

Mitigating Earthquake Risk in Mexico Through Microinsurance

Lucie Gareton
Erika Karsh
Maria Martinez
Faria Sami
Louise Wen
Joy Wu

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Executive Summary

Mexico is highly susceptible to natural hazards such as floods, hurricanes, fires, and earthquakes. On September 19, 2017, a 7.1 magnitude earthquake struck Mexico barely two weeks after the country had suffered the largest earthquake of the last century.¹ While this second earthquake was smaller in magnitude, it caused more damage due to the location of its epicenter just 130 kilometers outside of Ciudad Mexico (CDMX). Densely populated urban areas in Oaxaca, Puebla, Morelos, and CDMX bore the brunt of the earthquake's destruction. As insurance penetration is very low in Mexico, many citizens were left with a large financial burden and some still have not managed to find accommodations or housing eight months after the earthquake.

Following the September 2017 earthquakes in Mexico, EA Consultants sought the assistance of the SIPA Workshop Team to conduct market research to identify and quantify the potential gap in climate and catastrophe insurance among the low-income population in Mexico. EA Consultants is a development consulting firm located in New York City which works around the world to improve the financial lives of low-income households.

Through conversations with government officials, insurers, reinsurers, brokers, and civil society organizations, we conducted qualitative research to analyze the supply side of the insurance market in Mexico. Over the course of our field research in March 2018, we completed 220 surveys in Atlixco, Puebla, and Mexico City (CDMX) to analyze the demand side and determine how individuals cope after earthquakes. We then ran statistical analysis to establish whether there is interest in purchasing earthquake insurance, coverage type, payment type, and preferred communication channels.

Our quantitative and qualitative market research yielded findings around

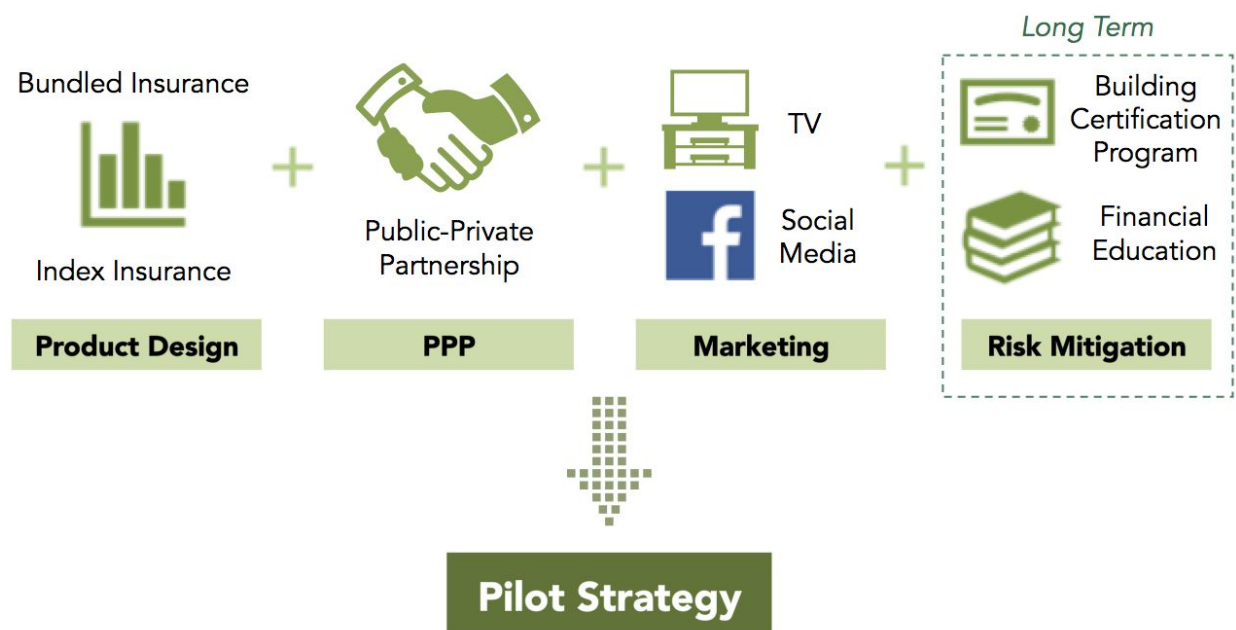
1. Market Demand: People's behavior after the earthquakes and what they would want from insurance coverage.
2. Market Supply: Insight from microfinance institutions, insurance companies and reinsurance companies about the Mexican climate and catastrophic insurance space.
3. Bridging the Gap: Analyzing our findings to recommend feasible and impactful solutions to mitigate earthquake risks for low-income urban households through microinsurance

¹ Fischer-Baum, Reuben, and Gabriel Florit. 2017. "Earthquakes In Mexico: How Much The Country Has Shaken In 15 Days." *Washington Post*. https://www.washingtonpost.com/graphics/2017/world/mexico-quake/?utm_term=.253817612f5d (10 December 2017).

Survey respondents consistently expressed discontent toward the government, especially due to the corruption following the recent earthquakes. Expert interviews also revealed government corruption, a culture of distrust toward institutions, and lack of public understanding of the concept of insurance. It is based on these overarching themes and more detailed market research that we developed our recommendations to cover the low-income urban population in Mexico.

We recommend that an earthquake insurance product in Mexico be an **index insurance, bundled with another financial product or service** such as a loan, electricity bill, or property taxes. The coverage would be a direct cash transfer, which could help cover damages to the building or a loss of income. The insurance would be the result of a **public-private partnership (PPP)**, offered by private insurance companies of which insurance purchase would be optional initially, but incentivized by the government through subsidies in the long-term. We recommend that the new product be **advertised through social media and television** and **paid in convenience stores**. We emphasize the importance of clarity in the coverage.

As additional risk mitigating strategies, we recommend a voluntary **structural safety certification** program for buildings that assures their safety. We also recommend **educational programs** to enhance the financial literacy of the citizens. Finally, we focus on a **pilot strategy that targets Mexicans in quake-prone states with a weekly income between 800 and 3,400 pesos**, as it is this group that expressed the highest interest in earthquake insurance.



