the characteristic of 140-character posts (currently 280) and its ease of use meant that Twitter quickly spread around the world. It is one of the most used social networks in the world with more than 330 million people active on it on a monthly basis, as advantages it has the ease of connecting with the audience, has integrated chat and video chat options and real-time updates of all new notifications from your contact. As disadvantages is that it has a lot of junk content due to the ease of sharing and publishing is impossible not to have millions of junk tweets or spam, the limitation of characters, Tweets are buried, is one of the most serious problems of Twitter.

More than 500 million tweets are sent every day, which means that many disappear. Twitter is perfect for contacting potential customers or answering questions from customers who already use your products and/or services. In this social network, the size of the company that can get the most out of it is irrelevant, because all of them can reach the audience they want in a simple and effective way (Martínez, 2020).

The third digital media that was analysed was Instagram, which currently has more than 800 million users and its monthly activity is more than 200 million active users per month, its advantages are its wide publication reach, it is easy to follow relevant content, but its disadvantages include the loss of copyright, the person who uploads an image to Instagram directly has to specify whether its rights are private or public, that is, you can not choose which specific images are allowed to be reused for commercial purposes and which are not, misleading advertising, this social network is not for all companies, it is a very interesting option for companies that are dedicated to the world of e-commerce, since it is where they will publish and share images of their products for people to see them, and then take users to their website to generate conversion (Martinez, 2020).

As for the Website, it is an adapted electronic document, its main feature is hyperlinks, it is mainly composed of information (only text or multimedia modules), it can be interpreted as a digital business card either for companies, organisations or individuals in order to present some product, brand or service to offer (Delgado, 2019).

The web page is the document written in a mark-up language with a unique location within a server. The content of a web page can be independent or be linked to other web pages both for the same company/brand, as well as for associated companies, between which there are hypertext links and which complete their information, all in order to keep in touch with their customers to maintain a more direct communication channel (Merlo Vega, 2003).

ISSN-On line: 2414-4819

Thanks to new innovations, classical marketing had to adapt the principles of the 4P's (Product, Price, Place and Promotion) by means of the channel and updates that nowadays benefit companies as it is possible to reach their potential customers in an easier way; It was possible through the development of websites, placing advertisements and promotions online, creating or participating in web communities and using mass mailings, because companies must adapt to new changes and even the needs of their target audience, and therefore the segmentation of their customers, allowing with the implementation of technological tools and use of social networks, the growth of the company and therefore its profitability (Maqueira & Bruque, 2012), (Chenguang Wang, 2022).

Like everything else, websites also have their advantages and disadvantages, so they should be taken into account when creating them and even when they are already in use, as they can be of great help to prevent them from being displaced or having an unfavourable result, some of the advantages lean towards savings, the information is made known digitally reducing printing costs, as well as allowing to cover more market, but its disadvantages are the constant updating because if it is constantly maintained without new publications or even designs users tend to see it less attractive making fewer and fewer people visit it (Blaya, 2018). As a result of the above, an analysis was carried out on their adoption for the use of digital media.

Figure 1 Essential Digital Headlines.Overview of the adoption and use of connected Devices and services *Hootsuite (2022)*

Figure 1 shows that there is a total population of 130.9 million inhabitants, 81.3% of whom live in urbanised areas. There are 119.8 million mobile connections, representing 91.5% of the total population.

There are 96.87 million internet users, representing 74% of the population. Meanwhile, there are 102.5 million social network users, representing 78.3% of the total population. This is important for the lesson of the type of digital media, considering the ways in which consumers tend to use it.

It is also important to use it as a medium for brand recognition and positioning, regardless of the type of business, as its use is adapted according to the needs and infrastructure of the company (Emin K., 2022).

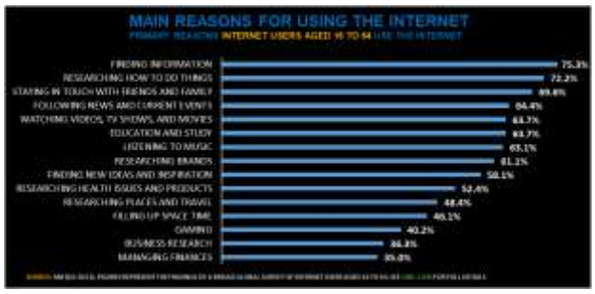


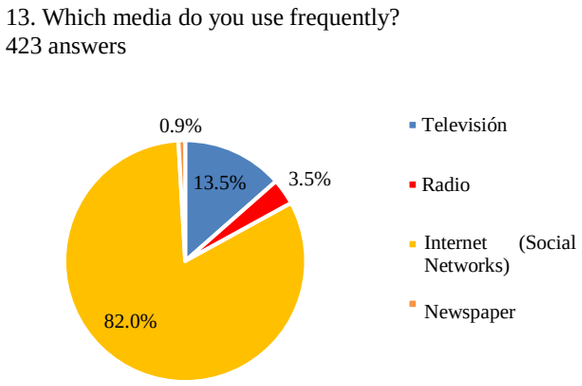
Figure 2 Main Reasons for using the internet. Hootsuite (2022)

As for Figure 2, it shows the reasons why people use digital media, of which 75.3% search for information, 72.2% search for "how to do things", 69.6% contact with family and friends, 64.4% follow news and events, 63.7% education and studies, 63. 7% watch videos, TV shows and movies, 63.1% listen to music, 61.1% search about brands, 58.1% search about new ideas, 52.4% search about health issues, 48.4% search about places and travel, 46.1% use leisure or free time, 40.2% video games, 36.3% search about business and lastly 35% search about financial management.

This information supported the importance of implementing the use of digital media in MSMEs as a means of informing about their products, services and other elements of their company, as this is one of the purposes sought by consumers.

The analysis was complemented with the application of a survey that allowed to be more specific to the characteristics of the product and their perception of the use of the media to get the information to them.

ISSN-On line: 2414-4819

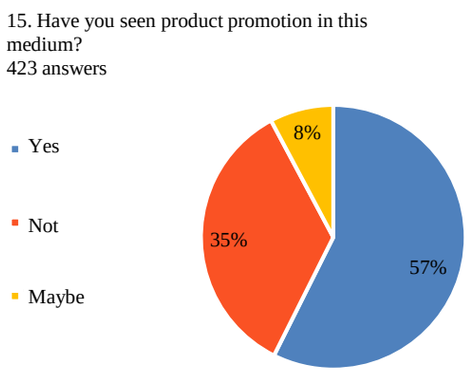


Graph 1 Most used means of communication

According to graph 1, the most used media according to the results obtained are: in first place, the internet (social networks) with 82% and in second place television with 13.5%, leaving in last place the radio with 3.5% and the newspaper with 0.9%, the first two being the most feasible to publicise the product.

Considering that the research was carried out in March 2021, the most used networks were taken into account, but it is worth mentioning that the use of other networks has increased, such as tik tok, and others that are used today, so according to the timeframe of the study they were taken into account for the proposal, and according to graph 2 shows that 80.4% use Facebook the most.

It is important that in order to consider the type of media to be considered as a study alternative, market segmentation is carried out beforehand, as it will depend on the public to consider the alternatives of the media.



Graph 2 Visual reach of product promotion using Facebook

As an important part was not only to identify the type of media most used, but also the detection of its use, the interaction they had and in a first approach to the marketing approach using the medium, so in graph 3 it was obtained that 57% see product promotions, which is an accepted percentage, however it is intended that with the strategy of the company, using Facebook since it is designed to focus on business and communication is more interactive to draw the attention of the customer, so the AIDA method will be used as part of its digital development.

Once the information was collected, we proceeded to the generation of the proposal, which was based on the analysis of quantitative and qualitative research.

Figure 3 Website design

The website was designed under the name "Creating benefits for society -UTCV-". The cover is an organisational image of the company. The profile picture is the company's logo.

Figure 4 Elements to be considered for the generation of the website

For the structure, it was necessary to consider each of the elements that would be relevant to the information desired, considering the segment to which the information is directed, as well as the insertion of videos, photos, and other considerations that would be eye-catching in order to increase traffic to the page and subsequently allow the determination of indicators for its evaluation in the acceptance of the products and services offered.

Once the analysis of the medium, its choice and design had been carried out, the final proposal was made, which allowed the process to be established.

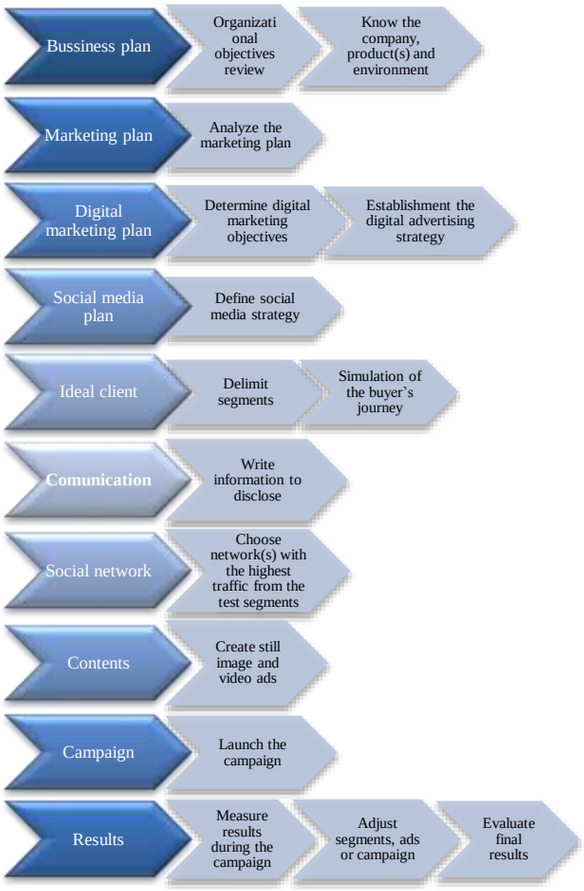


Figure 5 Methodological proposal for the launch of a digital marketing campaign through social networks

As shown in Figure 5, the business model is important, as it depends on the needs of the company, its business objectives and environment, establishing its market segment, tastes and preferences so that this also allows the detection of the medium or social networks to be considered for the generation of the media plan and the information it will contain as a strategic part.

Annexes

The following information is considered complementary once the choice of media has been made, forming part of the process for its implementation.

Figure 5

Acknowledgement

We would like to thank the student Mureño Hernández, Jazmín, from the educational programme Business Development Marketing Area as part of a research project carried out by the Academic Body DNM, her contribution and help was important, as well as the Universidad Tecnológica del Centro de Veracruz for their support for its realisation.

Conclusions

The project gave a favourable result in terms of the impact and acceptance of social networks among users, but it is considered that the research should be extended to improve the proposals focused on improving the service. It is also suggested that emphasis should be given to time due to its scarcity to implement surveys or more in-depth or extensive research makes it remise the response time to perform a more specific and feasible analysis for the sustainability of the project.

Conducting surveys offers a broad overview of the potential consumers' point of view, provided that the subjects of the study truly represent the type of population to be investigated. In the realisation of the project, more than an insight was obtained on a regional level, better still on a local level, but with regard to the global impact, there was no opportunity to do so.

ISSN-On line: 2414-4819

A possible deviation in the information would be that the majority of the people surveyed did not suffer from diabetes, although it should be noted that the cases of the disease are vast and practically everyone in Mexico has a close relative with the condition. The enquiry had a scope in relation to people's inclinations towards social networks, which provided support for the development of the digital proposal.

Social networks are the order of the day so the proposal of this project allows to keep in touch with potential customers or users who are interested in staying informed about the projects and products that can be developed for the benefit of society, as well as to publicise the benefits of some medicinal plants that often do not know how benign they can be, even to the extent of saving a life or simply to improve the quality of life of people.

References

Álvarez Castaño, Y. (2001). *Las tres dimensiones del éxito de un nuevo producto.* Dirección y organización. Revista de Ingeniería de Organización. https://doi.org/10.37610/dyo.v0i25.226

Blaya, Y. (25 de Enero de 2018). Ventajas y desventajas de hacer una web gratis para tu empresa.

Chenguang Wang. (2022). Efficient customer segmentation in digital marketing using deep learning with swarm intelligence approach. *ELSEVIER.* doi:https://doi.org/10.1016/j.ipm.2022.103085

Delgado, H. (19 de octubre de 2019). Ventajas y beneficios de tener una página Web en Internet. Akus.net https://disenowebakus.net/beneficios-pagina-web.php

Emin K. (2022). The use of digital marketing in information transport in social media: the example of Turkish companies. *Transportation Research Procedia*, 2579-2588. https://doi.org/10.1016/j.trpro.2022.06.297

Flórez Fernández, H. A. (2014). *Modelo de negocios exitoso en e-business.* Colombia: Revista Vínculos. https://doi.org/10.14483/2322939X.8024

Gastón Ares, Lucía Antúnez, *et al*.,. (2022). Even if you don't pay attention to it, you know it's there': A qualitative exploration of adolescents' experiences with digital food marketing. *ELSEVIER.* 10.1016/j.appet.2022.106128

Larrañeta Rubio , J., & Ruiz Molina, A. N. (2009). *Modelo de negocio de Youtube.* Madrid, España: La revista ICONO 14. https://doi.org/10.7195/ri14.v7i1.336

Maqueira , J. M., & Bruque, S. (2012). Marketing 2.0. El nuevo marketing. Revista Comunicación. PP. 106-110 https://dialnet.unirioja.es/servlet/articulo?codigo=6493254

Martínez, B. (20 de 02 de 2020). Principales redes sociales para empresas, ventajas y desventajas.

Merlo Vega, J. A. (2003). La evaluación de la calidad de la información web: aportaciones teóricas y experiencias prácticas. PP. 101-110. https://gredos.usal.es/bitstream/handle/10366/17956/DBD_Ev.%20calidad%20inf.%20web.pdf?sequence=1

Moreno , D., & Tapia Torres, M. (2005). *Mercados de Agentes Computacionales.* Sociedad Rectora de la Bolsa de Valores de Madrid. https://www.bolsasymercados.es/esp/publicacion/revista/2005/01/p63-65.pdf

Papí Gálvez N. (2014). Los medios online la ¿crisis? de la planificación de medios publicitarios. *Revista de Estrategias, Tendencias e Innovación en Comunicación*, 29-45. doi:http://dx.doi.org/10.6035/2174-0992.2014.7.3

Ruíz, A. (2020). Emergencia sanitaria y transacciones electrónicas: COVID-19 caso México. *Perfiles de las Ciencias Sociales*, 66-82. Http://revistas.ujat.mx/index.php/perfiles

ISSN-On line: 2414-4819

Article **ECORFAN Journal-Republic of Peru**
December 2022 Vol.8 No.15 9-19

Commitment of the Companies with the International Sustainability Agreements and their Compliance in Mexico

Compromiso de las Empresas con los Acuerdos Internacionales de Sustentabilidad y su Cumplimiento en México

CARMONA-GARCIA, Laura Georgina†*, AGUIRRE- RODRÍGUEZ, Jaime and LÓPEZ-GUZMÁN, Lorena Araceli

Universidad Autónoma de Chihuahua

ID 1st Author: *Laura Georgina, Carmona-García* / **ORC ID**: 0000-0002-8238-1438

ID 1st Co-author: *Jaime, Aguirre-Rodríguez* / **ORC ID**: 000-0003-0314-7895

ID 2nd Co-author: *Lorena Araceli, López-Guzmán*

DOI: 10.35429/EJRP.2022.15.8.9.19 Received July 30, 2022; Accepted December 30, 2022

Abstract

Companies are the engine that drive the economy of Mexico, so it is important that they contemplate the financial panorama that comes as a result of the sustainability agreements signed worldwide, such as the 2030 Agenda for Sustainable Development, The Agenda Addis Ababa and the Paris Agreement signed in 2015; all in a sense of respect for the environment, in aid for humanity, the fight against hunger and malnutrition, among others with an equality agreement between countries with common but differentiated responsibility, the member countries of the United Nations, in collaborative work over a period with the participation of civil society, the private sector and academia, managed to reach consensus on these agreements, which are intended to be fulfilled by 2030. Plus, the emergence of the SAR-Cov-2/ pandemic COVID-19, which is why the entire context of the planned sustainable actions was moved; economies were damaged, health systems collapsed, countries almost frozen in economic operations, which has generated a critical state in the private economy. It is the companies that today begin to work and review the scope, so in this work we sought to determine three actions through the netnographic method, which help both public and private companies, in the development of their activities, attending to the demands for sustainability, inclusion and social responsibility that are mandatory today. These being the circular economy, environmental accounting and Standard 035.

Sustainable Development, SAR-Cov-2, COVID-19

Resumen

Las empresas son el motor que impulsa la economía de México, por lo que es importante que contemplen el panorama financiero que viene como resultado de los acuerdos de sustentabilidad firmados a nivel mundial, como la Agenda 2030 para el Desarrollo Sostenible, La Agenda Addis Abeba y el Acuerdo de París firmado en 2015; todo en un sentido de respeto al medio ambiente, en ayuda a la humanidad, la lucha contra el hambre y la desnutrición, entre otros con un acuerdo de igualdad entre países con responsabilidad común pero diferenciada, los países miembros de las Naciones Unidas, en un trabajo colaborativo durante un periodo con la participación de la sociedad civil, el sector privado y la academia, lograron consensuar estos acuerdos, que se pretenden cumplir para el 2030. Además, la aparición de la SAR-Cov-2/ pandemia COVID-19, por lo que todo el contexto de las acciones sostenibles previstas se movió; las economías se vieron dañadas, los sistemas de salud colapsados, los países casi congelados en sus operaciones económicas, lo que ha generado un estado crítico en la economía privada. Son las empresas las que hoy comienzan a trabajar y revisar el alcance, por lo que en este trabajo se buscó determinar tres acciones a través del método netnográfico, que ayuden tanto a empresas públicas como privadas, en el desarrollo de sus actividades, atendiendo a las demandas de sustentabilidad, inclusión y responsabilidad social que hoy son obligatorias. Siendo estas la economía circular, la contabilidad ambiental y la Norma 035.

Desarrollo Sustentable, SAR-Cov-2, COVID-19

Citation: CARMONA-GARCIA, Laura Georgina, AGUIRRE- RODRÍGUEZ, Jaime and LÓPEZ-GUZMÁN, Lorena Araceli. Commitment of the Companies with the International Sustainability Agreements and their Compliance in Mexico. ECORFAN Journal-Republic of Peru. 2022. 8-15: 9-19

† Researcher contributing first author.

Introduction

The objective of this work was to determine relevant tools for companies, where importance is given to international agreements in which Mexico is involved, that in the same way the economic growth of any company at a national and international level is affected by the guidelines of world order, which today govern this type of commercial transactions and services. A significant date has been set, which is the year 2030, which undoubtedly does not limit compliance on this date, but rather is a dynamic to reach compliance in said year.

A netnographic investigation was carried out (Turpo, G.O, 2008) which is a new methodology to analyze what happens in social media, since it enriches the information with the collection of data found on the network and are analyzed in such way that can be of quantitative or qualitative quality. Documentary research was used, since data from official pages such as the United Nations Organization, the Agency for Economic Cooperation and Development (OECD), the International Labor Organization (ILO), the National Commission Human Rights (CNDH), the National Institute of Statistics and Geography (INEGI) among many others.