Our research led us to find that there is demand for an earthquake insurance among the low-income population in Mexico. The Mexican government and private insurance companies are interested in offering the product. Thus, we are hopeful that the clarity and simplicity of an

index insurance product bundled with another payment or service will provide EA Consultants with the foundation to find the correct partners to offer the product. Furthermore, complementing the insurance product with a building certification subsidy will hopefully provide enough risk mitigation so that there will be more substantial support to protect against future earthquakes than the support provided for the September 2017 earthquakes.

I. Background

A. Political Context

Mexico has a presidential government with a bicameral congress and a pluralistic society. Partido Revolucionario Institucional (PRI) experienced a 71-year reign from 1929-2000, when the Partido Acción Nacional (PAN) came to power until 2012, and PRI regained control thereafter.²

Mexico faces national elections in 2018, as President Enrique Peña Nieto prepares to leave office amid renegotiations of the North American Free Trade Agreement (NAFTA), increased violence, and corruption scandals.³ Public discontent - which has risen due to the aforementioned issues - and President Enrique Peña Nieto's low approval ratings (21% as of March 30)⁴ are likely to weaken the power of the president for the remainder of his term. The effects could spread beyond the presidency and affect the future of his political party, PRI. Currently, the frontrunner of the presidential election to be held on July 1, 2018 is Andrés Manuel López Obrador, who is running an anti-establishment campaign, from the leftist Movimiento Regeneración Nacional (MORENA) and is polling at 43% as of April 20, 2018.⁵ López Obrador was mayor of Mexico City under the Partido de la Revolución Democrática (PRD) before he left the party and founded MORENA.

The growing public discontent and the sour relationship between the President of Mexico and the President of the United States have given rise to López Obrador's current polling success. However, Ricardo Anaya, representing PAN, has formed a left-right alliance with PRD and the Citizen's Movement (MC), and became López Obrador's main competitor.⁶ The former finance minister, José Antonio Meade from the ruling PRI party also announced his candidacy, is in third place with 21%.⁷

² The Editors of Encyclopaedia Britannica. "Institutional Revolutionary Party | Political Party, Mexico." *Encyclopedia Britannica*. <https://www.britannica.com/topic/Institutional-Revolutionary-Party> (17 December 2017).

³ Economist Intelligence Unit. 2018. *Country Report - Mexico*. London: Economist Intelligence Unit.

⁴ "Peña Nieto con 21 % de aceptación, histórico para un inicio de campaña: Mitosfky" March 30 2018. *Xeu Noticias*. <http://www.xeu.com.mx/nota.cfm?id=959035>

⁵ *Oraculus*. April 20. <http://oraculus.mx/poll-of-polls/>

⁶ *Ibid.*

⁷ *Ibid.*

There are challenges ahead for Mexico, particularly due to election uncertainty, the increase of interest rates in the United States, and the inconclusive renegotiation of NAFTA, all of which could lead to volatility of the peso.⁸

Fiscal policy is also likely to remain constrained due to weak oil prices, further complicating a country with high poverty rates and income inequality. Should the peso become highly volatile, it would likely affect the ability of any public contribution to provide a product to insure the population against natural hazards, especially given the fiscal constraints.

B. Financial Inclusion in Mexico

Mexico's level of financial inclusion is not up to par with leaders in the region. The 2016 Global Microscope, which rates the business and regulatory environment for financial inclusion, gave Mexico a score of 60 out of 100, putting it 10th out of 55 countries covered. This is in stark contrast to other countries in the region, such as Colombia and Peru, who both scored 89.⁹

In Mexico, the microfinance market has been highly monopolized and skewed. With 81% of the market held by the 10 largest institutions, the remaining 19% is shared by approximately 1,500 other smaller organizations.¹⁰ This market dynamic is extremely concerning in regards to the capacity and financial capability of the borrowers. While a growing number of microfinance institutions are ready to serve low- and middle-income customers, limited financial literacy and an absence of culture of planning have added extra obstacles for these populations, according to the World Bank's Financial Capability Survey of 2013.¹¹

Microinsurance coverage in Mexico remains at a relatively low level of about 13%.¹² This is lower compared to other Latin American countries including Peru, Ecuador, Colombia and

⁸ Ibid.

⁹ Economist Intelligence Unit. 2016. *Global Microscope 2016: The Enabling Environment For Financial Inclusion*. New York: Economist Intelligence Unit.
<https://publications.iadb.org/bitstream/handle/11319/7988/Global-Microscope-2016-The-Enabling-Environment-for-Financial-Inclusion.pdf?sequence=1&isAllowed=y> (20 December 2017).

¹⁰ Antón Díaz, Pablo. 2017. "Growing Concerns About Overindebtedness In Mexico's Microfinance Sector." *Center for Financial Inclusion Blog*.
<https://cfi-blog.org/2017/01/09/growing-concerns-about-overindebtedness-in-mexicos-microfinance-sector/> (accessed 10 January 2018).

¹¹ Reddy, Rekha, Miriam Bruhn, and Congyan Tan. 2013. *Financial Capability In Mexico : Results From A National Survey On Financial Behaviors, Attitudes, And Knowledge (English)*. Washington DC: World Bank.
<http://documents.worldbank.org/curated/en/653031468287158989/Financial-capability-in-Mexico-results-from-a-national-survey-on-financial-behaviors-attitudes-and-knowledge> (20 December 2017).