The objective is that through a large collection of data, which were organized to give value to the conclusions and interpret the dynamism of the system based on the changes that are occurring and that imply external conditions that companies must observe, point out the guidelines to follow to ensure socially responsible participation and in full compliance with the rules through the circular economy, environmental accounting and Standard 035.

Theoretical foundation

The constant changes within the economy worldwide today are significant and especially for countries that are considered to have an emerging economy such as Mexico. (EAE Business School, 2020), Mexico is considered a privileged place due to its biodiversity, in the same way it has been mentioned economically as the second power in Latin America and number fourteen in economic terms in the world in 2016 by the World Bank (Bank World (s.f), 2018), which is why the global agreements that Mexico participates, such as the 2030 Agenda.

The Addis Ababa Agenda and the Paris Agreement, all signed in 2015 (Cepei Knowledge from the Global South, 2020), marked the way forward for the Country, but it is not limited to the government, these agreements involve the private sector, companies and citizens, which is why detecting tools and regulations for companies will be a success, because there is no date that is not met as it is the year 2030.

It is well known that the Brundland Report (World Commission on Environment and Development, 1987) brings knowledge of Sustainable Development for the first time since the eighties, and from there the OECD begins a series of meetings and summits, to be arranged in July of 2015 the signing of what has been considered the largest international consensus of this kind (Cepei Knowledge from the Global South, 2020). The 2030 Agenda for Sustainable Development manages 17 objectives that are summarized in the phrase of the world commission on environment and development: "Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs"; These objectives encompass 169 goals, that are intended to be achieved by 2030, and jointly define how they would be implemented by defining a scheme for compliance and an examination (ibid.), which is why in certain years a recount is made on compliance with the countries that participate and the question that makes this a priority to meet these goals.

Agreement	Place and date of Concertation	Contents
2030 Agenda for Sustainable Development	New York, September 25, 2015	Action plan in favor of people, the planet and prosperity, to strengthen universal peace and access to justice
Agenda Addis Abeba	Ethiopia, July 15-16, 2015	Promotes Sustainable Development generating investments that promote the 2030 Agenda, as well as an agreement to broaden the tax base, avoiding evasion and illicit financial flows from participating countries.
Paris Agreement	Paris, April 22, 2016	United Nations Agreement for the Reduction of Greenhouse Gas Emissions

Table 1 International Agreements on Sustainability
Source: Own creation based on UN information

Likewise, the Addis Ababa Agenda (ONU, 2020) is signed, this has a different purpose, it was signed in the same year in the country of Ethiopia in its capital city Addis Ababa, which is where the name of the Agenda is determined (Cepei Knowledge from the Global South, 2020) is an agreement in economic terms for the financing of actions for Sustainable Development, whether public, private, National or International, and seven points are determined on which the agreements should focus (UN, 2020):

1. Social Protection and Public Services for All
2. Expand efforts to combat hunger and malnutrition
3. Address infrastructure deficiencies
4. Promotion of Industrialization and inclusive and sustainable production
5. Generation of full and productive employment, and decent work for all, encouraging micro, small and medium-sized enterprises
6. Protection of ecosystems
7. Promote peaceful and inclusive societies

All of them are the framework of action to have access to this financing, with extreme attention to international cooperation, tax systems, the indebtedness of nations, as well as the governance of all those who participate in the agreement; This agenda is important since one of the principles is that all benefits reach everyone without any discrimination, and that is why companies must enter into this dynamic, so that the country in turn complies with these demands, and it is certainly a widespread obligation.

The Paris Agreement is not an agenda, it is a reinforcement for compliance with sustainability, it is a "United Nations Convention on Climate Change", to keep the world temperature in this century below two degrees Celsius above pre-industrial levels (Ibid.). It promotes sustainability and proposes to improve the actions at the international level of all those involved to face climate change and its consequences. According to (UNU, 2020) Sustainable development requires concentrated efforts to build an inclusive, sustainable and resilient future for people and the planet, to achieve it, it is essential to harmonize three basic elements: economic growth, social inclusion and protection environment.

These elements are interrelated and are all essential for the well-being of individuals and societies; The eradication of poverty in all its forms and dimensions is necessary, it is an essential condition to achieve sustainability, for this purpose, sustainable, inclusive and equitable economic growth must be promoted, which creates greater opportunities for all, that reduces inequalities, improve basic living standards, foster equitable and inclusive social development, and promote integrated and sustainable management of natural resources and ecosystems.

Mexico has worked permanently on this commitment, just nine years after the fulfillment of the Agenda, efforts have been redoubled, we are experiencing catastrophic consequences of this global neglect of nature and its resources, we exceeded the use of natural resources, we did not think it is possible to supply the demanded consumption and its natural cycle has been altered to generate more production, and these alterations have brought tsunamis, earthquakes and pandemics such as COVID-19, which could not be controlled generating changes in the way of producing, working and to interrelate with the population.

Robin (Naidoo, 2020), a scientist from the World Wide Fund for Nature (WWF), clarifies that the pandemic has brought challenges to the economy and the health system worldwide, which has generated devastating situations for many, such as job losses, or the closure of companies and talks about the importance of taking into account the objectives of the 2030 Agenda, to review the scope of the pandemic, with joint actions of the various economic sectors worldwide. In the same way, it ensures that the success of this agenda would depend on sustained economic growth and globalization, which have been cut short by the virus pandemic, since many actions have become obsolete, such as mobilization in collective transport, a situation that puts endanger the lives of users.

Participation of companies in the Mexican economy

Companies are one of the important sectors in the Mexican economy. According to the (RAE, 2020). Company is the organizational unit dedicated to industrial, commercial activities or provision of services for profit.

ISSN-On line: 2414-4819

The quarterly Gross Domestic Product (GDP) offers, in the short term, a timely, complete and coherent vision of the evolution of the country's economic activities, providing timely and updated information to support decision-making; showing in the following table the data of the value in the national GDP by economic activity.

The National Institute of Statistics and Geography (INEGI) presents the results of (GDP), that indicates an increase of 1.5% in real terms with respect to the previous year. (INEGI, 2021)

Concept	Variations % compared to the previous quarter	Variations % compared to the same quarter of the previous year
PIB Total	1.5	19.5
Primary activities	0.8	6.8
Secondary activities	0.3	27.9
Tertiary activities	2.0	16.9

Table 2 Gross Domestic Product by Economic Activity
Source: Own elaboration based on INEGI (2021)

The National Statistical Directory of Economic Units (DENUE) provides data on the identification, location, economic activity and size of active businesses in the national territory, updated mainly in the segment of large establishments. (INEGI, 2021)

Figure 1 Economic units by state
Source: Taken from INEGI 2021

The information shown allows detecting the importance that companies have according to the activities in the fulfillment of the objectives, since they are the economic engine of Mexico.

Circular Economy

The circular economy is a method generated from the model of nature, and in Europe it has been welcomed by several nations, just as multinational companies have outlined themselves to implement the model in their activities, which is why it is considered an ideal tool to produce within the regulations and classify itself as a socially and sustainable company.

Circular economy in companies

According to a study carried out on the circular economy as a sustainable alternative (Martínez & Porcelli, 2019), they conclude that in order to start the transition towards the circular economy, it is essential to establish a regulatory framework for extended producer responsibility, the management of plastic, electrical and electronic waste, which obliges the manufacturer and producer to always incorporate a part of recycled material in each product. In addition, it is necessary to formulate public policies that promote the collaborative economy and penalize linearity in production processes.

Without forgetting ecological labeling, eco-design, the construction of sustainable buildings, as well as working on environmental, creative and entrepreneurial education for change to happen.

Among the good things that this type of economy highlights is the possibility of keeping products, components and materials running for as long as possible, that is, with greater utility and value, so that when they are discarded, they can be regenerated to another good or input that can continue to contribute to the cycle of the company.

In fact, it is expected that the world population will reach 9 billion people by the year 2030 and in 2019 more resources were being used than the planet itself can provide, an incentive given this overpopulation and lack of control of the uses of natural resources, is this type of economy, because it is unlimited and adaptable to any company. (Ecological Recycling, 2019)

ISSN-On line: 2414-4819

Figure 2 How the circular economy applies to companies
Source: Taken from RECECO 2019

The circular economy as a new business model

(Rovira, Stefanu, & Valdivia, 2018) They mention that during the last two decades, knowledge of the effects of environmental degradation on people's health has increased significantly in society, which has led to greater concern for the preservation of a healthy environment and has had an impact on consumers' decision-making to purchase products and services. The companies that have detected these changes and have integrated improvement systems in the production processes have achieved an increase in production efficiency, a decrease in costs and a better brand positioning.

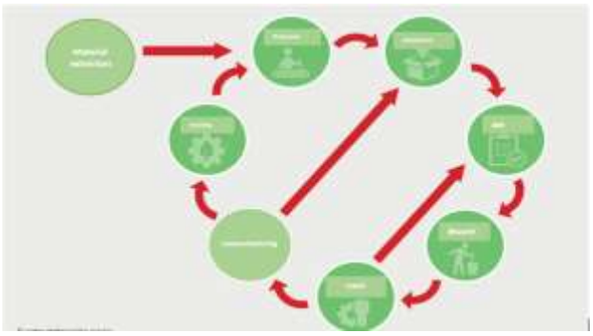


Figure 3 Where is the company located within the circular economy?
Source: Taken from Harvard Deusto Marketing and sales (2018)

Environmental Accounting

The competitive environment to which companies are subject has changed, globalization has brought a series of guidelines and certifications that make companies continually reinvent themselves, technological and innovation changes are generating substantial changes in the different types of economic entities.

They face guidelines and demands that had not been generated, since they were seen as not immediate and they were not adept at all types of companies, which today is seen as a trend towards market globalization regardless of size, type of industry or commerce, since they are guidelines at a national and international level. International operations have generated that countries have to create accounting guidelines, in which a benefit is seen for all, previously it was understood that the main function of companies was to create an economic profit, in the same way it is understood that this economic production is significant for the country where the company operates, likewise in the maximization of profits a chain reaction is understood, which implies the greatest efficiency in the use of resources (INEGI, 1996). Therefore, accounting is an important tool to add value to the record of environmental operations.

Mexico, as part of this ambitious international project, in its Third Voluntary National Report (The United Nations, 2021), emphasizes the importance of compliance with the actions, and likewise reported the installation of a Special National Commission in the Senate of the Republic and a working group in the Chamber of Deputies, this has generated the issuance of legal guidelines delimiting the various obligations that must be met by those involved, to date we can mention within these the General Law of Sustainable Development (2018), General Law for Ecological Balance and Environmental Protection (1988), National Water Law (1992), General Law for Sustainable Forest Development (2018), General Law for Wildlife (2000), Law for Sustainable Rural Development (2001), Law for the Promotion and Development of Bioenergetics (2008), Federal Law on Environmental Responsibility and General Law on Climate Change (2013), the laws observe limitations of the activities to preserve the environment and promote the sustainability of business activities and of any kind and also the sanctions for those who fail to comply with these regulations. (Chamber of Deputies LXV Legislature, 2021)

The companies have to make these changes, since they are forced and of immediate application, that is where the importance of accounting lies, which has been defined as the technique to classify, order and record the operations that economically affect an entity and which is, in turn, issues financial information that is useful for decision-making (Ramírez, 2018) for what is considered to be the clear way to record formal data, giving them an economic value, for the same reason we understand that environmental accounting or sustainable accounting, is one that seeks to measure the financial and non-financial effects that a company has when making responsible use of natural resources in its processes and/or operations. (Ibid, p.135)

Companies need to comply with the requirements of the various environmental laws, with national and international guidelines, and these are focused on the care and preservation of the environment, as it has already been defined that these laws determine the compliance of companies to compensate wear and tear. of the environment due to commercial and industrial activities, that is why the importance of environmental accounting, which allows clear accounts of these actions.

There are various terms that imply having an environmental accounting vision, which allows determining an eco-efficiency in the company, this will allow its financial statements to reflect through these accounts the processes that are carried out, take into account the applicable guidelines and reflect them in the accounting processes, these actions in the company will allow a better financial performance together with the ecological effort of the company, it is to take into account all the activities and give them a value with respect to environmental wear or quality standards, this type of action goes beyond a mere social responsibility, this leads to growth in terms of competitiveness. Perhaps it is important to take into account that in 2030, these will be the companies that can apply for international operations, or have access to incentives or credits that promote economic growth and sustainable development, which is an obligation that had been postponed and we have seen the cost in the wear and tear of the planet or the pandemic situation that exists today.

Environmental accounting involves two types of accounting branches, such as administrative accounting (ibidem), that is a record and the issuance of internal reports, as well as Financial Accounting, which is the one that issues information for the determination of profits and the entire tax.

Environmental Accounting from the administrative point of view will determine the environmental costs that according to Ramírez Padilla (Ibíd., 136) are divided into the following categories:

a) Prevention costs

These contemplate the registration of the cost of the activities carried out so that production is sustainable and environmental, that is, everything that implies avoiding emitting pollutants, waste and everything that affects nature.

b) Detection costs

It is the record of all those actions carried out to identify processes or materials that damage or are detrimental according to legal guidelines.

c) Costs due to internal failures

They are those that are detected in production that have not yet reached the final process and are discarded for not complying with the sustainability parameters.

d) Costs due to external failures

They are those that were generated at the end of production and have damaged the environment. They can be divided into realized (those that are financially covered by the company) and unrealized (referred to as costs that harm the population and the environment, but are absorbed by the function of the government, that is, they are covered by the Country). (ibid. 136)

It is considered important within these accounts, which are not limiting, but important, the creation of reserves for environmental contingencies, or however they are designated.

ISSN-On line: 2414-4819

It is also considered relevant to include this section that will allow the company to compensate the damages generated in nature, as in the case of clearing forests to produce wood, this provision or reserve would be contemplated to remedy erosion and loss of soil quality, an expense that affects the generation of utility and this allows the value determined is the real one, and in this same way the company will be socially and sustainably responsible.

The OIT and Standard 035 as a labor prevention measure

It would be inconceivable to think of compliance as socially responsible companies without reflecting this sustainability in labor relations, which is not only an environmental issue, but as well defined in the 2030 agenda, which consolidates the agreement of the member states, seeking sustained economic growth. and integration, social inclusion and environmental protection, all this in an environment of peace and cooperation (United Nations System Staff College, 2020), in this aspect the 2030 Agenda contemplates the universal principles that are shown in the following figure.

Fundamental Principles	
Leave no one behind	It has universal scope and entrusts its compliance without any distinction
Universality	Implies a benefit for all, reaching the most marginalized
Interconnectedness and Indivisibility	The 17 Goals are individual, they must be addressed as a whole
Incorporation	It calls on the entire society to contribute to its compliance
Multi-stakeholder partnership	Calls for building partnerships between stakeholders for knowledge mobilization and sharing

Table 3 Principles on which the 2030 Agenda is based
Source: Own creation from(United Nations System SAtaff College, 2020)

Based on these principles, according to the UNU (ibid), five dimensions are considered that are the foundation for the Development Goals of the Agenda, being people, prosperity, planet, collective participation and peace; where social inclusion has a large area of action, in which work has been done in Mexico, concluding in the creation of Standard 035-STPS-2018, in response to these international demands.

The International Labor Organization (OIT) and Standard 035 consider that there are occupational risks, so that the application according to national and international standards and regulations exist psychosocial factors in the workplace, and mentions that due to the degree of each one of the activities are becoming more complex and difficult to understand, which can lead to negative health problems where organizations will be affected either positively or negatively.

The ILO points out that in Latin America and the Caribbean it is estimated that every year 317 million working people are victims of work-related accidents and establishes that around 2.34 million die worldwide due to occupational accidents or diseases and that these are regulated by the laws in Mexico; For this reason, it is essential that strategies be formulated to avoid accidents and illnesses and that they be reinforced by government institutions together with companies in a social dialogue that have regulations in conjunction with the appropriate business sector, that have national policies and health and safety programs at work, and that promote the coordinated action of the different entities that have to do with these issues. The need for an effective inspection system to ensure compliance with the standard has also been raised, which is key. (International Labor Organization, 2021)

Another important aspect that is taken into consideration is that organizations must have records through a report of each worker so that prevention is reflected with a database of work accidents and occupational diseases (IMSS, 2022), since by establishing the system, it allows companies to detect priorities and thus be able to make improvements in the design of strategies that should be considered essential, such as having better registration and notification systems for work accidents. This is when companies manage to reduce their costs due to a health consequence, either due to an accident at work or due to some disease.

It is therefore essential that the standard is applicable in all workplaces and that its objective is to establish the elements to identify, analyze and prevent psychosocial risk factors, as well as to promote a favorable organizational environment. (Official Gazette of the Federation, 2021)

The Official Mexican Standard NOM-35-STPS-2018 and psychosocial risk factors at work their identification, analysis and prevention

The Official Mexican Standards are issued by the Secretary of Labor and Social Welfare, which determines the conditions regarding safety, health and the environment in the workplace. However, they are applied according to the number of workers, for which It can be measured through three levels, which are mentioned below:

– Work centers where 15 people work.
– Work centers where between 16 and 50 people work.
– Work centers where more than 50 people work.

It is determined according to the work center at which level it is located, so that once the number of workers is identified, it complies with the provisions and regulations that are used. This rule comes into force in two stages, the first stage is included as a preventive measure in the identification of the workplace with the number of workers exposed to severe traumatic events, and the dissemination of information, will come into force this year, on October 23, 2019; and the second stage is understood as a measure to identify and analyze psychosocial risk factors; the evaluation of the organizational environment; control measures and actions; the practice of medical examinations; and the registrations will go into effect on October 23, 2020.

Employers have the obligation to establish and implement a psychosocial risk prevention policy that contains the following:

a. The prevention of psychosocial risk factors.
b. The prevention of workplace violence.
c. The promotion of a favorable organizational environment.

Workers have the obligation to know and observe the prevention and control measures provided by the standard and which are implemented by the employer and which must be complied with by workers to control risk factors in the face of possible workplace violence. (Sky, 2021)

In organizations from the dates indicated regardless of their size, both public and private companies are required to apply, as well as the cost that it represents for micro and medium-sized companies and its cost is from 8,000.00 to 81,000.00 pesos and this It is according to the number of workers. For companies that have 15 workers, it costs 8,492.00 Mexican pesos; and for companies that have 16 to 50 workers, the cost is 81,744 Mexican pesos per year.

The fines that will be applied in the non-application of the norm as mentioned by the Federal Labor Law in its article 994 section V that establishes from 250 to 5000 Units. Measurement and Update, and that in the application for the year 2019 the daily UMA It has a daily cost of 84.49 pesos, therefore the representative fine will be 422,000 pesos, as well as those who violate work risks (Pérez, J. & Fol, R., 2021).