¹² MCord, Michael, Ingram, Molly, & Tatin-Jaleran, Clemence. *The Landscape of Microinsurance in Latin America and the Caribbean*. Microinsurance Network,
<https://microinsurancenetwork.org/sites/default/files/LandscapeLatinAme.pdf> (2 May 2018)

Jamaica that all have a coverage of higher than 15%.¹³ The rising premiums act as a factor discouraging the penetration of microinsurance: there was a average annual 36% increase in microinsurance premiums between 2007 and 2017.¹⁴ Microinsurance is also increasingly linked with the provision of microloans. For instance, Compartamos Banco and Citigroup's local insurance unit, Seguros Banamex, have packaged microinsurance products with microloans. In order to increase the accessibility of products and reduce the cost of service, many providers have eliminated the use of heavy documentation to determine eligibility and have steered toward a more standardized product, suitable to a large customer base.¹⁵

Mexico's National Insurance and Finance Commission (Comisión Nacional de Seguros y Finanzas or CNSF) regulates microinsurance in the country since 2010.¹⁶ Microinsurance is defined by this commission as all forms of life, damage, accident and health insurance "with the purpose of promoting access to the low-income population, by means of low-cost means of distribution and operation."¹⁷ For damage related microinsurance, the maximum monthly premium is 1.5 the minimum wage in Mexico City of about US\$6.00 per day. Sales of these insurance products are made by non-traditional insurance providers such as bank branches and microcredit agencies. The regulation also establishes that microinsurance contracts can be sold by agents and insurance brokers, financial intermediaries (including micro-finance institutions) with adequate training programs, small firms and individuals with such training.

C. Catastrophe Insurance in Mexico

The insurance penetration rate in Mexico is only 2.3%, which is lower than many other countries in the region. However, analysts are confident that the market potential is huge -- local and foreign companies are looking to significantly augment their market share.¹⁸ In the market of

¹³ Ibid.

¹⁴ A2F Consulting. 2017. *The Landscape Of Microinsurance In Latin America And The Caribbean 2017: The World Map Of Microinsurance*. Microinsurance Network and Munich Re Foundation. https://microinsurancenet.org/sites/default/files/Landscape%20of%20MI%20in%20LAC_2017_Preliminary%20Briefing%20Note_EN.pdf (10 January 2018).

¹⁵ NextBillion. 2007. "Mexican Insurers Go For 'Microinsurance' - Nextbillion." *NextBillion*. <https://nextbillion.net/news/mexican-firms-explore-microinsurance/> (28 December 2017).

¹⁶ Secretaria de Hacienda y Credito Publico. 2010. Circular Unica de Seguros, November 8, 2010 [[http://www.cnsf.gob.mx/Normativa/CUS2011/Circular%20%20C3%9Anica%20Seguros%20compulsada%20sin%20anexos%20\(30%20Marzo%202015\).pdf](http://www.cnsf.gob.mx/Normativa/CUS2011/Circular%20%20C3%9Anica%20Seguros%20compulsada%20sin%20anexos%20(30%20Marzo%202015).pdf)]

¹⁷ Asociacion Mexicana de Seguros. No date. Definicion Legal [<http://www.microseguros.org.mx/definicion-legal/>]

¹⁸ EY. 2017. *Mexico Insurance Report 2018*. EY.

[http://www.ey.com/Publication/vwLUAssets/EY-mexico-insurance-report-2018/\\$FILE/EY-mexico-insurance-report-2018.pdf](http://www.ey.com/Publication/vwLUAssets/EY-mexico-insurance-report-2018/$FILE/EY-mexico-insurance-report-2018.pdf) (17 December 2017).

catastrophe insurance, public-private partnerships have been playing a major role, as is evident through Mexico's CADENA and FONDEN Fund.

CADENA

Mexico was one of the first countries to use macro-level catastrophe climatic agricultural index products as a social safety net for small farmers. The *Componente de Atención a Desastres Naturales* (CADENA) was launched in 2003 under the Ministry of Agriculture, Livestock, and Fisheries (SAGARPA) as a group insurance for crops. In the event of a natural disaster, the policy is triggered and funds are disbursed to all farmers in the group. It targets a specific group: small-scale, vulnerable farmers with no access to credit or insurance.¹⁹

Government subsidies make it advantageous for states to opt-in to the insurance. The private sector accounts for about 50% of participation in CADENA, with three private insurance companies comprising the majority of the private sector's activities.²⁰

FONDEN Fund

Mexico's Fund for Natural Disasters, FONDEN, is a financial mechanism set up in the late 1990s to support the rapid rehabilitation of infrastructure affected by adverse natural events.²¹ There are two complementary budget accounts: FONDEN Program for Reconstruction and FOPREDEN Program for Prevention.

Following the September 2017 earthquakes, Mexico supported the reconstruction of affected homes with funds from FONDEN. An investigation by the National Banking and Securities Commission (CNBV), however, found that Bansefi -- the bank responsible for resource distribution -- committed several irregularities, among which are the creation of more than 3,000 illegal cards as well as several million missing pesos.²² According to the report, the government program presents many inconsistencies, one of which is the intended beneficiaries not receiving any, or only a small portion, of the earthquake relief money they were designated.

¹⁹ World Bank. 2013. *CADENA Catastrophe Insurance : A Social Safety Net For Small-Scale Farmers In Mexico (English)*. Washington DC: World Bank.

<http://documents.worldbank.org/curated/en/124521468287160777/CADENA-catastrophe-insurance-a-social-safety-net-for-small-scale-farmers-in-Mexico> (10 December 2017).

²⁰ Solana, Miguel. 2015. *Making Public-Private Partnerships Work In Insurance*. Geneva: International Labour Organization. http://www.impactinsurance.org/sites/default/files/mp40_finalv.pdf (15 December 2017).

²¹ World Bank. 2012. *Mexico's Natural Disaster Fund - A Review (English)*. Washington DC: World Bank. <http://documents.worldbank.org/curated/en/408711468286527149/FONDEN-Mexicos-natural-disaster-fund-a-review> (15 December 2017).

²² El Financiero. "'Bansefigate': Detectan Fraude En Ayuda A Damnificados Por Sismos." *Elfinanciero.com.mx*. <http://www.elfinanciero.com.mx/nacional/bansefi-clona-a-damnificados-por-sismos-acusa-cnbv-y-mcci> (12 January 2018).

A payout of FONDEN's catastrophe bond with the IMF was triggered for the previous 8.1 magnitude earthquake in Chiapas, but not for the September 19 earthquake. CAT bonds provide protection against losses stemming from natural disasters through an indexed payout system. This absence of a payout may have explained FONDEN's sluggish response.

CDMX Earthquake Coverage Program

The CDMX Government announced a new earthquake coverage program in February 2018, five months after the September earthquake. All homeowners who currently pay property taxes are eligible for the new program without additional cost or paperwork. As illustrated in the table below, the total coverage amount is closely linked with the registered land value for tax purposes of a home under the framework.²³ However, experts and citizens alike believe that this announcement is likely to be an empty electoral promise.²⁴

Registered land value (in pesos)	Up to 500,000	500,000 to 1 million	1 to 2 million	2 to 3 million	3 to 10 million
Total coverage amount (in pesos)	Up to 350,000	Up to 600,000	Up to 900,000	Up to 1 million	Up to 1.3 million

D. Comparative Cases of Catastrophe Insurance

Some promising attempts in other Latin American countries can be used for reference. The SIPA team has consulted the cases of CODENSA-MAPFRE and MiCRO in designing an earthquake insurance product for Mexico.

CODENSA-MAPFRE in Colombia

As of 2013, 14.63% of the Colombian population had microinsurance, which is one of the highest rates in Latin America.²⁵ A novel microinsurance product has recently been developed by a public-private electric company, CODENSA, in collaboration with the insurance company

²³ Young, James. 2018. "Mexico City Unveils Earthquake Coverage Program." *BNamericas*. <https://subscriber.bnamericas.com/en/news/insurance/mexico-city-unveils-earthquake-coverage-program> (16 February 2018).

²⁴ Mexicanos Contra la Corrupción, GNP, Mapfre. (March 2018). Personal interview.

²⁵ Microinsurance Network and Munich Re Foundation. 2015. *WMM - Country Profile: Colombia*. Microinsurance Network. <https://microinsurancenet.org/groups/wmm-country-profile-colombia> (6 January 2018).

MAPFRE.²⁶ The product was aimed at increasing customer loyalty, in an increasingly competitive electrical market, by providing CODENSA customers with alternative products. Customers who opt to enroll in the climate and catastrophic microinsurance pay the premium through their monthly electric bills.²⁷ The deductible is 3% of the insured value of the policy. The product is designed with a low premium, ranging from USD \$0.30 to \$10.²⁸

MiCRO in Guatemala

The Microinsurance Catastrophe Risk Organization (MiCRO) is a specialty reinsurance company that provides index-based business insurance to low-income populations. In 2016, MiCRO launched a catastrophic index insurance in Guatemala, the first of its kind in Central America. This product is offered in partnership with Banrural, a Guatemalan bank, and Aseguradora Rural, an insurance company that is part of the Banrural group. Similar insurance products have since been rolled out in El Salvador and Honduras.

Anyone who receives a loan from Banrural is eligible to purchase MiCRO's business interruption insurance product. The payouts of this product are triggered when predetermined levels for three catastrophic events are reached: excessive rainfall, severe drought, and earthquakes. Payouts cover the full amount of the loan and depend on the level of deviation of the corresponding index from historical averages. Drought and extreme rainfall are based on satellite information from NASA, while the earthquake index uses ShakeMap by the United States Geological Survey (USGS). All the datasets are free and publicly available.²⁹

²⁶ Portafolio. 2010. "Los Microseguros, Una Alternativa Para Protegerse Cuando Se Tiene Poco Presupuesto." *Portafolio.co*. <http://www.portafolio.co/economia/finanzas/microseguros-alternativa-protegerse-presupuesto-236902> (20 December 2017).

²⁷ CODENSA. "Hogares - Seguro Para El Hogar." *CODENSA*. <http://www.codensa.com.co/productos-y-servicios/seguros/hogar-seguro> (10 January 2018).

²⁸ Moser, Andreas. 2007. "Innovative Microinsurance Products Property Insurance And Disasters."

²⁹ MiCRO. "Frequently Asked Questions - Micro Insurance." *MiCRO Insurance*. <http://www.microrisk.org/frequently-asked-questions> (20 December 2017).

II. Methodology

Data was collected through two different instruments: surveys and open-ended or semi-structured interviews. Surveys were specifically designed to understand the demand side of the insurance market, meaning the needs and preferences of affected populations. Interviews were conducted with experts from the insurance industry, government officials and other private and non-profit organizations to understand the supply side of the insurance market.

A. Research Questions

Overall Market

- Q1. What does the current market for an earthquake insurance look like?
- i. Who are the potential customers? (Income level, education level, household or individual, urban or rural)
 - ii. How did the potential customers cope with the disaster without having insurance? Did they have alternatives? If they did, what was their experience with these?
 - iii. Has the awareness of the importance of risk protection increased after recent disasters?

Index vs. Traditional Insurance

- Q2. What kind of insurance is best suited to address natural disasters such as earthquakes?
- a. Microinsurance vs. traditional insurance
 - i. What has been the level of profitability of microinsurance companies?
 - What type of events and categories do they cover?
 - Have they proven affordable for the population?
 - Which institutions would be willing to offer this product?
 - ii. Is index insurance feasible?

Distribution and Outreach

- Q3. How are insurance companies/government programs currently reaching customers?
- i. Are they employing a partner-agent network? Who are their distribution partners?
 - ii. What instruments are they using to get more customers on board?

Marketing Strategy

- Q4. Would customers be interested in purchasing earthquake insurance?

- i. What is the general perception about insurance in the mind of the target population?
- ii. Do customers find it a trustworthy tool for protection against risk?

B. Research Phases

Phase 1: Background/Desk Research – Early to Mid-December

During this phase, the team studied in depth all relevant cases to understand the market for climate insurance in Mexico. Particularly, the team conducted an analysis of the CADENA program and determined what aspects of it could be extended further.