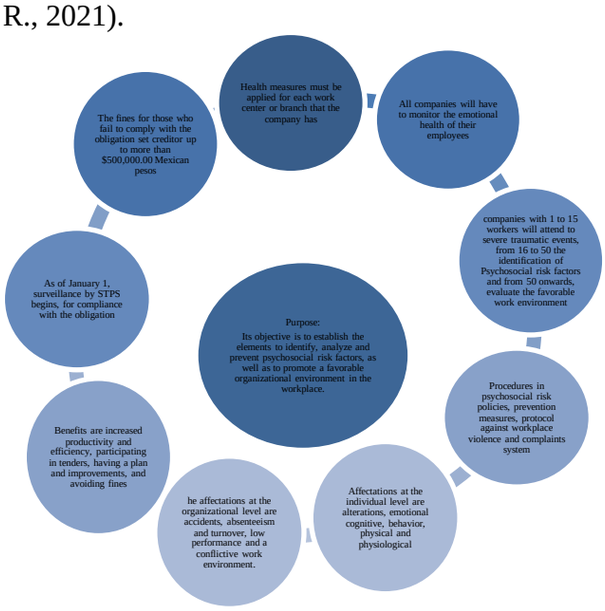


Figure 4 Mexican Government Regulations STPS NOM-035
Source: Government of Mexico STPS/2021 (CNDH, 2021)

The National Human Rights Commission takes NOM-035 as a challenge

The application in times of pandemic and mentions that NOM-035 is a relevant instrument that is related to the promotion, protection, respect and guarantee of human rights in the national territory, gaining even more relevance in a context in which the labor relations are constantly changing. It is in light of this situation of challenges that come from the COVID-19 pandemic that we seek to find the path of public policy that allows its implementation to be widespread and effective for workers.

According to the CNDH, it is related that health is linked to a healthy environment, since people's health largely depends on their environment. The opposite, that is, a situation in which the environment is compromised, damages people's health in various ways, among which are waterborne diseases, diseases caused by dangerous chemical products, and pollution. and pollution of air, water and soil and work environments.

Work is a fundamental and essential right for the realization of other human rights and constitutes an inseparable and inherent part of human dignity, everyone has the right to work in order to live with dignity, therefore the right to work has three fundamental elements:

1. Freedom to exercise any legal profession without interference from any authority.
2. Right to have a job, which implies positive obligations for the State, in order to promote favorable circumstances to generate jobs.
3. Dignity, since the work must comply with a minimum of fair conditions. (CNDH, 2021)

Figure 5 CNDH AND NOM-035
Source: Own creation based on the CNDH and NOM-035

Materials and methods

The research was qualitative of a basic and documentary type, since it contributed to the generation of knowledge, it was non-experimental through an action research design, the information was collected through the collection of documents, it was possible to review a variety of publications scientific and bibliographies, which have studied the different topics covered in this document, mostly international sources specialized in the subject.

The testimonies printed in other investigations were analyzed, which allowed us to have a general panorama, which shows that there are similarities in the characteristics and problems detected in the countries of Latin America and the world to comply with international sustainability treaties in where companies play an important role.

Results

In the importance of compliance with Mexico's commitments to sustainability and respect for the environment in all its extensions, companies are immersed in this context of said provisions, what has been studied becomes a palliative so that their inclusion is easier and more innovative, we are faced with mechanisms that allow the objective to be achieved and, in turn, benefit the entities in their development and growth.

Among the most important results, it was possible to detect the existence of three tools, these being the circular economy, environmental accounting and NOM-035, since they are essential in compliance with international treaties towards 2030, since each one has its own importance in the application of sustainability, complying with the provisions indicated by the International Bodies, for which it is recommended that companies put into operation the guidelines in the implementation of innovation in sustainable development as an aid to be included within the scheme and achieve the benefits of sustainability.

Conclusion

Companies are a primary economic source in Mexico, which sustains more than 50% of the country's finances, it could be said, and they are a fundamental base in the fulfillment of the agreements signed by the Nation, for which their participation in the attention to the changes that have been generated worldwide, is essential. The circular economy comes to play an important role in compliance with international treaties, and it is precisely through companies that this can be possible, since through investment in the innovation of production mechanisms, and recycling, they can contribute to caring for the environment towards the year 2030, which, although it may seem distant, is undoubtedly the right time for governments to undertake the corresponding actions, especially those that show a delay in this regard with respect to other countries;

ISSN-On line: 2414-4819

This may be possible under strategies that involve, for example, fiscal stimuli, and in this way businessmen provide added value to production by encouraging recycling, which for some may mean waste, for nature it is a breather. Likewise, the accounting of those items that allow reflecting the management of sustainability should be considered basic, since these "green accounts" are the ones that recognize the advances or failures that are made within the company in the use of resources. Therefore, when reviewing the importance of environmental accounting, it is determined that it enables and identifies the information necessary for companies to be in favor of projects by 2030, since it is necessary to align the participation of the public sector and private in the signed Agendas.

Agreements

The regulations created by international organizations are in charge of supervising public and private entities in the development of activities in relation to labor aspects, creating principles and rights with the aim of guaranteeing that workers have decent work within of the operational scheme in companies. In this way, the ILO and NOM-035 combine the concepts that are applied in labor interactions, as well as monitoring the means of work in conjunction with the Secretary of Labor and Social Welfare in order for the worker to be in a climate favorable labor market, covering their physical and emotional health needs, obtaining work performance as a result

References

Acciona. (2020). *Sosteniblilidad para todos*. Recuperado el octubre de 2021, de Como ha afectado la pandemia del COVID-19 a los objetivos de Desarrollo sostenible: https://www.sostenibilidad.com/desarrollo-sostenible/pandemia-covid-19-objetivos-desarrollo-sostenible/?_adin=02021864894

Banco Mundial (s.f). (2018). *Banco Mundial org.* Recuperado el octubre de 2021, de Indicadores del Banco Mundial: https://datos.bancomundial.org/indicador/NY.GDP.MKTP.CD

Cámara de Diputados LXV Legislatura. (2021). *Leyes vigentes*. Obtenido de Cámara de Diputados: http://www.diputados.gob.mx/LeyesBiblio/pdf/148_180121.pdf

Camara de Diputados LXV Legislatura. (2021). *Leyes vigentes*. Obtenido de Cámara de Diputados: http://www.diputados.gob.mx/LeyesBiblio/pdf/148_180121.pdf

Cepei Knowledge from the Global South. (2020). *Principales Agendas Globales para el Desarrollo Sostenible.* Recuperado el octubre de 2021, de Cepei Knowledge from the Global South: https://cepei.org/home/principales-agenda-globales-del-desarrollo-sostenible/

CNDH. (octubre de 2021). Obtenido de https://www.cndh.org.mx/sites/default/files/documentos/2020-11/Retos_NOM035_Pandemia.pdf.

Diario Oficial de la Federación. (octubre de 2021). *DOF*. Recuperado el octubre de 2021, de Diario Oficial de la Federación: https://www.dof.gob.mx/nota_detalle.php?codigo=5541828&fecha=23/10/2018

EAE Business School. (2020). *México como economía emergente.* Recuperado el octubre de 2021, de EAE Business School on line Blended: https://www.eaeprogramas.es/blog/internacionalizacion/mexico-como-economia-emergente

IBERDROLA. (s.f.). *Sobreexplotación de los Recursos Naturales*. Recuperado el octubre de 2021, de IBERDROLA: https://www.iberdrola.com/medio-ambiente/sobreexplotacion-de-los-recursos-naturales

IMSS. (2022). *Prevención de accidentes de trabajo.* Obtenido de IMSS: http://www.imss.gob.mx/salud-en-linea/prevencion-accidentestrabajo

INEGI. (1996). *El ABC de la Productividad.* México: INEGI.

INEGI. (2021). *El Instituto Nacional de Estadística y Geografía* . Recuperado el octubre de 2021, de https://www.inegi.org.mx/temas/pib/

INEGI. (2021). *Instituto Nacional de Estadística y Geografía*. Recuperado el octubre de 2021, de Unidades económicas por entidades federativas: https://www.inegi.org.mx/temas/directorio/

Instituto Nacional de Estadística, Geografía e Informática. (1996). *El ABC de la Productividad.* México: INEGI.

Martínez, A. N., & Porcelli, A. M. (2019). *Dialnet*. Recuperado el Octubre de 2021, de https://dialnet.unirioja.es/servlet/articulo?codigo=6995230

Naidoo, R. (22 de julio de 2020). *Cómo el COVID-19 representa un reto para la sostenibilidad*. Obtenido de Descubre WWF: https://www.worldwildlife.org/descubre-wwf/historias/como-el-covid-19-representa-un-reto-para-la-sostenibilidad

ONU. (2020). *Organización de las Naciones Unidas*. Recuperado el Octubre de 2021, de https://www.un.org/sustainabledevelopment/es/development-agenda/

Organización de las Naciones Unidas. (15 de julio de 2015). *Naciones Unidas,l Noticias ONU*. Recuperado el octubre de 2021, de Los Paises alcanzan acuerdo Historico para financiar la nueva agenda para el desarrollo: https://news.un.org/es/story/2015/07/1334931

Organización Internacional del Trabajo. (octubre de 2021). *Organización Internacional del Trabajo Org*. Obtenido de https://www.ilo.org/americas/temas/salud-y-seguridad-en-trabajo/lang--es/index.htm

Pérez, J. & Fol, R. (2021). *ESTUDIO DEL IMPUESTO SOBRE LA RENTA 2021*. Mexico: Tax Editores.

RAE. (2020). *Real Academia Española*. Recuperado el octubre de 2021, de https://dle.rae.es/empresa?m=form

Ramirez, P. D. (2018). Naturaleza de la Información Contable. En *Contabilidad Administrativa Un Enfoque Estratégico para Compartir* (pág. 9). México: McGaw Hill.

Ramírez, P. D. (2018). Naturaleza de la Información Contable. En *Contabilidad Administrativa Un Enfoque Estratégico para Compartir* (pág. 9). México: McGaw Hill.

Reciclaje Ecológico . (2019). *RECECO*. Recuperado el Octubre de 2021, de https://gestorderesiduosmadrid.es/receco-gestor-de-residuos/

Rovira, S., Stefanu, Y., & Valdivia, A. (2018). *Harvar Deusto Márketing y Ventas*. Recuperado el septiembre de 2021, de https://www.alianzalibreformacion.org/wp-content/uploads/2019/07/HD-economia-circular.pdf

The United Nations. (2021). *Sustainable Development GOALS Knowledge Plataform*. Recuperado el octubre de 2021, de México: https://sustainabledevelopment.un.org/memberstates/mexico

Turpo, G.O. (España de E de 2008). *EDUCAR*. Recuperado el OCTUBRE de 2021, de La netnografía: un método de investigación en Internet.: https://www.redalyc.org/articulo.oa?id=342130831006

United Nations. (2015). *Acuerdo de Paris*. (U. N. Change, Productor, & Euroclima) Recuperado el octubre de 2021, de United Nations Climate Change: https://unfccc.int/es/process-and-meetings/the-paris-agreement/el-acuerdo-de-paris

United Nations System SAtaff College. (2020). *Bulding Capacity for Agenda 2030*. (ONU, Productor) Recuperado el octubre de 2021, de Sharing Knowledge Developing Leaders: https://www.unssc.org/featured-themes/building-capacity-agenda-2030/

World Commission on Environment and Development. (1987). *Our Common Future*. New York: Oxford University Press. Recuperado el octubre de 2021

Article **ECORFAN Journal-Republic of Peru**
December 2022 Vol.5 No.9 20-34

Knowledge and acceptance of the Crowdfunding Platform

Conocimiento y aceptación de la Plataforma de Financiamiento Colectivo Fintech

DÉCARO-SANTIAGO, Laura Angélica†, SORIANO-HERNÁNDEZ, María Guadalupe* and SORIANO-HERNÁNDEZ, Juana Gabriela

Universidad Autónoma del Estado de México

ID 1st Author: *Laura Angélica, Décaro-Santiago* / **ORC ID**: 0000-0002-6778-3359

ID 1st Co-author: *María Guadalupe, Soriano-Hernández* / **ORC ID**: 0000-0001-5682-8155

ID 2nd Co-author: *Juana Gabriela, Soriano-Hernández* / **ORC ID**: 0000-0002-3896-5647

DOI: 10.35429/EJRP.2022.15.8.20.34 Received September 05, 2022; Accepted November 25, 2022

Abstract

Bringing together the efforts of large amounts of individuals to collect funds and transfer them to their claimants is an activation key of the Fintech Crowdfunding Platforms (FCP). Consequently, the business model presence inside the potential investment mind is essential for its growth and consolidation. In this way, the concern to investigate the level of knowledge on the subject in Potential Retail Investors (PRI), is born. In addition to detecting whether this knowledge is related to the perception of the model as an investment option, as well as, intending to invest in the future. Thus, a quantitative investigation is carried out through the application of a self-perception response instrument, this in a sample of 384 PRI. The results showed that the participants recognized themselves with a low level of knowledge about: the existence of the model, the difference between authorized and unauthorized platforms, and its operation, among others. These results are accentuated in Biological and Health Sciences professionals, women, and people with no investment background. A positive but weak correlation is also detected between knowledge about PFCF and perception, as well as, the intention to invest. In contrast, a medium correlation was obtained between perception and the investment intent in the modality.

Potential Retail Investor, Crowdfunding Fintech Platforms, Knowledge, Perception

Resumen

Reunir esfuerzos de un gran número de individuos para recolectar fondos y trasladarlos a sus demandantes, es una actividad clave de las Plataformas de Financiamiento Colectivo Fintech (PFCF). Consecuentemente, la presencia de la modalidad en la mente del inversionista potencial es indispensable para su crecimiento y consolidación. De esta forma, nace la inquietud por investigar el nivel de conocimiento sobre el tema entre los sujetos identificados como Inversionistas Potenciales al Menudeo (IPM). Además de detectar si este conocimiento tiene relación con la percepción del modelo como opción de inversión, así también, con la intención de invertir en el futuro. Por lo que, se realiza una investigación cuantitativa a través de la aplicación de un instrumento de respuesta de autopercepción, esto en una muestra de 384 IPM, Los resultados mostraron que los participantes se reconocieron con bajo conocimiento sobre la existencia del modelo, la diferencia entre las plataformas autorizadas y no autorizadas, su funcionamiento, ente otros. Esto se acentúa en profesionistas del área de Ciencias Biológicas y de la Salud, mujeres y personas sin antecedentes de inversión. También se detecta una correlación positiva, pero débil entre el conocimiento sobre PFCF y la percepción, asimismo con la intención de invertir. En contraste se obtuvo una correlación media entre la percepción y la intención de invertir en la modalidad.

Inversionista Potencial al menudeo, Plataformas de Financiamiento Colectivo Fintech, Conocimiento, Percepción

Citation: DÉCARO-SANTIAGO, Laura Angélica, SORIANO-HERNÁNDEZ, María Guadalupe and SORIANO-HERNÁNDEZ, Juana Gabriela. Knowledge and acceptance of the Crowdfunding Platform. ECORFAN Journal-Republic of Peru. 2022. 8-15: 20-34

* Correspondence to Author (email: mgsorianoh@uaemex.mx)
† Researcher contributing first author.

Introduction

One of the sectors that has been transformed by the intensive use of digital technologies is financial services, whose value proposition integrates the democratisation of financial products (Buchak, Matvos, Piskorski, & Seru, 2018; Jagtiani & Kose, 2018; Jagtiani & Lemieux, 2017), speed of processing and response, automation of processes, elimination of financial intermediaries and savings in the operational structure of the model itself (Aarón & Ramos-Mendina, 2017; CONAIF, 2018; EY, 2017), giving way to what we now call the Fintech sector (for the first letters of the English words: Financial and Technology).

The Fintech sector is broad in its taxonomy, however, one of the models with the greatest momentum, among pioneering entrepreneurs, are the business models that address the needs of financing and placement of resources among the population and small businesses. The peer-to-peer financing market, often referred to as person-to-person lending, peer-to-peer lending, P2P, collective financing or crowdfunding, which we will henceforth refer to as Fintech Financing (FF). It should be clarified that, in the case of Mexico, the most familiar concept and typified by the Law to Regulate Financial Technology Institutions (LRITF) is Crowdfunding or Collective Financing.

The penetration of the Fintech sector has been evident in countries such as China, the United States and the United Kingdom (Cornelli *et al*., 2020; Lee & Shin, 2018; Ziegler *et al*., 2021); and although Mexico stands out as one of the leaders in Latin America in the number of startups of this nature (FINNOVISTA, 24 March 2020), the magnitude of its operations is far from the United States. In this sense, the concern arises to identify how well known the PFCF model is among potential retail investors and whether this level of knowledge is related to a good perception and intention to participate.

In summary, the objective of this article is to identify the level of knowledge of the Potential Retail Investor (PRI) about Fintech Crowdfunding Platforms (FCPs) and its relationship with the perception of the model as an investment option, as well as with the intention to invest in it.

It should be noted that the role of the investor is essential for the development, penetration and consolidation of CFTPs, as it is the investor who participates as the provider of the monetary resource, assuming the credit risk. Having described the above, the following research questions are sought to be answered:

RQ1. What level of knowledge does the MPI have about PFCFs?

RQ2. How is the level of knowledge about FCPs distributed by socio-demographic groups and by MPI investment history?

RQ3. Is there a correlation between the level of knowledge of the MPI and the intention to participate in CBPPs?

RQ4. Is there a correlation between MPI intention and perception of FFPPs as an investment option?

The paper is hereafter divided into five sections. The first establishes the theoretical and contextual framework that takes up concepts, studies, as well as data on the Mexican context, in order to situate the issue related to CFPPs, the investor and the background. Then, the method used to collect and analyse the information is explained. This is followed by the results section, which describes the statistical data obtained, to give way to the discussion of the results, which contrasts with what has already been studied. Finally, the conclusions explain the scope and limitations of this work.

Fintech Crowdfunding Platforms

Fintech Crowdfunding (FF), also identified as Alternative Finance (AF), includes, depending on the jurisdiction, P2P (peer to peer), crowdfunding or marketplace lenders (investors in multiple loans) (Claessens, Frost, Turner, & Zhu, 2018; Ziegler *et al*, 2021); it is a sub-segment of the Fintech sector that deals with distributing monetary resources between offerer and demanders, but without the intervention of a conventional financial intermediary, whose meeting point is through technological-digital tools such as platforms and/or apps. "Crowdfunding companies pool funds from various individual investors who invest or lend these funds to projects developed by independent entrepreneurs by independent entrepreneurs.

ISSN-On line: 2414-4819

Individual investors put in a small amount of money and can earn high returns, while entrepreneurs can raise significant amounts of money" (Miranda Global Research, 2022, p. 39). Cordova, Dolci and Gianfrate (2015) draw on other authors to point out that crowdfunding has crowdsourcing as its antecedent, whose sum of effort is centred on monetary resources, through an open call and via an online platform.

In addition, it is an agency model, since the PFCF obtains commission profits by being the originator of the credit, but without providing resources; in other words, the PFCF is only an intermediary of information (Balyuk & Davydenko, 2019; Claessens *et al*., 2018).

Given its nature, one of the key activities of the PFCF is the generation of reliable information that allows investors to make more accurate decisions, thanks to the use of tools that rely on machine learning (Vallee & Zeng, 2018). Thus, the business model will work, in part, because the PFCF offers information with certain precision - through a prior assessment using technology - on the probability of the borrower's level of default, translated into a rating and an interest rate.