Phase 2: Remote Expert Interviews – January to Mid February

In January, the team conducted remote interviews on Skype with supply side stakeholders, specifically insurance providers.

Phase 3: Market Analysis – End February to Mid March

After having conducted some interviews and desk research, the team designed surveys and interview guides to conduct the field research in March. During the same time, additional contacts were established with relevant authorities to facilitate information gathering and data collection.

Phase 4: Concept Testing, Validation and More Market Analysis – March Field Trip

During the field visit in March, the idea for a climate insurance product was tested based on further interviews and feedback from the relevant stakeholders both on the demand side as well as the supply side. Surveys were used to gauge the market for insurance from a customer's perspective while interviews were conducted with experts to determine the feasibility of such a product from a supplier's perspective.

Phase 5: Policy Recommendations and Report Writing – Late March – Mid-April

The final phase involved recommendations and strategies for an earthquake insurance program, aimed at mitigating the risks from such natural disasters for low income households. The recommendations are based on the analysis of the findings of the surveys and interviews, and have taken into account all opportunities and constraints that could affect the implementation of this insurance.

C. Field Research

The expert interview guides were designed in-house based on our findings from the desk research phase. Interviews were conducted remotely over skype and in-person during the field research in March, with experts from the government, insurers, reinsurers, brokers, and civil society organizations.

In addition to expert interviews, “street surveys” were also conducted with random passerby in town squares, marketplaces and grocery stores. The survey was designed in-house, then shared with the client for feedback. The survey was then tested on the first day in the field in Chapultepec Park, CDMX, upon which final adjustments were made. The field research included a total of 220 individuals surveyed, utilizing three mobile phones on which the team recorded results through Google Forms.

We surveyed people in town squares, marketplaces, parking lots in front of grocery stores, and small shops. The survey took three to five minutes to complete and was designed based on our contextual understanding in addition to the clients’ needs.

In our survey, household income is a key indicator for client segmentation. We used “Nivel Socioeconómico” (NSE) Index of the Mexican Association of Agencies of Market Research (AMAI) as our income segmentation. According to the NSE Index, the Mexican population is divided in seven levels, from high to low: A/B, C+, C, C-, D+, D and E. The corresponding salary level is calculated by household monthly income. For example, Group D’s earnings are between 3,130 and 7,799 pesos per month. Considering that our target clients are low-income families who often have inconsistent income, we converted monthly income into the closest weekly income data. Therefore, in our research, Group D is people who have weekly earnings between 800 and 2000 pesos. The same income measurement is used throughout the study.

D. Limitations

We are aware of some of the limitations of our methodology, which we outline below to clarify any factors that could influence the study. It is known that the data collected is not exhaustive due to limited time, resources, and human capital. Thus, there are four main points that require attention. First, the survey was only conducted once in each city and some follow-up questions were not able to be addressed by researchers in this project. For example, although we found that 60% of people rely on savings during the post-earthquake period, there is no follow-up to identify how much this cost affected victims’ normal life. Moreover, although the surveys were

designed with the affected population's needs in mind, they were not designed with the user. Thus, the research makes certain assumptions based on literature reviews, background knowledge, and qualitative opinions shared by experts in the field.

Second, complexity arises from the partnership with local Compartamos Banco in that the sample selection may not be representative. To facilitate our research, researchers chose three cities where Compartamos has a strong presence. In addition, Compartamos employees worked with researchers during the implementation of the surveys. Therefore, Compartamos' presence during the research might lead our results to reflect individuals' (positive or negative) bias toward Compartamos or the concept of banks.

Third, in this research, individual sample selection was random but collected in different sizes in distinct localities. This inconsistency complicated the ability to run thorough statistical analyses which we then compensated for with statistical tests. Furthermore, we only surveyed individuals in regions that were affected by the September 2017 earthquakes, which means it would be difficult to extrapolate the findings to other regions that had dissimilar experiences with the most recent earthquake. Thus, these aforementioned factors limit the study's replicability and scale.

Fourth, household income was used in our research instead of individual income, which might bring a lack of consistency with other data. Researchers recognize that using individual income would be more accurate when analyzing individual preferences. However, we find that household income is a more realistic approach to record interviewees' financial situations because it is in line with the NSE of AMAI .

III. Findings

A. Demand Side

1. Respondent Profile

Age, Sex and House Ownership: We completed 220 surveys from March 10-20, 2018. We randomly sampled respondents, of which 57% were women and 43% were men. There were 37% of respondents between the ages of 35-55 and 46% of the respondents lived in a family-owned house. While 41% of men owned their house, only 20% of the female respondents owned their house. Living with family members is very common; 39% of the men and 51% of the women reported they lived in a house owned by a family member other than themselves. (Figure 1., a more detailed breakdown of the respondents' age and home ownership can be seen in Figures A1. and A2.)

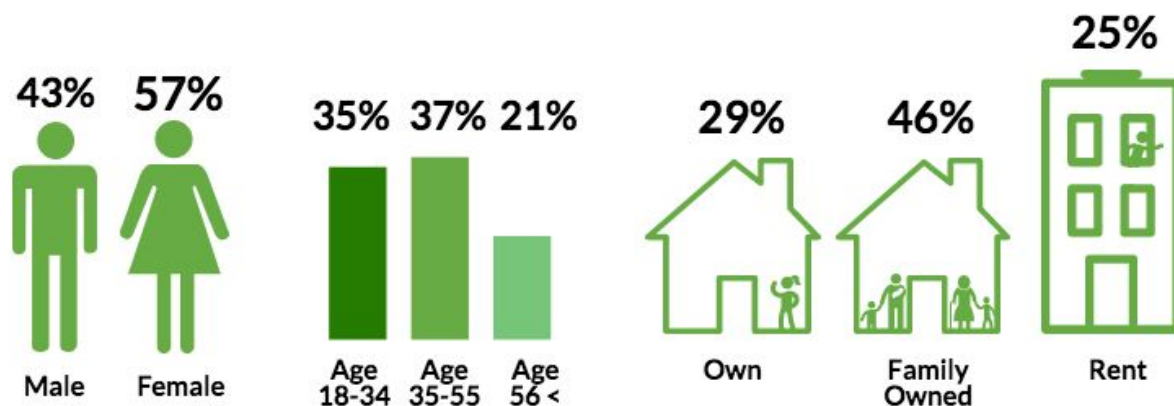


Figure 1. Age, sex and ownership distribution

Income Level: Household income ranges from less than 800 pesos per week to more than 25,000 pesos per week. The majority (42%) of respondents' household income is between 801-2000 pesos per week, corresponding to population income strata D, which has monthly earnings between 3,130 and 7,799 pesos. This is the second lowest group of the seven socioeconomic groups of NSE Index for Mexico. (Figure A3.)

Regarding individual income, there is unexpectedly no significant gender difference. This could be because many of the females were at their place of employment when they were surveyed at

markets and in local shops. Likewise there was not a significant difference in the household income reported by men and women. (Figure A4. & A5.)

Damage Condition: The majority of respondents in all three cities -- Mexico (53%), Atlixco (49%) and Puebla (87%) -- reported no loss due to the earthquake. However, among those who did report damages, 95% of them reported losses to the structure of their house, such as to the walls and ceilings. (Figure A6)

Besides structural damage, many people who reported no damage also had their livelihoods affected due to a partial or complete hiatus of employment. A sizeable number of respondents (41.8%) reported a drop in income (or even job loss) and half of them were not paid for the days of work they missed. Although this was not a survey question, 6% of respondents mentioned in the open comment that they did not miss work but that their business sales dropped significantly, impacting their livelihoods. (Figure A7)

2. Interest and Purchase Willingness in Earthquake Insurance

A total of 67.9% of respondents expressed interest in purchasing an earthquake insurance and 60.6% are willing to pay at least 34 pesos per month for the insurance. This marked interest in earthquake insurance was the same for men and women. We distinguished people's interest in this insurance and their willingness to purchase. Only those who reported interest in this insurance were asked about willingness to purchase. Considering the profit driven nature of the insurance business, we use Actual Willingness to Purchase as the main variable in our analysis below.

$$\text{Actual Willingness to Purchase} = \text{Interest Ratio} \times \text{Purchase Willingness}$$

Willingness to purchase insurance is associated with the level of damage suffered (no damage, house structure damage, or both), which is mediated by household income levels (0->25,000). Contrary to expectations, more damage is not generally associated with an increase in people's willingness to purchase (damage 49.7% vs. no damage 55.9%, not a significant difference at a 0.05 significance level). However, when we segment answers by income levels, we find that people who earn between 2,000-10,000 pesos have a relatively stable willingness to purchase across different income levels and damage levels. For people earning between 0-2,000 pesos, particularly 0-800 pesos, their willingness to purchase is associated with household income. (See Figures 2 & 3)

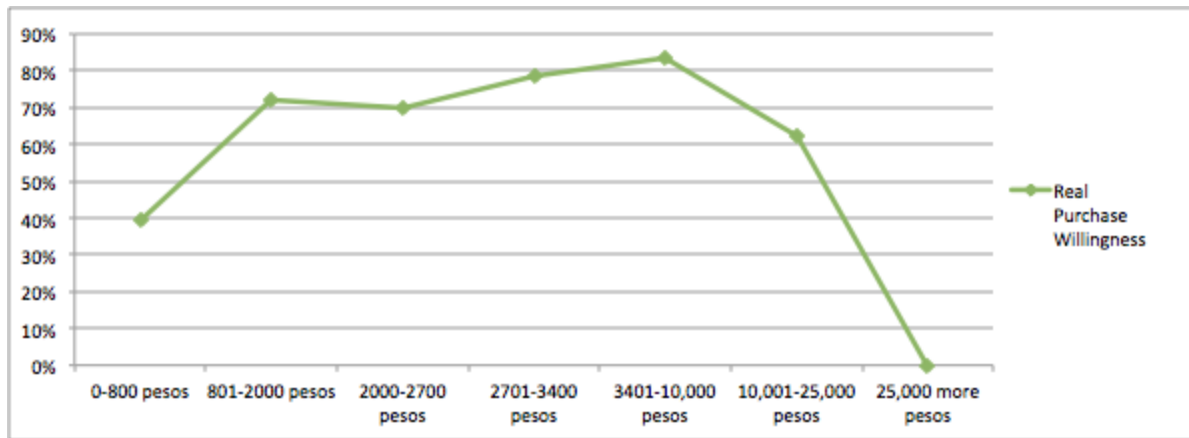


Figure 2. Inverted-U curve relation between household income and Real Purchase Willingness

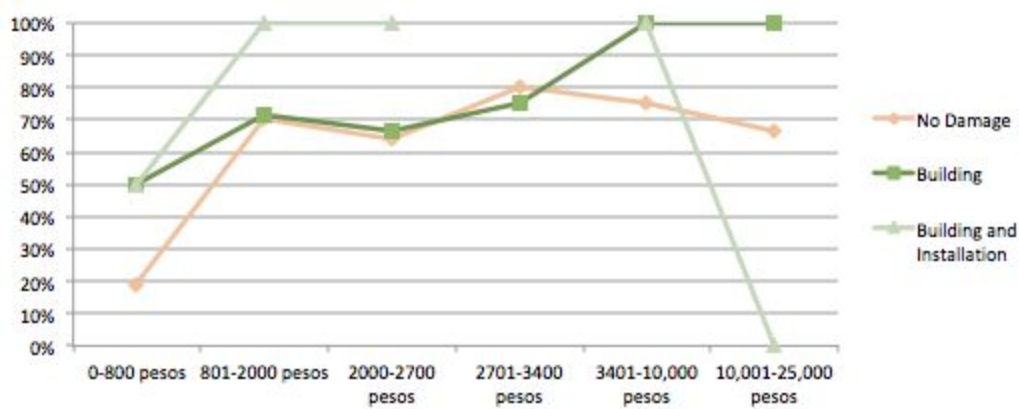


Figure 3. Mediation effect of household income (pesos) in the relation between damage level and Real Purchase Willingness ratio (%)

Lastly, we find that people with private insurance have a slightly higher willingness to purchase than those who do not have private insurance (71.4% vs. 67.2%). But again, the difference is not statistically significant.