In this direction, research has highlighted that methods using these platforms correctly predict the level of borrower default, with some even outperforming traditional methods and metrics (Berg, Burg, Gombovi, & Manju, 2018; Jagtiani & Lemieux, 2018; Li, Zhang, & Zhang, 2017; Lu, Wang, Wang, & Zhao, 2020; Zhand, Li, Hai, Li, & Li, 2017).

In addition to ensuring quality information, the investor must obtain from the PFCF, trust that buffers fears arising from fraudulent campaigns, such as: increased defaults, negligent collapse, cyber security breaches, among others (Ziegler *et al*., 2018; Tania Ziegler *et al*., 2021).

In line with the above, governments in various countries have been concerned with providing a regulatory framework, especially to protect the interest of the participating investor, as he or she assumes the credit risk in this model.

The investor

One of the main differences between bank depository investors and investors in the PFCF market is that the former do not know the funded destination of their deposits, while the latter identify and decide who to fund (Vallee & Zeng, 2018), in other words, the PFCF investor has access to information, can evaluate and make decisions. Consequently, there are different levels of evaluation and decision quality, so that authors such as Vallee and Zeng (2018) and Lin, Sias and Wei (2021) make a distinction between sophisticated and unsophisticated investors.

Sophisticated investors are able to obtain better returns by discriminating information more efficiently (if available). For Valle and Zeng (2018) sophisticated investors can be both institutional (banks, insurance companies, investment companies, investment companies, pension funds and hedge funds) and retail, retail or individual, an assertion also supported in the work of Balyuk and Davydenko (2019), who also refer that 80% of investors in general evaluate lightly or do not evaluate the alternatives to finance, i.e. they have a passive stance towards the activity.

As a result of the advantage of sophisticated investors, especially institutional investors, over other investors, platforms have reduced the type of information available, especially soft information. Valle and Zeng (2018) present the antecedent of the Lending Club platform, which eliminated 100 variables that characterised borrowers, this in 2014, justifying a greater equity of opportunity among investors.

However, the contribution of each type of investor is relevant to the PFCF business model. While institutional investors contribute large portfolios to the FF market (Balyuk & Davydenko, 2019; Lin *et al*., 2021), minority investors, in aggregate, have a significant share. For evidence, in the study conducted on the Proper platform it is detected that $89 million is contributed by minority investors (20,000 investors approximately), while $49 million is contributed by institutional investors (112 investors) (Lin *et al*., 2021).

ISSN-On line: 2414-4819

Investment and CFTPs in Mexico

Fintech or better known by its legal name in Mexico as Financial Technology Institution (ITF) is regulated in the Law to Regulate Financial Technology Institutions (LRITF), which was published on 8 March 2018. This law regulates Collective Financing Institutions, Electronic Payment Fund Institutions and transactions with Virtual Assets. The purpose of the LRITF is to provide greater security and certainty on the functioning of technology-based financial models; and although it is considered that any business ecosystem is strengthened by balanced regulation (EY, 2017; Lee & Shin, 2018), there are also authors who mention that over-regulation inhibits the development of disruptive models (Claessens *et al*., 2018).

The LPRITF delimits rights and obligations, so that the PFCFs must generate clear advertising, comply with the conditions of the constitution and organisation of the platform, discourage unfair and illegal practices and encourage security mechanisms (Diehl Moreno *et al*., 2020; González *et al*., 2020; Rodríguez-Suárez & Morales-Rodríguez, 2018), especially to provide certainty to investors, on whose participation the success of the model depends.

With the law in force, the evolution of the number of authorised platforms has been observed over time, since, based on the Catalogue of the Mexican Financial System, until 15 April 2021 there were only three authorised PFCFs, then ten authorised PFCFs and six in operation as of 29 July 2021, and finally, in 2022, there are fourteen authorised PFCFs and nine in operation (SHCP, 25 May 2022).

Returning to the issue of the investor, for the RITF, the investor can be a natural or legal person that contributes resources. As far as institutional investors are concerned, according to the law, they can be credit institutions, brokerage firms, credit unions, regulated multiple purpose financial companies, popular financial companies, community financial companies and savings and loan cooperatives with operating levels from 1 to IV.

Thus, this model offers two main attractions for the resource provider (institutional or retail).

The first is to be an alternative that adds to the offer of investment options and broadens diversification possibilities. In Mexico, it has been identified that investment portfolios are less diversified compared to more developed countries, and this is more accentuated among individuals (Horenstein & Snir, 2017). Second, the issue of performance. For example, platforms such as Fundary (Fundary, 15 April 2021) reported an average yield of 18.1%, higher than that offered by bank products and even higher than investments in Cetesdirecto, whose yield was around 4% (Banco de México, 15 April 2021).

Although the presence of institutional investors in Mexico is evident in the various Mexican financial markets, retail investors are beginning to gain ground, as evidenced by the number of mutual fund accounts. Banco de México reports that mutual fund accounts increased from 1.7 million to 2.5 million from 2009 to 2019 (Guzmán-Calafell, 2020). The growth is positive, although also limited, since if a ratio between the number of accounts and the Economically Active Population (EAP) is determined, it is identified that in 2019 only 4.78% of the EAP participates as an investor in an investment company.

However, in Mexico, as a forerunner of investment options using digital-technological media, there is the Cetesdirecto programme, launched by the Federal Government in 2010 and aimed at small savers, with the aim of making them participants with affordability in the money market, through the acquisition of CETES.

The level of acceptance has increased considerably, since the first year of opening closed with 1830 contracts, and by 2022 an increase of 466.33% is estimated, reaching 855,223 contracts, although again the level of penetration among the EAP is limited, at 1.47%. The age and gender of participants are important data provided by the Cetesdirecto platform to get a reference of the profile of investors.

The platform highlights that the bulk of participants are between 26 and 45 years of age, totalling 62.38% in 2022. Men have a higher participation (78% participation in 2011), however, women have started to gain ground and by 2022 men have decreased their proportion to 64% (Cetesdirecto, 2022).

ISSN-On line: 2414-4819

Methodology

In order to answer the questions, a descriptive-correlational research will be carried out, whose subject of analysis is the natural person with income from business activity, fees, salaries or commissions; of legal age; with a minimum educational level of bachelor's degree and residing in the State of Mexico.

Variable	Specifications
Age	ẋ=36.9 s=11.54 / Max=80, Min=18
Gender	Men 160 (41.7%)/ Women 224 (58.3%)
Area of residence	Metropolitan area 51 (86.7%) / Urban area 333(13.3%)
Area of knowledge	Economic and administrative sciences 122(40.4%) Biological and Health Sciences 67(17.4%) Physical, Mathematical and Engineering Sciences 48 (12.5%) Humanities and Arts Sciences 46(12.0%) Social Sciences (excluding economics-administrative) 68(17.7%)
Source of income	Salary 284 (74%), Commissions 11 (2.9%), Fees 27(7.0%), Business income 58 (15.1%), Other 4(1.0%)
Generation	Baby boomer and post-war 46 (12%), Generation X 194 (50.5%), Millenials 121 (31.5%), Generation Z 23 (6.0%)

Table 1 Characteristics of the simple
Own Elaboration

With the aforementioned characteristics, the Mexican MPI is defined as an individual with capabilities and economic independence, who starts or goes through the accumulation stage (based on the financial life cycle) (Allgood & Walstad, 2013; Garay Anaya, 2015; Zacari, 2008). The probability sample was calculated with a confidence level of 95% and an error of .5 resulting in 384 participants.

Out of 512 questionnaires administered, 384 participants responded in full with closed-ended Likert-scale questions, with a Cronbach's alpha of .944. The instrument was self-administered via the Surveyplanet platform in the period from December 2021 to January 2022. The sample description is identified in table 1.

It should be noted that the knowledge-related questions were designed under the Mexican context.

Data Analysis

At the end of the data collection process, the Statistical Package for the Social Sciences (SPSS) software was used for statistical processing, using measures of centre, dispersion, correlation and differences between groups. Chi-Square, Mann-Whitney U and Kruskal-Wallis H tests were used to perform the analysis of significance between variables. Once the significances were identified, they were interpreted on the basis of the average ranges, especially because the scale variable: knowledge about CBFP, shows a non-normal distribution, however, the means are also shown for illustrative purposes.

For the frequency analysis, five levels of knowledge were assigned: No knowledge (8 to 11 points), low level of knowledge (12 to 18 points), medium level of knowledge (19 to 25 points), good level of knowledge (26 to 32 points) and expert level (33 to 40 points).

Spearman's Rho was applied for the correlation analysis, due to the non-normal distribution of the variables knowledge, perception and intention.

Variables

Knowledge about CBFP. According to Lind *et al*. (2020), financial knowledge is the individual's stock of financial concepts and products. It is acquired through education and specific experiences (Huston, 2010). According to scholars, knowledge is divided into objective knowledge and subjective knowledge, with the former referring to competence and the latter to confidence (Lind *et al*., 2020; Tang & Baker, 2016).

Consequently, research shows that factors or constructs measured through self-perceived (subjective) response items better relate to or predict financial behaviour and/or well-being (Allgood & Walstad, 2013; Anderson, Baker, & Robinsonc, 2017; Ghazali, Alwi, Othman, Sabri, & Aziz, 2022; Lind *et al*., 2020; Strömbäck , Skagerlund , Västfjäll, & Tinghög, 2020). For example, Strömbäck *et al*. (2020) found that reported (subjective) self-control has a stronger relationship with financial behaviour and well-being than assessed (objective) self-control.

Another paper notes that, although objective and subjective knowledge have a predictive relationship with healthy and consistent financial practices, the relationship of subjective knowledge is stronger (Lind *et al*., 2020). Additionally, Ghazali, Alwi, Othman, Sabri, & Aziz (2022) add that high subjective financial knowledge enhances financial well-being.

Having mentioned the above, it was decided to measure subjective knowledge about CBPPs, defined as the individual's self-perceived knowledge of the existence, functioning, requirements, advantages and disadvantages, and legal and fiscal implications of CBPPs. Knowledge about CBPPs is thus measured through eight self-perceived response items.

Perception of CBPPs. In the field of psychology, perception is understood as a process that begins with the input of information from the environment, through the senses, to form abstractions (judgments, categories, concepts, impressions, inferences, etc.) (Froiland & Davison, 2020; Oviedo, 2004). In this process, the brain has feelings and sensations to interpret, based on its own and other people's previous experiences (Gracián-Ortiz, 2018).

But in addition to being a process, perception is also a result. In the words of Avendaño, Rueda and Velasco (2021), perception as a result is the interpretation of phenomena, reality and the world, which regulate and determine attitudes, postures, behaviour and conduct of individuals. It is the personal opinion that can be favourable or unfavourable towards the interpreted object (Ki & Hon, 2012).

Thus, throughout this paper, the perception of CBPPs will be understood as the individual's favourable or unfavourable opinion about the option of investing in this modality. To assess this perception, a Likert scale question (5 answers) ranging from totally unfavourable to totally favourable was established.

Intention to invest in CBFP. Intention is a term for mental acts and corporate actions, in its three applications: a) prediction to carry out an act, b) as an adjective to do or not to do consciously or unconsciously and, c) the purpose to carry out an action (Rafaela, 1984).

Based on the review of various authors, Ki & Hon (2012) define intention as an immediate determinant of behaviour, a plan to carry out a behaviour. Consequently, the intention of PFCF investment is the individual's plan to carry out a PFCF investment in the future (note that it is considered the first application mentioned by Rafaela (1984)). As with perception, a Likert-scale response question is assigned.

Results

Once the information was collected from the 384 participants, 44.5% had made some kind of active or passive investment. In the future, 57.6% contemplate making an investment. 42.4% agree or strongly agree to consider PFCFs as an investment option, and 34.9% perceive the option of investing in this modality favourably or very favourably.

On the other hand, with regard to the variable of knowledge about the PFCF, table 2 shows the mean (on a scale of 1 to 5) and the measure of dispersion for each item that makes up this variable. Note that the highest item is related to knowledge about the existence of CBFP, however, none of them reaches the value of two.

Of the 384 MPIs, 265 (69%) are recognised in the no knowledge group, while 60 (15.6%) are in the low level of knowledge; as for the medium level, 44 (11.5%) are detected in this group; 15 people are identified in the good level of knowledge category (3.9%); finally, there are no participants with scores that place them in the expert level.

Item	Min	Max	$\dot{x}$	SD
Existence of the model	1	4	1.57	.843
Difference between types: authorised and non-authorised	1	4	1.45	.806
Functioning	1	4	1.49	.814
Minimum requirements to be an investor	1	5	1.45	.796
Risks assumed by the investor	1	4	1.51	.821
Levels of return that can be achieved	1	5	1.48	.843
Tax obligations acquired by users, for investment purposes	1	4	1.49	.814
Scope and limits of the law to protect the interests of investors	1	4	1.47	.798
Knowledge Total	8	32	11.9	6.11

Table 2 Level of knowledge by item on CBPP
Own Elaboration

ISSN-On line: 2414-4819

On the other hand, Chi-Square, Mann-Whitney U and Kruskal-Wallis H tests are applied to determine the significance between the groups as shown in table 3. It is worth noting that there is no association between demographic variables or the investment history variable, with respect to perception, nor the intention to invest in CBFP (p>.05).

Although there is a relationship between the perception variables, as well as the intention to invest in CBFP, with respect to knowledge about CBFP (p=.000, in both cases), there is no association between the demographic variables and the investment history variable with respect to perception and intention to invest in CBFP (p>.05).

V	A	G	F	AC	GN	II	IIP	PP
II	.000 *	.002 *	.048 *	.271*	.000*		.000*	.000*
CP	.000 **	.015 **	.960 ***	.003* **	.050* **	.000* **	.000* **	.000* **
IIP	.319 *	.231 *	.576 *	.153*	.061*	.000*		.000*
PP	.970 *	.500 *	.970 *	.058*	.737*	.001*	.000*	

V. Variable / A. Background / G. Gender / F. Source of income / AC. Area of Knowledge / GN. Generation / II. Intention to Invest / IIP. Intention to Invest in CBFP / PP. Perception of CBPP / CP. Knowledge about CBPP

*Chi-Square Test
** Mann-Whitney U Test
*** Kruskal-Wallis H-test

Table 3 Significance levels
Own Elaboration

Based on the results in table 3, significance is identified between the intention to invest (in general) and the investment background. With investment background, the group obtains a higher mean investment intention than the group without investment background (with background ẋ= 2.57; without background ẋ= 2.13 (maximum value of investment intention is 3)).

From the significances shown in table 3, table 4 shows the differences in Knowledge about CBFP, between the independent groups, for the variables: investment background, gender, knowledge area, generation, investment intention. The difference in knowledge by intention to invest in CBFP and perception of CBFP is presented below.

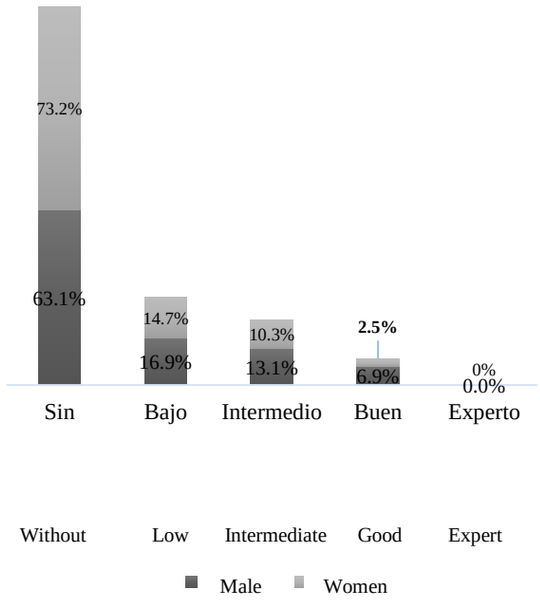
Groups	N	Prom. range	ẋ	DS
With investment background	171	221.07	13.08	7.26
No investment history	213	169.57	10.37	10.37
Male	160	207.32	12.92	6.90
Woman	224	181.92	11.16	5.39
C. Ec.-Ad.	155	213.21	13.23	6.747
C. Biological and Health	67	162.94	10.44	5.76
C. Physics, Mathematics and Engineering	48	205.11	12.20	6.09
C. of the Humanities and the Arts	68	170.52	10.52	4.67
C. Social (excludes Ec.-Ad.)	155	180.38	11.00	5.23
Baby boomers and post-war	46	228.00	13.69	6.42
Generation x	194	192.89	11.68	5.72
Millenials	121	179.13	11.44	6.25
Generation z	23	188.52	12.56	7.62

Table 4 Measures of groups, by variables with significance to knowledge
Own Elaboration

Table 4 shows that the average rank and the mean are higher for those participants who have a history of investment. Observing the results in detail by means of the frequencies, once the score obtained in one of the levels of knowledge was classified, it is detected that of 171 people who have made some type of investment (representing 44.5%), 57.3% are evaluated as having no knowledge, 14.1% as having low knowledge, 13.6% as having intermediate knowledge and 6.6% as having a good level of knowledge. In contrast, the 55.5% who have no investment background, 78.4% rate themselves with no knowledge, 14.4% with low knowledge, 7.0% with intermediate knowledge and only .5% with good knowledge. There are no participants who have assessed themselves as experts.

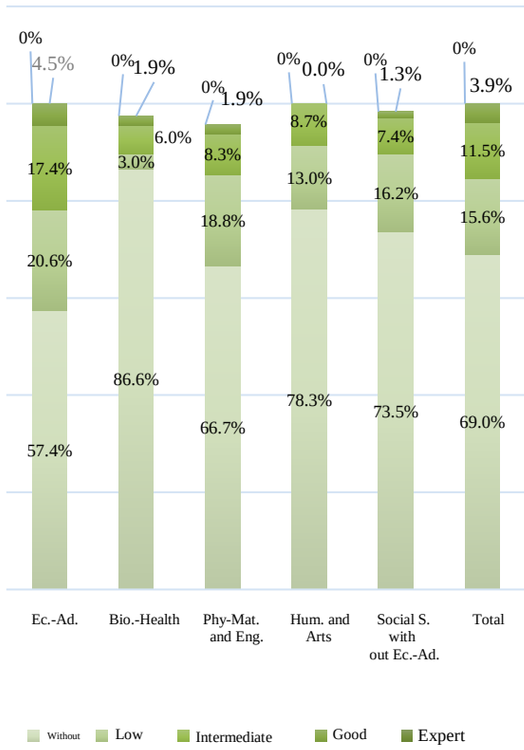
Also, with the data in table 4, the mean and median rank on knowledge is higher for males (mean rank = 207.32; ẋ=12.9250) than for females (mean rank = 181.92; ẋ=11.1696). Furthermore, with a frequency analysis, of the 224 women, 73.2% assess themselves as having no knowledge, compared to the 160 male participants who in a smaller proportion are at the lowest level of knowledge (63.1%). In addition, men have a higher presence of intermediate and good level of knowledge with percentages of 13.1% and 6.9% respectively, than women (see Graphic 1).

Although the results of the sample are low in terms of knowledge, these results are accentuated in the participants with professions related to Biology and Health Sciences (prom.rank =162.94; ẋ= 10.4478), Humanities and Arts (prom.rank = 170.52; ẋ= 10.5217), as well as Social Sciences, which excludes the economic-administrative area (prom.rank =180.38; ẋ= 11.0000). On the other hand, the subjects belonging to the Economic-Administrative Sciences (prom. rank =213.21; ẋ= 13.2387) and the Physical-Mathematical and Engineering Sciences (prom. rank =205.11; ẋ=12.2083), obtain higher results.



Graphic 1 Level of knowledge by gender
Own Elaboration

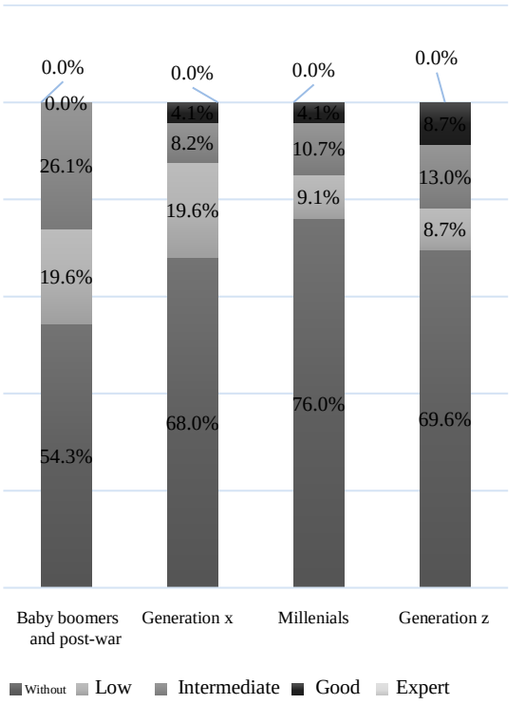
The frequency analysis confirms that the subjects belonging to the Biological and Health Sciences, Humanities and Arts, as well as the Social Sciences, excluding Economic and Administrative Sciences, have the highest number of subjects (proportionally to their groups) at the lowest level of knowledge (86.5%, 78.3% and 73.5% respectively), as shown in Graphic 2.



Graphic 2 Level of knowledge by academic training group
Own Elaboration

Between the level of knowledge and the generation to which the subjects in the sample belong, it is identified that by average ranks, Baby boomers and post-war obtain the highest value, followed by Generation X, Generation Z and Millenials (228.00, 192.89, 188.52, 179.13; respectively); however, by averages the order changes to Baby boomers and post-war, Generation Z, Generation X and Millenials (13.6957, 12.5652, 11.6804, 11.4463; respectively).

Looking again at the frequencies by knowledge level classification; of the 46 Baby boomers and post-war, 54.3% are observed in the no knowledge category; of the 194 Generation X subjects, 68.0% are in the same category; 69.6% of the 23 Generation Z participants and 76% of the 126 Millenials are also placed in the lowest knowledge rung, as can be seen in Graphic 3.



Graphic 3 Level of knowledge by generation
Own Elaboration

However, there is a difference in knowledge about CBPPs between the different groups of perception of CBPPs, and also with the groups of intention to invest in CBPPs. In this sense, in the subject of perception of CBFP, the highest score obtained in knowledge, translated into the highest level of average rank and mean, is from the group of subjects who perceive CBFP favourably (prom. rank = 248.22; ẋ=15.3516), followed by the group with an unfavourable opinion (prom. rank = 234.13; ẋ=144.13; ẋ=15.3516), followed by the group with an unfavourable opinion (prom. rank = 234.13; ẋ=15.3516). = 234.13; ẋ=14.1250), followed by very unfavourable (prom.rank = 209.97; ẋ=11.9474), then very favourable (prom.rank = 193.75; ẋ= 11.3333) and finally the indifferent opinion group (prom.rank = 157.50; ẋ= 9.8520), note the number of participants in each group in table 5.

The level of knowledge about CBFP by group of intention to invest in the modality shows that the strongly agree group has the highest score (prom.rank = 258.30; ẋ=16.9500), followed by the disagree group (prom.rank = 237.80; ẋ=16.9500). 80 ; ẋ=14.0667), then the agree group (prom.rank = 217.17 ; ẋ= 13.6154), followed by those who strongly disagreed to invest (prom.rank = 167.92 ; ẋ= 10.5000) and finally, those with indifferent opinion (prom.rank = 165.48 ; ẋ=10.0213).

Groups	N	Average range	ẋ	DS
Perception				
Very unfavourable	19	209.97	11.94	5.60
Unfavourable	8	234.13	14.12	6.81
Indifferent	223	157.50	9.85	4.21
Favourable	128	248.22	15.35	7.30
Very favourable	6	193.75	11.33	6.74
Intention				
Strongly disagree	18	167.92	10.50	4.34
Disagree	15	237.80	14.06	7.30
Indifferent	188	165.48	10.02	3.96
Agree	143	217.17	13.61	7.05
Strongly agree	20	258.30	16.95	9.06

Table 5 Level of knowledge by perception and intention to invest in CBFP
Own Elaboration

With regard to the assessment of correlations, we proceeded to calculate the correlation coefficient between knowledge about PFCF and the perception of this model, for which we obtained an r=.31 (p<.05). Likewise, the correlation coefficient between knowledge of CBFP and the intention to invest in this type of platform was calculated, giving an r=.22 (p<.05).

Finally, the correlation between perception and intention to invest, the result: r= .504 (p<.05). In table 6 it can be identified that people with better perception (in the majority) have more favourable responses to invest in CBFP.

Variables		Intention					Total
		Tot. Des.	En des.	Ind.	De ac.	Tot. of ac.	
Perception	Muy des.	4	1	6	7	1	19
	Des.	1	3	2	1	1	8
	Ind.	13	7	156	46	1	223
	Fav.	0	4	24	87	13	128
	Muy fav.	0	0	0	2	4	6
Total		18	15	188	143	20	384

Table 6 Cross table between Perception and Intention
Own Elaboration

Discussion

Self-reported or perceived financial knowledge is associated with people's confidence about handling a topic, (Ghazali *et al*., 2022; Lind *et al*., 2020; Strömbäck *et al*., 2020), in this sense, about 70% of the participants (MPI) recognise themselves as having limited knowledge about CFPPs for investment purposes, information that is ratified by the averages obtained for each item, i.e. there is a low level of knowledge about the existence of the model, the difference between authorised and unauthorised platforms.

Their operation, the minimum requirements to be an investor, the investor's risks, the possible levels of return, the tax obligations acquired and the scope and limits granted by law to the investor. This data is related to the Fintech Adoption Indicator, prepared by Ernst & Young, which indicates that the main barrier to the use of Fintech services is the lack of awareness of their existence (EY, 2017).

Thus, there is a lack of confidence in the handling of the issue, even though the PFCF model appeared in Mexico since 2011, with the presence of Prestadero (Miranda Global Research, 2022; Prestadero, 2021) and the existence of a specific law on the subject, published in 2018. In the Miranda's Guide to Mex Fin Tech Report, it is mentioned that the crowdfunding model in Mexico has not met expectations, being one of the pioneering models in the sector (Miranda Global Research, 2022).
The delimitation of the sample makes the participants in this study potential subjects to carry out investment activities, given that they have resources (belonging to the EAP) and skills (with a minimum of a bachelor's degree).

Regarding the latter quality, a relationship was identified between the level of knowledge about CBFP and the participant's area of professional knowledge. However, Mexican reports, which include the topic of financial knowledge (general), highlight the existence of a positive relationship between the score obtained in financial knowledge and the level of education (CONAIF, 2017, 2018). In this study, with this specific topic, differences in knowledge levels by professional area are identified.

Thus, the results showed that the lack of knowledge is greater among people in the areas of Biological and Health Sciences, Humanities and Arts, and Social Sciences (excluding the Economic-Administrative area). On the other hand, there is a lower knowledge deficiency in subjects with professions in the Economic-Administrative sciences and Physical-Mathematical and Engineering sciences. This lower disadvantage is possibly associated with the fact that the two areas of knowledge that gave life to Fintech are located in both economic-administrative sciences and digital technology engineering.

Other variables with which significance is identified, with respect to knowledge of the subject, are investment background and gender. Thus, knowledge of CBFP is lower in subjects with no investment background and in the female gender. In terms of gender and based on national and international studies, women scored lower in (general) financial knowledge than men (CONAIF, 2017; OECD/INFE, 2020), and it has also been noted that although women are more committed to sound financial behaviours, they experience greater anxiety regarding financial issues (Lind *et al*., 2020).

Finally, of the demographic variables related to knowledge: generational group. It is worth noting that the significance calculated indicates that there is a difference in knowledge between the generational groups, although this is exactly 0.05, i.e. it is within the limit of 0.05.

The results show the average ranges and means, the latter being illustrative as the knowledge variable has a non-normal distribution. Thus, based on the average traits, participants from the Baby Boomers and post-war generation have greater knowledge, followed by Generation X, then Generation Z, and finally, Millenials (the latter, with the averages, is still on the bottom rung). In the National Financial Inclusion Report 9, it is identified that financial knowledge (in general) grows as age increases, reaching a maximum in the 51-60 age range, thus forming an inverted "U" (CONAIF, 2018).

A parenthesis should be made to mention the limitations of the results of knowledge by generation, since the significance between the variables is at the limit, in addition to the small number of participants in certain generational groups. To date, the model and its operation is little known, which coincides with the assertions made in the National Report on Financial Inclusion regarding the low presence of the crowdfunding model among Mexicans and the need for it to be more widely disseminated (CONAIF, 2018). Other significant differences found are between the intention to invest in general with: investment background, gender, source of income, and generational group. However, when delimiting the question towards investing in CBFP, no significance was found to support the association with the aforementioned variables. In this sense, it is necessary to identify other types of variables that show an association with the intention to invest in this specific model.

ISSN-On line: 2414-4819

However, there is a relationship between the intention to invest in general and the intention to invest in CFPPs, in this respect people who tend to consider the investment exercise are more open to explore other options such as the platforms in question.

In this order of ideas, there is also significance between knowledge about CFPPs and the perception of platforms as an investment alternative, as well as the intention to carry it out. This identifies that people who are indifferent to the subject as an investment medium, as well as people who are indifferent to investing in CFPPs, have the lowest level of knowledge.

In the last test, the application of the correlation coefficient shows that knowledge is not strongly correlated with the perception of FFCPs as an investment option, nor with the intention to participate in this market as an investor. Although the correlation between these variables is weak, knowledge remains an essential element because it is strongly related to sound financial behaviour and financial well-being, let alone perceived or self-reported financial knowledge (Ghazali *et al*., 2022; Lind *et al*., 2020; Strömbäck *et al*., 2020).

Finally, a medium and positive correlation is found between perception and intention to invest, i.e. people with more favourable views on CFPPs as an investment option are more likely to be willing to invest in them in the future. In this regard, based on a compilation of research,

Conclusions

Despite the fact that the PFCF model has been present in Mexico for 11 years, the MPI has little knowledge of its existence, operation and implications of a specific law on the subject. Although current investors, including institutional investors, have managed to offer significant amounts and maintain the operation of the market, it is necessary to increase the number of participants in order to achieve a better positioning of the model in Mexico and meet the expected expectations. In the end, PFCFs, with clear rules, offer benefits in both senses, on the one hand, one more possibility of financing for groups excluded by conventional financial institutions, and, on the other hand, one more affordable option for small savers and investors in Mexico.

This lack of knowledge was observed, even more so in groups that have not had any investment background, people with careers in life and health sciences, women and individuals belonging to the Millennial generation. This raises new questions that will give life to other lines of research, although it should be noted that the result of the generational variable shows a limitation, as mentioned in the discussion, so it would be worthwhile to submit it to a new measurement in future work.

At the beginning of this work, the Potential Retail Investor was defined as a person with resources and capabilities (individual with current economic activity and professional training). However, with the results obtained, we envisage, in future studies, a greater delimitation of the MPI, incorporating as a filter variable the minimum integration of knowledge of the subject in order to respond to other research questions, with other scopes and designs.

The relationship between demographic variables and investment history with respect to the perception of FCPs as an investment option is not justified, nor with the intention to invest in this type of investment in the future. Consequently, future studies are contemplated that relate other variables of financial literacy (other than knowledge), with other states of financial profiles such as financial inclusion, degree of liquidity, resilience or achievement of financial goals, with financial well-being translated into financial stress, with psychological or environmental characteristics, among others.

However, significance was identified between knowledge and the perception and intention to invest in FFPPs, although the correlation was weak. To a greater extent, a medium and positive correlation was found between perception and intention to invest in this modality, raising the question of what factors are related to and influence the favourable perception of platforms as an investment option. In this way, the descriptive contribution of this project is a starting point for other projects in a line of research that has been little studied in our country.

Acknowledgements

The Autonomous University of the State of Mexico.

ISSN-On line: 2414-4819

References

Aarón, S.-N., & Ramos-Mendina, M. C. (2017). *La evolución del sector Fintech, Modelo de negocio, Regulación y Retos*. Retrieved from México: https://www.fundef.mx/wp-content/uploads/2020/01/documento_fintech.pdf

Allgood, S., & Walstad, W. (2013). Financial Literacy and Credit Card Behaviors: A Cross-Sectional Analysis by Age. *Advancing Education in Quantitative Literacy*, *6*(2), 1-28. doi: http://dx.doi.org/10.5038/1936-4660.6.2.3

Anderson, A., Baker, F., & Robinsonc, D. (2017). Precautionary savings, retirement planning and misperceptions of financial literacy. *Journal of Financial Economics, 126*(2), 383-398. doi:https://doi.org/10.1016/j.jfineco.2017.07.008

Avendaño, W. R., Rueda, G., & Velasco, B. M. (2021). Percepciones y habilidades financieras en estudiantes universitarios. *Formación universitaria, 14*(3). doi: http://dx.doi.org/10.4067/S0718-50062021000300095

Balyuk, T., & Davydenko, S. (2019). Reintermediation in FinTech: Evidence from Online Lending. *Finance Working Paper Series Research Paper, No. 18-17*, 1-59. doi:http://dx.doi.org/10.2139/ssrn.3189236

Banco de México. (15 de abril de 2021). Sistema de información económica: Valores gubernamentales. Retrieved from https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CF107&sector=22&locale=es

Banco de México. (s/f). *Descripción técnica de los certificados de la Tesorería de la Federación*. Retrieved from https://www.banxico.org.mx/elib/mercado-valores-gub-en/OEBPS/Rsc/anexo0201.pdf

Berg, T., Burg, V., Gombovi, A., & Manju, P. (2018). On the rise of Fintechs-credits scoring using digital footprints. NBER Working Paper Series, Paper 24551. doi: https://doi.org/10.3386/w24551

Buchak, G., Matvos, G., Piskorski, T., & Seru, A. (2018). Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks. *Journal of Financial Economics, 130*(3), 453-483. doi:10.1016/j.jfineco.2018.03.011

Cetesdirecto. (2022). Estadísiticas. Retrieved from https://www.cetesdirecto.com/sites/portal/historia.cetesdirecto

Claessens, S., Frost, J., Turner, G. T., & Zhu, F. (2018). Fintech Credit Markets Around the World: Size, Drivers and Policy Issues. *BIS Quarterly Review Special Features Series*. Retrieved from https://ssrn.com/abstract=3288096

CONAIF. (2017). *Reporte Nacional de Inclusión Financiera 8*. Retrieved from https://www.cnbv.gob.mx/Inclusi%C3%B3n/Documents/Reportes%20de%20IF/Reporte%20de%20Inclusion%20Financiera%208.pdf

CONAIF. (2018). *Reporte Anual de Inclusión Financiera 9*. Retrieved from https://www.cnbv.gob.mx/Inclusi%C3%B3n/Documents/Reportes%20de%20IF/Reporte%20de%20Inclusion%20Financiera%209.pdf

Cordova, A., Dolci, J., & Gianfrate, G. (2015). The determinants of crowdfunding success: evidence from technology projects. *Procedia-Social and Behavioral Science, 181*, 115-124. doi: https://doi.org/10.1016/j.sbspro.2015.04.872

Cornelli, G., Frost, J., Gambacorta, L., Rau, R., Wardrop, R., & Ziegler, T. (2020). *Fintech and big tech credit: a new database*. Retrieved from https://www.bis.org/publ/work887.pdf

Diehl Moreno, J. M., Lava, M. M., Biocca , M., Cosentino, A., Mas, M. S., Roude, M. C., & Ochoa , M. E. (2020). *Investigación y estudio de regulación comparada - Fintech* doi: http://dx.doi.org/10.18235/0002699

EY. (2017). *EY FinTech Adoption Index 2017. The rapid emergence of FinTech*. Retrieved from https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-fintech-adoption-index-2017.pdf

FINNOVISTA. (24 de marzo de 2020). *Radar Fintech Mexico*. Retrieved from https://www.finnovista.com/radar/el-numero-de-startups-fintech-en-mexico-crecio-un-14-en-un-ano-hasta-las-441/

Froiland, J. M., & Davison, M. L. (2020). Social perception: relationships with general intelligence, working memory, processing speed, visual-spatial ability, and verbal comprehension. *Educational Psychology, 40*(6), 750-766. doi: https://doi.org/10.1080/01443410.2020.1732873

Fundary. (15 de abril de 2021). Resultados a enero de 2021. Retrieved from https://fundary.com/estadisticas

Garay Anaya, G. (2015). Las finanzas conductuales, el Alfabetismo Financiero y su Impacto en la Toma de decisiones Financieras, el Bienestar Económico y la Felicidad. *Perspectivas*(36), 7-34. Retrieved from https://www.redalyc.org/pdf/4259/425943146001.pdf

Ghazali, M. S., Alwi, S. F. S., Othman, I., Sabri, M. F., & Aziz, N. N. A. (2022). The Relationship between Subjective Financial Knowledge and Financial Well-Being among Emerging Adults in Malaysia: Mediating Effect of Financial Behaviour. *International Journal of Academic Research in Business and Social Sciences, 12*(4), 1263–1284. doi:http://dx.doi.org/10.6007/IJARBSS/v12-i4/12969

Gracián-Ortiz, Y. (2018). *Diseño del Test de percepción de educación financiera- T.P.E.F. , como técnica de medición del estimulo sensorial con base al medelo de educación financiera de Vallejo.* (Especialidad en Recursos Humanos). UAEM, Morelos, México. Retrieved from http://riaa.uaem.mx/xmlui/bitstream/handle/20.500.12055/2188/YAREGO01T.pdf?sequence=1

Guzmán-Calafell, J. (2020). *Fondos de Inversión y Perspectivas de la Economía Mexicana*. Paper presented at the Foro de Fondos 2020. Asociación Mexicana de Instituciones Bursátiles https://www.banxico.org.mx/publicaciones-y-prensa/presentaciones/%7BB0474AD8-E359-7E46-07D2-E7E4CE221EED%7D.pdf

Horenstein, A., & Snir, A. (2017). *Portafolios financieros en México*. Retrieved from México: https://www.fundef.mx/wp-content/uploads/2020/01/portafoliosfinancieros2017.pdf

Huston, S. J. (2010). Measuring Financial Literacy. *The Journal of Consumer Affairs, 44*(2). doi: https://doi.org/10.1111/j.1745-6606.2010.01170.x

INEGI. (2022). Desempleo y Ocupación. Retrieved from https://www.inegi.org.mx/temas/empleo/#:~:text=La%20Poblaci%C3%B3n%20Econ%C3%B3micamente%20Activa%20(PEA,Tasa%20de%20Participaci%C3%B3n%20de%2058.8%25.