These findings point to the fact that our product should target people earning between 800-3,400 pesos weekly, no matter the level of damage or previous experience with insurance.

3. Preferred Product Design

What to Cover?

In terms of claiming benefits, 33% of respondents prefer to receive their claim as a cash payout and 67% prefer a service-based claim, such as having someone repair their walls. In addition, people’s preference for cash or service is significantly associated with household income ($p = 0.032 < 0.05$). People earning between 800-2,000 and 2,700-3,400 pesos have a strong preference for service; while for the rest, there is a 50-50 ratio on both choices. Of those who expressed interest in buying insurance, 58% stated that fixing the walls and the roof were of utmost priority in terms of insurance coverage (Figure A8).

Who Should Offer it?

Immense distrust of the government and banking sector was evident when we surveyed individuals about their provider preferences. Specifically, the question regarding a preferred provider for insurance generally took respondents longer to answer and many expressed frustration at having to pick the “lesser of three evils.” In fact, 17% of respondents were either unable to pick one provider or needed more information to be able to state a preference. Nevertheless, 39% of respondents said they would prefer that an insurance company offer the product, while 30% stated that the government should be the one to provide this service, and 10% preferred a bank.

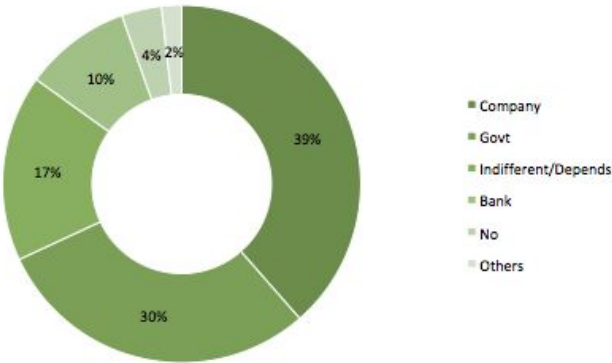


Figure 4. Insurance Provider Preference

Where to Pay Insurance Premiums?

Generally speaking, people prefer to pay in convenience stores such as Aurrerá and 7-Eleven, followed by banks, mobile phones, insurance companies’ branches, and others (Figure 5).

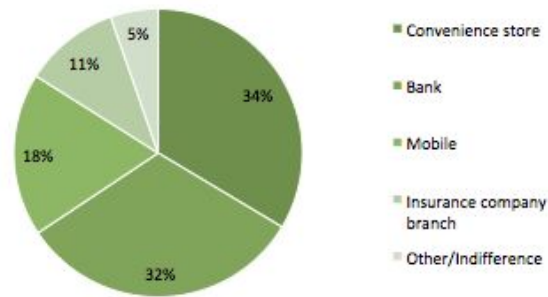


Figure 5. Preferred payment method (%)

However, respondents’ preferences for payment is associated with regions. If we look at the geographical segmentation, CDMX residents have similar preferences for convenience stores, banks, and mobile payments. In Atlixco, people significantly prefer convenience stores, which may be due to the fact that we surveyed people close to an Aurrerá in Atlixco. In Puebla, people especially prefer making payments at banks and have a much higher preference of mobile payments than Atlixco. (Figure 6) Due to limited time for this research, we cannot conclude whether it is a regional preference. We suggest that further studies pay special attention to regional differences in consumption behaviors.

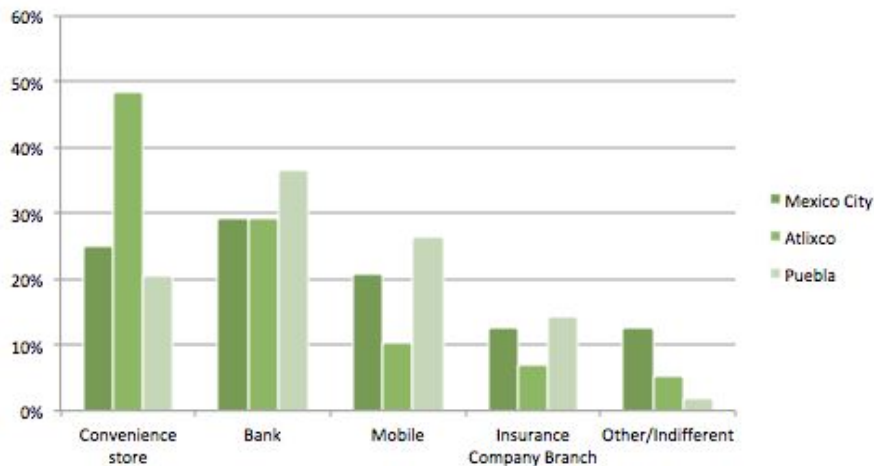


Figure 6. Preferred payment location is associated with regional difference (%)

Lastly, there are different payment preferences among different ages, income levels, and professions (Summarized by Figure 7. For detailed information, please see Annex Figure A9.).

Respondents of all ages show a willingness to pay at a bank. Particularly, people who are working in the public sector or running a business have a strong preference for paying at banks, where they go frequently and routinely. People earning between 800-3,400 pesos per week strongly prefer bank payments (almost 50%). This might be due to an increasing familiarity to banks in Mexico; as reported by World Bank, 44% of Mexicans have a bank account.³⁰ Respondents of all ages and professions are willing to pay their insurance premiums in convenience stores. Convenience stores are particularly favored by people whose household wealth is between 0-800 pesos per week (45% people choose convenience store).