Jagtiani, J., & Kose, J. (2018). Fintech: The Impact on Consumers and Regulatory Responses. *Journal of Economics and Business, 100*, 1-6. doi:https://doi.org/10.1016/j.jeconbus.2018.11.002

Jagtiani, J., & Lemieux, C. (2017). Fintech Lending: Financial Inclusion, Risk Pricing, and Alternative Information. *SSRN Electronic Journal*. doi:10.2139/ssrn.3096098

Jagtiani, J., & Lemieux, C. (2018). *The Roles of Alternative Data and Machine Learning in Fintech Lending: Evidence from the LendingClub Consumer Platform*. doi: https://doi.org/10.21799/frbp.wp.2018.15

Ki, E., & Hon, L. C. (2012). Causal linkages among relationship quality perception, attitude, and behavior intention in a membership organization. *Corporate Communications: An International Journal, 17*(2), 187-208. doi:https://doi.org/10.1108/13563281211220274

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons, 61*(1), 35-46. doi: https://doi.org/10.1016/j.bushor.2017.09.003

Li, H., Zhang, Y., & Zhang, N. (2017). Evaluating the well-qualified borrowers from PaiPaiDai. *Procedia Computer Science, 122*, 775-779. doi:https://doi.org/10.1016/j.procs.2017.11.436

Lin, M., Sias, R. W., & Wei, Z. (2021). Experts vs. Non-Experts in Online Crowdfunding Markets. *SSRN*, 18-22. doi: http://dx.doi.org/10.2139/ssrn.3185608

Lind, T., Ahmed, A., Skagerlund, K., Strömbäck, C., Västfäll, D., & Tinghög, G. (2020). Competence, Confidence, and Gender: The Role of Objective and Subjective Financial Knowledge in Household Finance. *Journal of Family and Economic Issues, 41*, 626–638. doi:https://doi.org/10.1007/s10834-020-09678-9

Lu, H., Wang, B., Wang, H., & Zhao, T. (2020). Does social capital matter for peer-to-peer-lending? Empirical evidence. *Pacific-Basin Finance Journal, 61*. doi:https://doi.org/10.1016/j.pacfin.2020.101338

Miranda Global Research. (2022). *Miranda's Guide to Mex FinTech.* . Retrieved from https://miranda-partners.com/wp-content/uploads/2022/01/Mirandas-Fintech-Report-January-2022.pdf

OECD/INFE. (2020). *OECD/INFE 2020 International Survey of Adult Financial Literacy*. Retrieved from https://www.oecd.org/financial/education/oecd-infe-2020-international-survey-of-adult-financial-literacy.pdf

Oviedo, G. L. (2004). La definición del concepto de percepción en la psicología con base en la teoría Gestalt. *Revista de Estudios Sociales*(18). Retrieved from https://doi.org/10.7440/res18.2004.08

González, F., Soto, A., Carrizo, C., Morales, M., Espíndola, N., Padrazo, P., . . . Fontáo, A. (2020). *Fintech en el mundo. La revolución digital de las finanzas ha llegado a México*. México: Universidad Anáhuac. Review from: https://www.pensionpolicyinternational.com/fintech-en-el-mundo-la-revolucion-digital-de-las-finanzas-ha-llegado-a-mexico/

Prestadero. (2021). Portal Prestadero. Retrieved from https://prestadero.com/

Rafaela, G.-E. (1984). Intención e Intencionalidad: Estudio comparativo. *Anales de Filosofía, IV*, 147-156. Retrieved from https://digitum.um.es/digitum/bitstream/10201/11500/1/Intenci%c3%b3n%20e%20intencionalidad,%20estudio%20comparativo.pdf

Rodríguez-Suárez, J. S., & Morales-Rodríguez, M. V. (2018). *México: Nación Fintech. Nuevos negocios y ecosistemas en el sector financiero mexicano*: BANCOMEX-ProMéxico. Review from: https://www.bancomext.com/wp-content/uploads/2018/12/MEXICO-NACION-FINTECH-V5.pdf

SHCP. (25 de mayo de 2022). Catálogo del Sistema Financiero Mexicano. Retrieved from https://www.gob.mx/shcp/documentos/catalogo-del-sistema-financiero-mexicano

Strömbäck , C., Skagerlund , K., Västfjäll , D., & Tinghög, G. (2020). Subjective self-control but not objective measures of executive functions predicts financial behavior and well-being. *Journal of Behavioral and Experimental Finance, 27*, 1-7. doi: https://doi.org/10.1016/j.jbef.2020.100339

Tang, N., & Baker, A. (2016). Self-esteem, financial knowledge and financial behavior. *Journal of Economic Psychology*, *54*, 164-176. doi: https://doi.org/10.1016/j.joep.2016.04.005

Tapia, R. C. (2014). Base de inversionistas. In Banco de México (Ed.), *El mercado de valores gubernamentales en México*. Retrieved from https://www.banxico.org.mx/elib/mercado-valores-gub/OEBPS/Text/iii.html

Vallee, B., & Zeng, Y. (2018). Marketplace Lending: A New Banking Paradigm? . *SSRN Electronic Journal*. doi:http://dx.doi.org/10.2139/ssrn.3102984

Zacari, A. (2008). Finanzas personales y ciclo de vida. *Invenio Universidad del Centro Educativo Latinoamericano, 11*(20), 63-71. Retrieved from https://www.redalyc.org/articulo.oa?id=87702006

Zhand, Y., Li, H., Lia, Hai, M., Li, J., & Li, A. (2017). Determinants of loan funded successful in online P2P Lending. *Procedia Computer Science, 12*, 896-901. doi:https://doi.org/10.1016/j.procs.2017.11.452

Zhao, Y., Zhang, W., Li, Y., & Xiong, X. (2021). Does irrational lead to higher returns? Evidence from the Chinese P2P lending market. *Finance Research Letters, 39*. doi:https://doi.org/10.1016/j.frl.2020.101608

Ziegler, T., Shneor, R., Garvey, K., Wenzlaff, K., Yerolemou, N., Rui, H., & Zhang, B. (2018). *Expanding Horizons: The 3rd European Alternative Finance Industry Report* doi: http://dx.doi.org/10.2139/ssrn.3106911

Ziegler, T., Shneor, R., Wenzlaff, K., Wang, W., Camargo Paes, F. F., Suresh, K., . . . Luo, D. (2021). *The Global Alternative Finance Market Benchmarking Report. Trends, Opportunities and Challenges for Lending, Equity, and Non-Investment Alternative Finance Models*. doi: http://dx.doi.org/10.2139/ssrn.3771509

ISSN-On line: 2414-4819

Article **ECORFAN Journal-Republic of Peru**
December 2022 Vol.8 No.15 35-45

Modelling the international demand of US receptive tourism in Mexico

Modelando la demanda internacional del turismo receptivo estadounidense en México

OMAÑA-SILVESTRE, José Miguel[1]† & QUINTERO-RAMIREZ, Juan Manuel[2]*

[1]*Profesor Investigador Titular. Colegio de Posgraduados, Campus Montecillo, Texcoco, Estado de México, México.*
[2]*Cátedra CONACyT Ciudad de México, México*

ID 1st Author: *José Miguel, Omaña-Silvestre* / **ORC ID**: 0000-0002-5356-549X, **CVU CONACYT ID**: 59890

ID 1st Co-author: *Juan Manuel, Quintero-Ramírez* / **ORC ID**: 0000-0002-1040-2690

DOI: 10.35429/EJRP.2022.15.8.35.45 Received July 30, 2022; Accepted December 30, 2022

Abstract

To obtain a suitable econometric model in order to explain the international tourism demand in Mexico by the American inbound tourism in the span of time of 1980 to 2016, the general-to-specific approach was used with annual data where a general autoregressive distributed lag model was set then it was reduced to various specific models by imposing parameter restrictions and the selection of the final model was made according to the restriction tests. The results suggest that the best model to explain the demand is the model of partial adjustment from which it can be deduced that in this international tourism demand exists a positive relationship with the real economic growth of the United States by getting an income elasticity of 0.54 percent, there is also a positive relationship between this demand and the real trade volume of the two nations which elasticity accounts for 0.094 percent. As for the real price paid by the American tourists is inelastic (-0.3). Finally, there is a promotional effect made by the tourist who was in Mexico in the previous period that accounts for 0.52 percent.

Econometric model, Elasticities, Lag dependent variable

Resumen

Para definir un modelo econométrico adecuado con el objeto de explicar la demanda de turismo internacional en México por parte del turismo receptivo estadounidense en un periodo de tiempo que va del año 1980 al año 2016, se empleó la metodología de lo general a lo especifico con datos anuales, donde se plantea un modelo general autorregresivo de rezagos distribuidos, el cual se redujo a varios modelos específicos al imponer restricciones en los parámetros y la selección del modelo final se hizo en base a pruebas estadísticas. Los resultados indican que el mejor modelo para explicar la demanda es el de ajuste parcial, del cual se puede deducir que en esta demanda de turismo internacional existe una relación directa tanto con el crecimiento económico real de los Estados Unidos obteniéndose una elasticidad ingreso de 0.54 por ciento como del volumen comercial real que hay entre las dos naciones cuya elasticidad es de 0.094 por ciento, en cuanto al precio real del turismo pagado por estos turistas es inelástico (-0.3). Finalmente, existe un efecto de promoción que efectúa el turista que estuvo en México en el periodo anterior que es de 0.52 por ciento.

Modelo econométrico, Elasticidades, Variable dependiente rezagada

Citation: OMAÑA-SILVESTRE, José Miguel & QUINTERO-RAMIREZ, Juan Manuel. Modelling the international demand of US receptive tourism in Mexico. ECORFAN Journal-Republic of Peru. 2022. 8-15: 35-45

† Researcher contributing first author.

Introduction

Tourism, in addition to being classified as a strategic sector by various countries or an important economic activity, is a multidisciplinary phenomenon that has undergone a remarkable shoring up and a remarkable diversification to the extent of becoming one of the most dynamic economic sectors worldwide. According to the World Tourism Organization (2019), tourism turnover equals or even exceeds that of oil exports, food products or automobiles, in addition to representing one of the primary sources of income for several developing countries.

Hard data from this organization, ensure that in 2018 the number of international arrivals worldwide amounted to 1,400 million, which reflects an increase of 6 percent over the previous year and clearly above the 3.7 percent growth of the world economy. In fact, this number of international travelers was reached two years ahead of previous forecasts, as a long-term forecast made by this agency in 2010 estimated that this number of international tourists would be reached by 2020.

The results of international arrivals reached in 2018 were mainly due to the momentum of a favorable economic environment and solid demand from the main source markets, in addition to other causes such as more accessible air travel, changes in technology, new business models and greater facilities in the issuance of visas that have also contributed to the growth of these tourists traveling around the world (World Tourism Organization, 2019).

The World Tourism Organization divides the planet into five regions to carry out statistical control over tourism activity, these regions are: Europe, Asia and the Pacific, America, Africa and finally the Middle East. Regarding one of the most important variables to be measured by this organization which are the international tourist arrivals it has that in 2017 the participation of each of these regions worldwide was 51, 24, 16, 5, 5 and 4 percent respectively, so it can be noted that the region of the countries of Europe has a huge participation (World Tourism Organization, 2018).

Another variable that is relevant when measuring tourism activity is the income obtained from international arrivals which in 2017 amounted to 1.34 billion dollars which is 5 percent more than the previous year, in this field the participation of the regions mentioned above are: 39, 29, 24, 3 and 5 percent respectively, also the region of Europe is much higher in this field before the other regions, while the region of America and Asia and the Pacific are somewhat similar.(World Tourism Organization, 2018).

The countries with the most international tourist arrivals in 2017 according to World Tourism Organization (2018) are: France, Spain, United States, China, Italy and Mexico with 86.9, 81.8, 76.9, 60.7, 58.3 and 39.3 million tourists respectively. In terms of international tourism income, the five countries that attracted the most foreign exchange were: The United States, Spain, France, Thailand and the United Kingdom with 210.7, 68, 60.7, 57.5 and 51.2 billion dollars respectively. It is worth mentioning that Mexico is not among the first ten nations in the analysis of this variable.

The World Tourism Organization also makes a ranking of the countries whose international tourists spend the most on tourism and according to its 2017 statistics China by far takes the first place with 257.7 billion dollars, followed on the list by the United States, Germany, United Kingdom, France, Australia, Canada, Russia, Republic of Korea and Italy. It is worth mentioning that tourism spending by the United States increased 9 percent over the previous year and Russia rebounded strongly at the rate of a 30 percent increase over the previous year.

In Mexico, tourism is an activity of vital importance for the generation of foreign exchange; this activity is usually between the third and fourth place in terms of income. According to an article by Rojas (2018), the highest net income in dollars in the first months of 2018 was led by the automotive industry, which has boomed in recent years, followed by remittances, which have increased despite the anti-immigrant policy of the U.S. government, and finally in third place is the tourism sector, which contributed with a net foreign exchange income of 2,090 million dollars accumulated from January to February of that year.

ISSN-On line: 2414-4819

International tourist arrivals to Mexico in 2017 according to the Bank of Mexico (2019) amounted to 39.3 million which translates into an increase of 12 percent over the previous year placing the nation in the number 6 place in the world ranking, the average annual growth rate for the period of time between 2008 and 2017 (10 years) is 6.2 percent and the corresponding to the time span from 2013 to 2017 is equivalent to 12.9 percent, which allows observing that the country has a positive trend for some time in this area.

In relation to foreign currency collection with data from the Bank of Mexico (2019), in 2017 Mexico managed to collect the amount of 21 thousand 333 million dollars higher than the 19 thousand 650 million dollars observed in the previous period, which means a positive percentage change of 8.6 percent, although it must be said that according to the world ranking of the World Tourism Organization it lost a position by moving from 14th to 15th place. With regard to the average annual growth rate from 2012 to 2017 it is positive at a rate of 10.9 percent.

This analysis focuses on U.S. inbound tourism in Mexico, which represents approximately 80 percent. According to data from the Ministry of Tourism (SECTUR, 2019), the arrival of U.S. tourists shows a growing trend, this prevailing condition is mainly due to several causes that make Mexico attractive to this market, among the causes that are glimpsed are: geographical proximity, cultural diversity, natural diversity, business, gastronomy, connectivity, infrastructure, tourism offer, exchange rate, etc. Figure 1 shows how the arrival of these tourists has grown over the last thirty-seven years.

Tourist arrivals from the United States have an average annual growth rate of 9.9 percent from 2009 to 2016, which demonstrates the great dynamism of this market in the Mexican tourism sector. The average annual growth rate for the time span from 1980 to the year 2000 amounts to 5.1 percent and regarding the time period from the year 2000 to the year 2016 it is 4.4 percent. These hard data give veracity to what has been argued in the previous paragraph and makes it evident that the U.S. market is of utmost importance for international tourism arriving to Mexico, so it is convenient to make an analysis of the demand for tourism by this market.

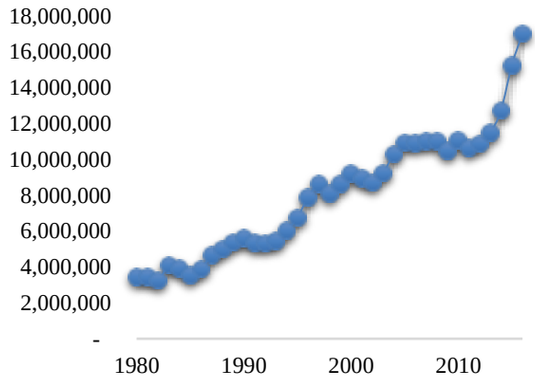


Figure 1 U.S. inbound tourism to Mexico, 1980-2016
Source: Own elaboration with data from the Ministry of Tourism, 2019

Due to the importance represented by U.S. inbound tourism arriving in Mexico, the present study has the firm objective of determining the best econometric model to explain the demand for international tourism by U.S. inbound tourism, in the period of time from 1980 to 2016 (with annual data), within the framework of the methodology known as "From the general to the specific".

The hypothesis to be contrasted is basically causal or statistical according to Dieterich (2001), said hypothesis is that Mexico's international tourism demand measured through U.S. inbound tourism has a direct relationship with the real income of U.S. tourists and the real trade volume between these two nations, in addition to the fact that the price of tourism paid by U.S. tourists to acquire the Mexican tourism product is inelastic.

Methodology to be developed

The methodology "From General to Specific" was proposed by Davidson *et al*. (1978) and later refined by Mizon and Richard (1986), this methodology consists of the construction of an autoregressive model of distributed lags which was developed by Sargan (1964) by linking the economic theory of static equilibrium with dynamic empirical models containing a range of variables suggested by economic theory. According to Hendry *et al*. (1984) and Hendry (1995) these autoregressive distributed lags models house a specific number of models such as: the autoregressive model, static model, growth rate model, leading indicator model, partial adjustment model, finite distributed lags model, dead start model and error correction model.

ISSN-On line: 2414-4819

This methodology is distinguished by being a process where a general dynamic equation can be reduced to simpler models such as those mentioned in the previous paragraph by imposing certain constraints and statistical diagnostics. The approach is contrary to the methodology known as: "From the specific to the general" where we start with a much simpler model that is estimated using ordinary least squares, it is expected that such model has statistical significance, a high coefficient of determination (R^2), significant coefficients of the explanatory variables and with the correct sign according to the economic theory that it is intended to explain, and that the estimated residuals of the model do not exhibit problems of autocorrelation and heteroscedasticity (Song and Witt, 2003).

According to Song and Witt (2003) and Narayan (2004) the advantage of employing the "general to specific" approach is that it has a clear strategy in the specification, estimation and selection of the appropriate model that tends to overcome the issue of data mining. In addition, it is well founded that the error correction model which emanates from the autoregressive distributed lagged model completely eliminates the problem of spurious regressions, in which the correlations between the independent and dependent variables are exaggerated due to the use of trended time series. Finally, the selected models must pass a battery of statistical tests in order to comply with the regression assumptions.

The "general to specific" methodology has been very popular in the analysis of tourism demand and has been used to explore the determinants of tourism demand in destinations in various parts of the world such as: Australia, Asia, Korea, Denmark, Europe, Latin America. It has also been tested for its good performance in tourism demand forecasting. However, one of the possible problems of this methodology is that the structure of the final model selected relies heavily on the data used, although economic theory plays a crucial role in the initial form of the general model (Song and Witt, 2003).

As alluded to in previous paragraphs, this methodology begins with a general so-called autoregressive distributed lagged model for the home country, i.e., the United States, in which tourism demand is related to a number of variables that influence that demand.

According to this framework, if a variable y_tes determined by k explanatory variables, the data generating process can be written as a distributed lag autoregressive model as follows:

$$y_t = \alpha + \sum_{j=1}^{k}\sum_{i=0}^{p}\beta_{ji}x_{jt-i} + \sum_{i=1}^{p}\Phi_i y_{t-i} + \varepsilon_t \quad (1)$$

Where p is the lag length, which is determined by the type of data used, which according to Song and Witt (2000), $p = 1$for annual data, $p = 2$for semi-annual data, $p = 4$ for quarterly data and so on. On the other hand the tourism demand model for the country of origin can be represented as follows:

$$TREU_t = f(PIBREU_t, VCRMEXEU_t, IPR_t) \quad (2)$$

Where $TREU_t$ the demand for tourism measured by tourist arrivals from the United States (inbound only) which is the country of origin, the data for this variable were obtained from the Secretary of Tourism (2019). As for $PIBREU_t$ which is the real income measured by the real Gross Domestic Product of the United States base year 2010, $PIBREU_t$which is the real trade volume measured by the sum of imports and exports between the country of origin and destination base year 2010, e IPR_t is a relative price index for tourists from the origin country who will spend in the destination country (base year 2010), data were compiled from the International Monetary Fund (IMF, 2018).

Regarding the variable IPR_t, this was constructed according to Song and Witt (2000) and Song and Li (2009) in which to obtain this variable, the Mexican National Consumer Price Index (INPC) must be divided by the exchange rate pesos per dollar, and then the quotient obtained must be divided by the National Consumer Price Index of the country of origin (United States). According to these researchers, this index takes into account the effects of both inflation and the exchange rate on the tourist demand that this country has on Mexico. Something very important to mention is that both Consumer Price Indices must have the same base year. The general form of the tourism demand function has already been addressed by several researchers with special emphasis on the most important explanatory variables that have been used in the main econometric studies of tourism demand, such as Witt and Witt (1995), Dwyer and Forsyth (2006), Saayman and Saayman (2008) and Frechtling (2011).

Thus, there is already a solid theoretical basis on the variables that can influence tourism demand at the international level, always bearing in mind that much depends on the countries under analysis, since destinations face diverse economic, political, environmental and social situations. The double logarithmic linear functional form is employed in the estimation of the model because according to Gujarati and Porter (2010) and Maddala (1992) this form allows the estimated coefficients of the explanatory variables to be interpreted directly as the elasticities, in this case, as the elasticities of international tourism demand by U.S. tourists. From equation 2, the general tourism demand model is as follows:

$$lTREU_t = \alpha_1 + \alpha_2 lTREU_{t-1} + \alpha_3 lPIBREU_t + \alpha_4 lPIBREU_{t-1} + \alpha_5 lVCRMEXEU_t + \alpha_6 lVCRMEXEU_{t-1} + \alpha_7 lIPR_t + \alpha_8 lIPR_{t-1} + e_t \quad (3)$$

Where $\alpha_1, \alpha_2, \ldots, \alpha_8$ are the parameters to be estimated and $e_t$the error term. In specifying the model in equation 3, the lag length is set to one because annual data are being employed. As mentioned above, this equation encompasses a specific number of econometric models that can be obtained by imposing different restrictions on the parameters whose significance is tested, these models are: the static model, the autoregressive model, the growth rate model, the leading indicator model, the partial adjustment model, the common factor model, the finite distributed lags model and the dead start model (Peng *et al*., 2012). Table 1 shows the models covered by the autoregressive model with distributed lags and their respective equations (for simplicity the constant term has been omitted).

Model	Equation
Static	$y_t = \beta_0 x_t + \varepsilon_t$
Autoregressive	$y_t = \Phi_1 y_{t-1} + \varepsilon_t$
Growth rate	$\Delta y_t = \beta_0 \Delta x_t + \varepsilon_t$
Main indicator	$y_t = \beta_1 x_{t-1} + \varepsilon_t$
Partial adjustment	$y_t = \beta_0 x_t + \Phi_1 y_{t-1} + \varepsilon_t$
Common factor	$y_t = \beta_0 x_t + \varepsilon_t, \varepsilon_t = \beta_1 \varepsilon_{t-1} + u_t$
Finite distributed lags	$y_t = \beta_0 x_t + \beta_1 x_{t-1} + \varepsilon_t$
Dead start	$y_t = \beta_1 x_{t-1} + \Phi_1 y_{t-1} + \varepsilon_t$
Correction of errors	$\Delta y_t = \beta_0 \Delta x_t + (\beta_1 - 1)(y - Kx)_{t-1} + \varepsilon_t$

Table 1 Variations of the Distributed Lag Autoregressive Model
Source: Song H. and Witt F. S. (2010). Tourism Demand Modelling and Forecasting: Modern Econometric Approaches

Equation 3 can be reparameterized into an Error Correction Model as follows:

$$\Delta lTREU_t = \alpha_3 \Delta lPIBREU_t + \alpha_5 \Delta lVCRMEXEU_t + \alpha_7 \Delta lIPR_t - (1 - \alpha_2)\left[lTREU_{t-1} - \beta_1 - \beta_2 lPIBRUSA_{t-1} - \beta_3 lVCRMEXEU_{t-1} - \beta_4 lIPR_{t-1}\right] + u_t \quad (4)$$

Where:

$\beta_1 = \alpha_1/(1 - \alpha_2)$

$\beta_2 = \frac{\alpha_3 + \alpha_4}{1 - \alpha_2}$

$\beta_3 = \frac{\alpha_5 + \alpha_6}{1 - \alpha_2}$

$\beta_4 = \frac{\alpha_7 + \alpha_8}{1 - \alpha_2}$

Δ is the first difference operator
u_t the error term

Concerning the terms found in the brackets in equation 4, it is what is called the error correction mechanism which according to Banerjee *et al*. (1993), error correction terms were employed by Sargan (1964), Hendry and Anderson (1977) and Davidson *et al*. (1978) as a way of capturing adjustments in a dependent variable which does not depend on the level of some explanatory variable, but on the degree to which an explanatory variable deviated from an equilibrium relationship with the dependent variable.

Hendry (2010), argues that a crucial aspect of error correction models is that deviations from their expected value are attenuated and eventually eliminated if no additional external influences appear, in addition to the fact that this mechanism is present in other types of models such as: all regressions, autoregressions, linear simultaneous equations, autoregressive vectors, etc. The isomorphism of this error correction model with cointegrated relations has actually been the feature that has ensured its considerable popularity in empirical applications. According to Song and Witt (2003), the construction of an error correction model has two advantages over other econometric models. The first is that the model incorporates both long-run and short-run demand relationships, the coefficients of the variables in levels reflect the long-run demand elasticities while the coefficients of the differenced variables are the short-run elasticities.

The term $-(1-\alpha_2)$ is known as the error correction parameter, which implies that the model adjusts itself towards equilibrium, which in other words means that there is a long-run cointegrating relationship. The second advantage is that this model avoids the problem of spurious regression, which is an issue that was initially addressed by Yule (1926) by naming them as nonsense regressions, later Granger and Newbold (1974) concluded that a good good goodness of fit with significant serial correlation in the model residuals was a symptom associated with nonsense regressions. Therefore this problem is overcome since the differenced time series are stationary and also the combination of variables in levels is stationary.

The "From general to specific" approach to modeling the demand function involves the following steps: First, a general autoregressive distributed lag autoregressive model is estimated based on economic theory. Second, constraint tests are conducted based on the assumptions imposed by the specific models on the coefficients of the autoregressive distributed lagged model. Third, diagnostic tests are performed on the specific models that are superior to the autoregressive distributed lagged model according to the constraint tests. Finally, the best model is selected based on the results of the diagnostic tests and the consistency of the models with economic theory (Song and Witt, 2003).

The constraint tests mentioned in the previous paragraph can be performed using the "*F*". statistic. If the restrictions are proven to be valid then the specific model in question is preferred to the general autoregressive model of distributed lags but if the restrictions for one or more specific models are not rejected the best specific model for this analysis will have to be selected on the basis of a battery of statistical diagnostics that has to do with the fulfillment of the regression assumptions. In case all the restrictions are rejected, the general model will be chosen and its respective error correction model will be derived.

The residuals of the final model must fully comply with the regression assumptions, i.e. the error term must not present problems of non-normality, heteroscedasticity, autocorrelation or misspecification of the model.

For this analysis the following diagnostic tests were carried out: for normality the Shapiro-Wilk contrast (1965), for heteroscedasticity the Breusch-Pagan contrast (1979), for autocorrelation the Durbin-Watson (1950) and Durbin-Watson (1951) first order contrast, for models with lagged or autoregressive dependent variable the Durbin's h-test (Durbin, 1970) and the higher order contrasts of Breusch (1978), Godfrey (1978) and Ljung-Box (1978) and finally for the good or bad specification of the model the Ramsey test (1969).

Results

Prior to the estimation of the general autoregressive model of distributed lags, it is convenient to analyze the characteristics of the variables used, specifically the orders of integration of the variables must be determined, this with the purpose of testing cointegration relationships between the variables if no model is accepted under the due restrictions. The cointegration or long-run equilibrium relationship requires that all the variables used in the tourism demand function have the same order of integration I (1), that is, that the equation is balanced (Banerjee *et al*. 1993) and that the combination of these variables results in a variable I (0). For this, the Augmented Dickey-Fuller (1979) test (ADF, Table 2) and subsequently the Phillips-Perron (1988) test were used, both tests verify the orders of integration of the variables in equation 1 and the results show that all the variables in levels have order of integration one I (1).

Critical value 5%					
Variable	Estadt ADF	25 Obs.	50 Obs.	Backlog	$T\ y\ \beta_0$
lTREU	2.26	3.6	3.5	4	$T\ y\ \beta_0$
⊿lTREU	3.53	3.0	2.9	4	β_0
lPIBREU	2.72	3.6	3.5	2	$T\ y\ \beta_0$
⊿lPIBREU	4.89	3.6	3.5	1	$T\ y\ \beta_0$
lVCRMEXEU	1.57	3.6	3.5	4	$T\ y\ \beta_0$
⊿lVCRMEXEU	3.84	3.0	2.9	1	β_0
lIPR	1.81	3.0	2.9	2	β_0
⊿lIPR	6.38	3.0	2.9	1	β_0

Table 2 Dickey-Fuller Augmented Test Results
Source: Own Elaboration

Table 2 shows the results of the Augmented Dickey-Fuller test both for the variables in levels and for the differentiated variables, given that there are 37 observations, the critical values of twenty-five and fifty observations were considered, the optimal number of lags was chosen based on the adjusted coefficient of determination $\bar{R}^2$and the Akaike and Schwarz information criteria of the regressions. The last column indicates whether the test regressions employed constant (β_0) or also trend (T). By differencing each of the variables, they achieve stationarity at both the critical value of twenty-five and fifty observations.

The estimation of the general autoregressive model of distributed lags is based on annual time series data ranging from the year 1980 to the year 2016. The results obtained are shown in Table 3, in which it can be observed that the lagged dependent variable is highly statistically significant while the variables trade volume, lagged trade volume, lagged income and lagged price index are not significant (figures in parentheses are standard errors and the asterisk indicates statistical significance at 5 percent).

Explanatory variable	Coefficients
Constant	-2.062 (2.794)
$lTREU_{t-1}$	0.563* (0.169)
$lPIBREU_t$	1.406* (0.679)
$lPIBREU_{t-1}$	-0.984 (0.669)
$lVCRMEXEU_t$	0.114 (0.091)
$lVCRMEXEU_{t-1}$	-0.01 (0.096)
$lIPR_t$	-0.260* (0.114)
$lIPR_{t-1}$	-0.077 (0.140)
$\bar{R}^2$	0.982
Standard Error	0.061
F(7, 28)	268.568
Sum of squares of residues	0.104

Table 3. Estimates of the general model of equation 3, 1980-2016.
Source: Own Elaboration

Once the general autoregressive model of distributed lags has been estimated, the "*F*" statistic has to be used to test several restrictions on the parameters and see if any of the specific models shown in Table 1 explain better the U.S. inbound tourism demand than the general model.

In Table 4, the results of the tests on the restrictions are shown, it is observed that the specific models that can explain the tourism demand are the partial fit model and the dead start model according to the calculated value of the "*F*" statistic compared to its critical value. If the calculated value of the "*F*" statistic is lower than its critical value it means that the specific model is superior to the general model, it is worth mentioning that the significance level of the test is 5 percent.

Specific models	F calculated	Critical value F
Static	4.65	F(4, 28) = 2.71
Autoregressive	4.67	F(6, 28) = 2.45
Growth rate	3.78	F(4, 28) = 2.71
Main indicator	4.38	F(4, 28) = 2.71
Partial adjustment	1.71	F(3, 28) = 2.95
Distributed lags	13.67	F(1, 28) = 4.2
Dead start	2.89	F(3, 28) = 2.95

Table 4 Results of the restriction tests ("*F*" Statistic)
Source: Own Elaboration

According to Song *et al*. (2009), when two specific models can explain a dependent variable better than a general model, it is necessary to verify whether one of them is nested in the other and vice versa through an encompassing test. The concept is associated with Mizon and Richard (1986), this test is very useful when a researcher has to choose only one model to carry out policy analysis or forecasting but in this situation, of the two specific models that best explain U.S. tourism demand, the error term of the partial fit model meets the regression assumptions, i.e. it is normal, independent and with constant variance unlike the dead start model which suffers from autocorrelation problems so it has been discarded. The estimated partial fit model is shown below in Table 5 and the p-values of the tests of compliance with the assumptions in Table 6.

Variable	Coefficient	Standard error	t-statistic
Constant	-2.92	2.705	-1.079
$lTREU_{t-1}$	0.516	0.16	3.232
$lPIBREU_t$	0.535	0.273	1.961
$lVCRMEXEU_t$	0.094	0.048	1.980
$lIPR_t$	-0.301	0.093	-3.250
Average Var. Dep.	15.826	Error Est. Var. Dep.	0.45
S. C. Residues	0.123	Regression std. error	0.063
R^2	0.983	R^2 corrected	0.98
F(4, 31)	440.59	p-value of "F"	7.85e-27
Log-Ver.	51.19	Criterio Akaike	-92.378
Criterio Schwarz	-84.46	Criterio Hannan-Quinn	-89.614
rho	0.097	h de Durbin	2.026

Table 5 Partial adjustment model estimation results, 1981-2016 (Dependent variable lTREUt).
Source: Own Elaboration

In Table 6, the Breusch-Godfrey and Ljung-Box tests were carried out from one to seven lags and in all of them it was concluded that there is no evidence of autocorrelation, the Reset test was also run separately (with only squares and with only cubes) and the results were satisfactory. In addition to these tests, the autoregressive effect contrast with conditional heteroscedasticity (ARCH) was also performed, obtaining good results up to lag seven; additionally, the CUSUM contrast of Brown *et al*. (1975) was performed to verify the stability of the parameters, obtaining a positive result. The only detail presented by the partial adjustment model is some multicollinearity.

Supposed	Contrast	p-value
Normality	Shapiro-Wilk	0.896
Homocedasticity	Breusch-Pagan	0.198
Independence (1 backlog)	Breusch-Godfrey	0.403
	Ljung-Box	0.554
Good specification	Reset (squares and cubes)	0.684

Table 6 *p*-values of the behavior of the error term of the partial fit model
Source: Own Elaboration

Regarding Table 5, it can be seen that the goodness of fit of the model is high at 0.98, the variables used to explain U.S. tourism demand are statistically significant according to the value of the *"t"* statistic and the value of the *"F"* statistic, in addition to the fact that the signs of the variables agree effectively with the economic theory. As mentioned above, by using logarithms in the demand function, we directly obtain the economic elasticities of the variables in the model, which are explained below.

The elasticity of the income variable, measured by the real economic growth of the United States, is positive and according to Nicholson (2004), with a positive elasticity the product in question must be classified as normal, so the Mexican tourism product is a normal good or service for inbound tourism from the United States. Now, with an income elasticity of 0.535 it means that with an increase of one percent in the Real Gross Domestic Product of the United States, keeping other variables constant (Ceteris Paribus), the international demand for tourism in Mexico would have a positive variation of about 0.54 percent.

Regarding the trade volume variable between Mexico and the United States, its elasticity is very small at 0.094. This variable was included in the model because business tourism has become very important in the country in recent decades, mainly due to the fact that the United States is Mexico's main trading partner and that between these countries there is a trade agreement that came into force in 1994 and is currently being restructured under the name of T-MEC. With this elasticity, a one percent increase in the volume of trade between these two nations *Ceteris Paribus*, there would be an increase of 0.094 percentage points in the demand for international tourism in Mexico.

The elasticity of the Relative Price Index variable is less than one, which, according to Nicholson (2004), should be classified as inelastic, therefore, this variable, which represents the price of tourism for tourists classified as inbound from the United States, is inelastic with a coefficient of -0.301, which means that with a unit percentage increase in this variable (keeping all other variables constant), the international demand for tourism will decrease by 0.301 percent.

The dependent variable that was lagged one period to make a partial adjustment model has a rationale, which according to Witt and Witt (1995) is justified in the field of the habit of persistence of tourists who have already visited the destination once and the word-of-mouth recommendation made by tourists to other people in the previous period, which reduces the uncertainty of potential tourists. The estimated elasticity of this variable presents a positive relationship with respect to the demand for international tourism whose economic elasticity is approximately 0.52 percent.

Conclusions

The objective of this research was fully achieved by determining the best econometric model based on statistical procedures to explain the demand for international tourism in Mexico by inbound tourism from the United States based on the methodology from the general to the specific, as for the causal hypothesis, this was contrasted and corroborated with the results yielded by the model proposed, which satisfactorily met the regression assumptions.

The real Gross Domestic Product of the United States taken as a proxy variable to reflect the income level of U.S. tourists has a direct relationship with the demand function specified in this analysis, which according to its elasticity of 0.54 percent classifies the Mexican tourism product as a normal good. Given the income level of Americans, which is one of the highest in the world, actions must be taken to conserve and increase this market, among which the mitigation of insecurity in the country stands out, since in recent years it has worsened. According to Graph 1, the demand for international tourism by U.S. tourists has an upward trend that has been maintained despite the insecurity situation in Mexico, but if this problem were reduced and more certainty of security were given to tourists visiting the country, perhaps much more would be received. On the other hand, U.S. tourists should be encouraged to consume more services and products derived from tourism through the diversification of the Mexican tourism product and achieve a greater economic spillover that generates a greater multiplier effect in Mexico's economy.

The coefficient of the trade volume variable between the two nations represents a direct relationship, although it is small, there is no doubt that business tourism and conventions have been on the rise, it should not be overlooked the fact that the United States is the country's main trading partner and that on many occasions corporations and companies from both countries hold congresses, exhibitions, fairs and various types of events so it is important to facilitate the way in which business is done in the country and what needs to be done is to make Mexico a much more attractive country to attract foreign investment. In addition, the connectivity factor in means of transportation has an important specific weight within the tourism industry.

The relative price of tourism in Mexico for U.S. tourists turned out to be inelastic, this means that the reaction of consumers to a change in the price of the good or service is small, it should not be forgotten that the construction of this variable was carried out with the consumer price indexes of both countries and the exchange rate concerning the currency of the destination country with reference to the currency of the country of origin. A high exchange rate favors the country's export sector and tourism activity via international visitors.

Currently in Mexico the exchange rate is no longer determined by any government instance as it was before 1994, so it cannot be suggested to devalue the currency to favor the tourism industry since now the exchange rate is determined by the supply and demand of the foreign exchange market, but what is recommended is to give due promotion to the activity and facilities to foreigners when the exchange rate is high in order to attract more tourists. In addition to this, the country's inflation should be watched and monitored, which is an important function that falls under the jurisdiction of the Bank of Mexico. This will make Mexico a more competitive nation in the industry.

The partial adjustment econometric model through its lagged dependent variable indicates that there is a risk aversion effect that causes a habit of persistence to consume the Mexican tourist product on the part of U.S. tourists since the country has satisfied them, This is of utmost relevance since the experience lived by tourists in the destination spreads among their circles of coexistence achieving a word-of-mouth recommendation, which can seduce future potential tourists, therefore it is essential to build a positive and attractive image of the country from an integral perspective that contributes to the development and growth of the national tourism industry.

References

Banerjee, A., Dolado, J., Galbraith, W. J. and Hendry, F. D. (1993). Co-Integration, Error-Correction, and the Econometric Analysis of Non-Stationary Data: Advanced Texts in Econometrics. Oxford University Press.

Banco de México. (2019). Balanza de Pagos. Cuenta de Viajeros Internacionales, Número de viajeros, Ingresos, Total de Turistas. Consultado el 14 de mayo de 2019: http://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=1&accion=consultarCuadroAnalitico&idCuadro=CA198&locale=es

Breusch, T. S. (1978). Testing for Autocorrelation in Dynamic Linear Models. Journal of Australian Economic Papers, 17(31), 334-355.

Breusch, T. S. and Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. Econometrica, 47(5), 1287-1294.

Brown, R. L., Durbin, J. and Evans J. M. (1975). Techniques for Testing the Constancy of Regression Relationships over Time. Journal of the Royal Statistical Society, 37(2), 149-192.

Davidson, J., D. F. Hendry, F. Saba, and S. Yeo. (1978). Econometric Modelling of the Aggregate Time Series Relationships between Consumers Expenditure and Income in the United Kingdom. Economic Journal, 88(352), 661-92.

Dickey, A. D. and Fuller, A. W. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. Journal of the American Statistical Association, 74(366), 427-431.

Dieterich, H. (2001). Nueva Guía para la Investigación Científica. México: Colección Ariel.

Durbin, J. (1970). Testing for Serial Correlation in Least-Squares Regression When Some of the Regressors are Lagged Dependent Variables. Econometrica, 38(3), 410-421.

Durbin, J. y Watson, G. S. (1950). Testing for Serial Correlation in Least Squares Regression: I. Biometrika, 37(3/4), 409-428.

Durbin, J. y Watson, G. S. (1951). Testing for Serial Correlation in Least Squares Regression: II. Biometrika, 38(1/2), 159-177.

Dwyer, L. and Forsyth, P. (2006). International Handbook on the Economics of Tourism. United Kingdom: Edward Elgar Publishing Limited.

Fondo Monetario Internacional. (2018). Metadata by country: International Financial Statistics (IFS). Consultado el 20 de enero de 2019: https://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42

Frechtling, C. D. (2011). Forecasting Tourism Demand: Methods and strategies. New York: Routledge Taylor & Francis Group.

Godfrey, L. G. (1978). Testing for Higher Order Serial Correlation in Regression Equations when the Regressors Contain Lagged Dependent Variables. Econometrica, 46(6), 1303-1310.

Granger, C. W. J. and Newbold, P. (1974). Spurious Regressions in Econometrics. Journal of Econometrics, 2(2), 111-120.

Gujarati, N. D. y Porter, C. D. (2010). Econometría (5ª ed.). México: McGraw-Hill.

Hendry, D. F. (1995). Dynamic Econometrics (Advanced Texts in Econometrics). United States: Oxford University Press.

Hendry, D. F. (2010). Equilibrium Correction Models. En Steven N. Durlauf and Lawrence E. Blume, Macroeconomics and Time Series Analysis (pp. 76-89). United States: McMillan Publishers Ltd.

Hendry, D. F. and Anderson, G. J. (1977). Testing Dynamic Specification in Small Simultaneous Models: An Application to a Model of Building Society Behaviour in the United Kingdom. Chapter 8 Frontiers of Quantitave Economics, 361-383.

Hendry, D. F., Pagan A. R. and Sargan D. J. (1984). Dynamic Specification. En Griliches, Z. and Intriligator M. D. (Eds.), Handbook of Econometrics: North Holland.

Ljung, G. M. and Box, G. E. P. (1978). On a Measure of Lack of Fit in Time Series Models. Biometrika, 65(2), 297-303.

Maddala, G. S. (1992). Introduction to Econometrics (2nd Ed.). United States: Macmillan Publishing Company.

Mizon, G. E., and J. F. Richard (1986). The encompassing Principle and its Application to Testing Non-Nested Hypotheses. Econometrica, 54, 657-78.

Narayan, P. K. (2004). Fiji's tourism demand: the ARDL approach to cointegration. Tourism Economics, 10(2), 193-206.

Nicholson, W. (2004). Teoría Microeconómica Principios Básicos y Ampliaciones (8ª ed.). España: Thomson .

Organización Mundial de Turismo. (2019). ¿Por qué el turismo?. Consultado el 15 de febrero de 2019: https://www2.unwto.org/es/content/por-que-el-turismo

Peng, B. G., Song, H. and Witt, F. S. (2012). Demand Modelling and Forecasting. En Dwyer, L., Gill, A. and Seetaram N., Handbook of Research Methods in Tourism: Quantitative and Qualitative Approaches (pp. 71-90). United Kingdom: Edward Elgar Publishing Limited.

Phillips, C. P. B. and Perron, P. (1988). Testing for a Unit Root in Time Series Regression. Biometrika, 75(2), 335-346.

Ramsey, J. B. (1969). Test for Specification Errors in Classical Linear Least-Squares Regression Analysis. Journal of the Royal Statistical Society, 31(2), 350-371.

Rojas, E. (2018, 17 de abril). Estas son las principales fuentes y salidas de dólares en México al inicio del 2018. El Financiero: https://www.elfinanciero.com.mx/mercados/estas-son-las-principales-fuentes-y-salidas-de-dolares-en-mexico-al-inicio-del-2018

Sargan, J. D. (1964). Wages and prices in the United Kingdom: A study in econometric methodology (with discussion). En Hart, P. E., G. Mills and J. K. Whitaker (eds.), Econometric Analysis for National Economic Planning (pp. 25-63). London: Butterworth.

Saayman, M. and Saayman, A. (2008). Determinants of Inbound Tourism to South Africa. Tourism Economics, 14(1), 81-96.

Shapiro, S. S. and Wilk, M. B. (1965). An Analysis of Variance Test for Normality (Complete Samples). Biometrika, 52(3-4), 591-611.

Secretaria de Turismo. (2019). Base de datos DATATUR. Consultado el 10 de junio de 2019: https://www.datatur.sectur.gob.mx/SitePages/RankingOMT.aspx

Song, H., Li, G., Witt, F. S. and Fei B. (2010). Tourism Demand Modelling and Forecasting: How should demand be measure?. Tourism Economics, 16(1), 63-81.

Song, H., Witt, F. S. and Li G. (2009). The Advanced Econometrics of Tourism Demand (1st Ed.). New York: Routledge Taylor & Francis Group.

Song, H. and Witt, F. S. (2000). Tourism Demand Modelling and Forecasting: Modern Econometric Approaches (1st Ed). United Kingdom: PERGAMON.

Song, H. and Witt F. S. (2003). Tourism Forecasting: The General-to-Specific Approach. Journal of Travel Research, 42, 65-74.

World Tourism Organization (UNWTO). (2018). Tourism Highlights 2018. Consultado el 19 de julio de 2019: https://www.e-unwto.org/doi/pdf/10.18111/9789284419876

World Tourism Organization (UNWTO). (2019). World Tourism Barometer. Consultado el 8 de julio de 2019: https://www.ttr.tirol/sites/default/files/2019-02/UNWTO%20Barometer%20Vol.%2017%20%28J%C3%A4nner%202019%29

Witt, F. S. and Witt, A. C. (1995). Forecasting Tourism Demand: A review of empirical research. International Journal of Forecasting, 11, 447-475.

Yule, G. U. (1926). Why Do We Sometimes Get Nonsense Correlations Between Time Series? A study in sampling and the Nature of Time Series. Journal of the Royal Statistical Society, 89, 1-64.

ISSN-On line: 2414-4819

[Title in Times New Roman and Bold No. 14 in English and Spanish]

Surname (IN UPPERCASE), Name 1st Author†*, Surname (IN UPPERCASE), Name 1st Coauthor, Surname (IN UPPERCASE), Name 2nd Coauthor and Surname (IN UPPERCASE), Name 3rd Coauthor

Institutional Affiliation of Author including Dependency (No.10 Times New Roman and Italic)

ID 1st author: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st author: (Scholar-PNPC or SNI-CONACYT) (No.10 Times New Roman)

ID 1st coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 2nd coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 2nd coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 3rd coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 3rd coauthor: (Scholar or SNI) (No.10 Times New Roman)

(Report Submission Date: Month, Day, and Year); Accepted (Insert date of Acceptance: Use Only ECORFAN)

Abstract (In English, 150-200 words)

Objectives
Methodology
Contribution

Abstract (In Spanish, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In English)

Indicate 3 keywords in Times New Roman and Bold No. 10

Keywords (In Spanish)

Indicate 3 keywords in Times New Roman and Bold No. 10

Citation: Surname (IN UPPERCASE), Name 1st Author†*, Surname (IN UPPERCASE), Name 1st Coauthor, Surname (IN UPPERCASE), Name 2nd Coauthor and Surname (IN UPPERCASE), Name 3rd Coauthor. Paper Title. ECORFAN Journal-Republic of Peru. Year 1-1: 1-11 [Times New Roman No.10]

---

* Correspondence to Author (example@example.org)
† Researcher contributing as first author.

Introduction

Text in Times New Roman No.12, single space.

General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers

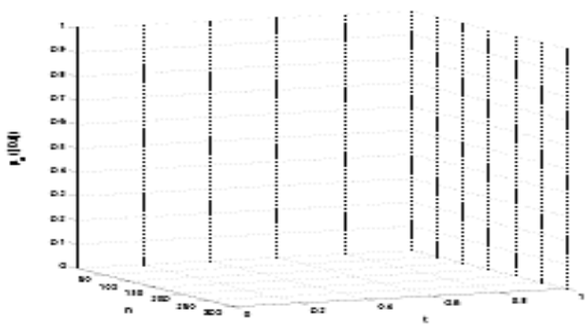
[Title No.12 in Times New Roman, single spaced and bold]

Products in development No.12 Times New Roman, single spaced.

Including graphs, figures and tables-Editable

In the article content any graphic, table and figure should be editable formats that can change size, type and number of letter, for the purposes of edition, these must be high quality, not pixelated and should be noticeable even reducing image scale.

[Indicating the title at the bottom with No.10 and Times New Roman Bold]



Graphic 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

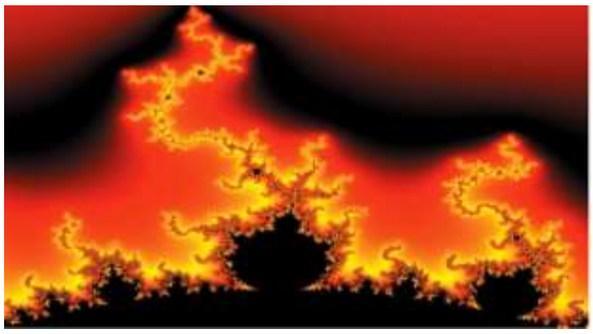


Figure 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

Table 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

Each article shall present separately in **3 folders**: a) Figures, b) Charts and c) Tables in .JPG format, indicating the number and sequential Bold Title.

For the use of equations, noted as follows:

$$Y_{ij} = \alpha + \sum_{h=1}^{r} \beta_h X_{hij} + u_j + e_{ij} \qquad (1)$$

Must be editable and number aligned on the right side.

Methodology

Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

Results

The results shall be by section of the article.

Annexes

Tables and adequate sources thanks to indicate if were funded by any institution, University or company.

ISSN-On line: 2414-4819

Conclusions

Explain clearly the results and possibilities of improvement.

References

Use APA system. Should not be numbered, nor with bullets, however if necessary numbering will be because reference or mention is made somewhere in the Article.

Use Roman Alphabet, all references you have used must be in the Roman Alphabet, even if you have quoted an Article, book in any of the official languages of the United Nations (English, French, German, Chinese, Russian, Portuguese, Italian, Spanish, Arabic), you must write the reference in Roman script and not in any of the official languages.

Technical Specifications

Each article must submit your dates into a Word document (.docx):

Journal Name
Article title
Abstract
Keywords
Article sections, for example:

1. Introduction
2. Description of the method
3. Analysis from the regression demand curve
4. Results
5. Thanks
6. Conclusions
7. References

Author Name (s)
Email Correspondence to Author
References

Intellectual Property Requirements for editing:

-Authentic Signature in Color of Originality Format Author and Coauthors.

-Authentic Signature in Color of the Acceptance Format of Author and Coauthors.

-Authentic Signature in Color of the Conflict of Interest Format of Author and Co-authors.

ISSN-On line: 2414-4819

Reservation to Editorial Policy

ECORFAN-Journal Peru reserves the right to make editorial changes required to adapt the Articles to the Editorial Policy of the Journal. Once the Article is accepted in its final version, the Journal will send the author the proofs for review. ECORFAN® will only accept the correction of errata and errors or omissions arising from the editing process of the Journal, reserving in full the copyrights and content dissemination. No deletions, substitutions or additions that alter the formation of the Article will be accepted.

Code of Ethics - Good Practices and Declaration of Solution to Editorial Conflicts

Declaration of Originality and unpublished character of the Article, of Authors, on the obtaining of data and interpretation of results, Acknowledgments, Conflict of interests, Assignment of rights and Distribution

The ECORFAN-Mexico, S.C Management claims to Authors of Articles that its content must be original, unpublished and of Scientific, Technological and Innovation content to be submitted for evaluation.

The Authors signing the Article must be the same that have contributed to its conception, realization and development, as well as obtaining the data, interpreting the results, drafting and reviewing it. The Corresponding Author of the proposed Article will request the form that follows.

Article title:

- The sending of an Article to ECORFAN-Journal Perue manates the commitment of the author not to submit it simultaneously to the consideration of other series publications for it must complement the Format of Originality for its Article, unless it is rejected by the Arbitration Committee, it may be withdrawn.

- None of the data presented in this article has been plagiarized or invented. The original data are clearly distinguished from those already published. And it is known of the test in PLAGSCAN if a level of plagiarism is detected Positive will not proceed to arbitrate.

- References are cited on which the information contained in the Article is based, as well as theories and data from other previously published Articles.

- The authors sign the Format of Authorization for their Article to be disseminated by means that ECORFAN-Mexico, S.C. In its Holding Peruconsiders pertinent for disclosure and diffusion of its Article its Rights of Work.

- Consent has been obtained from those who have contributed unpublished data obtained through verbal or written communication, and such communication and Authorship are adequately identified.

- The Author and Co-Authors who sign this work have participated in its planning, design and execution, as well as in the interpretation of the results. They also critically reviewed the paper, approved its final version and agreed with its publication.

- No signature responsible for the work has been omitted and the criteria of Scientific Authorization are satisfied.

- The results of this Article have been interpreted objectively. Any results contrary to the point of view of those who sign are exposed and discussed in the Article.

Copyright and Access

The publication of this Article supposes the transfer of the copyright to ECORFAN-Mexico, SC in its Holding Perufor its ECORFAN-Journal Peru a, which reserves the right to distribute on the Web the published version of the Article and the making available of the Article in This format supposes for its Authors the fulfilment of what is established in the Law of Science and Technology of the United Mexican States, regarding the obligation to allow access to the results of Scientific Research.

Article Title:

Name and Surnames of the Contact Author and the Coauthors	Signature
1.	
2.	
3.	
4.	

Principles of Ethics and Declaration of Solution to Editorial Conflicts

Editor Responsibilities

The Publisher undertakes to guarantee the confidentiality of the evaluation process, it may not disclose to the Arbitrators the identity of the Authors, nor may it reveal the identity of the Arbitrators at any time.

The Editor assumes the responsibility to properly inform the Author of the stage of the editorial process in which the text is sent, as well as the resolutions of Double-Blind Review.

The Editor should evaluate manuscripts and their intellectual content without distinction of race, gender, sexual orientation, religious beliefs, ethnicity, nationality, or the political philosophy of the Authors.

The Editor and his editing team of ECORFAN® Holdings will not disclose any information about Articles submitted to anyone other than the corresponding Author.

The Editor should make fair and impartial decisions and ensure a fair Double-Blind Review.

Responsibilities of the Editorial Board

The description of the peer review processes is made known by the Editorial Board in order that the Authors know what the evaluation criteria are and will always be willing to justify any controversy in the evaluation process. In case of Plagiarism Detection to the Article the Committee notifies the Authors for Violation to the Right of Scientific, Technological and Innovation Authorization.

Responsibilities of the Arbitration Committee

The Arbitrators undertake to notify about any unethical conduct by the Authors and to indicate all the information that may be reason to reject the publication of the Articles. In addition, they must undertake to keep confidential information related to the Articles they evaluate.

Any manuscript received for your arbitration must be treated as confidential, should not be displayed or discussed with other experts, except with the permission of the Editor.

The Arbitrators must be conducted objectively, any personal criticism of the Author is inappropriate.

The Arbitrators must express their points of view with clarity and with valid arguments that contribute to the Scientific, Technological and Innovation of the Author.

The Arbitrators should not evaluate manuscripts in which they have conflicts of interest and have been notified to the Editor before submitting the Article for Double-Blind Review.

Responsibilities of the Authors

Authors must guarantee that their articles are the product of their original work and that the data has been obtained ethically.

Authors must ensure that they have not been previously published or that they are not considered in another serial publication.

Authors must strictly follow the rules for the publication of Defined Articles by the Editorial Board.

The authors have requested that the text in all its forms be an unethical editorial behavior and is unacceptable, consequently, any manuscript that incurs in plagiarism is eliminated and not considered for publication.

Authors should cite publications that have been influential in the nature of the Article submitted to arbitration.

Information services

Indexation - Bases and Repositories

LATINDEX (Scientific Journals of Latin America, Spain and Portugal)
EBSCO (Research Database - EBSCO Industries)
RESEARCH GATE (Germany)
GOOGLE SCHOLAR (Citation indices-Google)
REDIB (Ibero-American Network of Innovation and Scientific Knowledge- CSIC)
MENDELEY (Bibliographic References Manager)

Publishing Services:

Citation and Index Identification H.
Management of Originality Format and Authorization.
Testing Article with PLAGSCAN.
Article Evaluation.
Certificate of Double-Blind Review.
Article Edition.
Web layout.
Indexing and Repository
ArticleTranslation.
Article Publication.
Certificate of Article.
Service Billing.

Editorial Policy and Management

1047 La Raza Avenue -Santa Ana, Cusco-Peru. Phones: +52 1 55 6159 2296, +52 1 55 1260 0355, +52 1 55 6034 9181; Email: contact@ecorfan.org www.ecorfan.org

ECORFAN Journal-Republic of Peru

2414 4819
ISSN 2414 - 4819