Mobile payment is not the most favorable payment method. Unsurprisingly, people between the ages of 18-35 years have a slightly higher than average preference for mobile payments. However, across all industries, no particular group shows a preference toward mobile payments. We find that people with high household wealth exhibit the highest preference for mobile payments (67% of people who earn between 10,000-25,000 choose mobile payment). This may be associated with their access to mobile phones and higher education level. In Mexico, there are around 70% of people own cell phones while the penetration growth rate is lower than 0.8% each year.³¹ Therefore, considering the low penetration rate of mobile phones in low-income families, the extra data costs, the relatively lower capacity in learning new technology, and a lack of trust in modern products, we would not suggest mobile payment in the first launch of this insurance.



Figure 7. Summary of customer profiles for different purchase approach

³⁰ World Bank. 2016. "Mexico To Accelerate Path To Financial Inclusion." *World Bank*.

<http://www.worldbank.org/en/news/feature/2016/06/23/mexico-to-accelerate-path-to-financial-inclusion> (30 April 2018).

³¹ Statista. "Mobile Phone User Penetration Mexico 2012-2020 | Statistic." *Statista*.

<https://www.statista.com/statistics/183604/mobile-phone-user-penetration-in-mexico-since-2009/> (30 April 2018).

4. Preferred Marketing Approach

Incentive to purchase

A total of 36% of the respondents stated that they consider the provider's reputation as the most important factor when making the decision to purchase insurance, followed by price (26%). Government support for purchase (17%) is particularly favored by people who earn 0-2,700 pesos per week (average ratio 23.93%). It was surprising that advertising and publicity did not appear as a strong incentive for purchase (3%). This may be attributed to the significant lack of trust that people in Mexico have toward insurance companies in general. When consumers do not believe in a certain product, advertising and publicity cannot do much to influence their perceptions (Figure 8 & A10.)³²

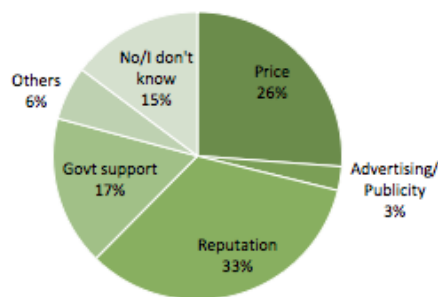


Figure 8. Incentive to purchase

Communication Channel

Social media is the preferred channel of communication, with 38% of respondents claiming that social media is the best way to hear about new types of earthquake insurance products. This is followed by preferences for television and radio. Some people reported that they would like to hear about the new products directly from representatives of the financial institution that is offering it. This is interesting given that respondents did not seem to trust insurance institutions but have some affinity toward banks and microfinance institutions (Figure A11.).

The male/female disaggregation shows that while social media might be a more popular means to reach potential male customers (47%), for female customers television is a better suited channel (32%) (Figure A12.)

³² Doty, Carlton. 2014. "Marketers: Consumers don't trust your ads." *Adage*. <http://adage.com/article/cmo-strategy/marketers-consumers-trust-ads/292591/> (20 April 2018).

As expected, the age breakdown shows that 58% of young respondents (between 18 and 34 years old) would like to hear about a new product through social media. On the other hand, among those who are older than 55 years of age, the majority (39%) prefer to have a representative from a bank or financial institution as their source of information (Figure A13.)

When analyzed across income levels, the preference for social media as a medium for awareness about new products increases with income. This may be due to the cost of owning a smartphone or computer on which to check social media. Of those who earned more than 3,200 pesos per week, most respondents (69%) expressed their inclination toward the use of social media. The next most popular channel across income levels was television/media. (Figure A14.)

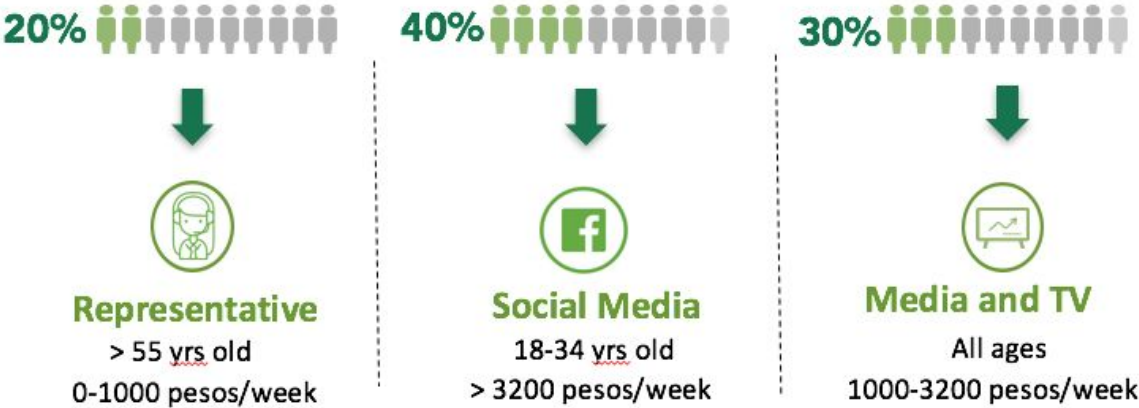


Figure 9. Summary of customer profiles for different marketing approach

The survey results give an insight into the needs and preferences of the client base. We need to further understand what is feasible from an insurance provider’s point of view in order to design an adequate product to mitigate the strain of earthquakes for low income households.

B. Supply Side

To gain insights into the supply side of the climate of catastrophic insurance in Mexico, we interviewed experts from the following organizations. Our findings are based on their experience and background research.



Figure 10. Summary of Experts Interviewed

Regulatory Instruments

We conducted twelve interviews with experts from various backgrounds in insurance, reinsurance, microfinance, journalism, and climate risk mitigation. Before diving into the industry findings for feasible climate insurance products, it is important to highlight that various stakeholders mentioned **regulatory instruments** as an ideal way of kickstarting the market adoption of insurance products. Many countries, particularly those who are vulnerable to climate and catastrophic risks, have instituted **mandatory insurance laws**, which could create a broad competitive market for earthquake insurance, for example. However, a market of this size may also lead to high fees and information asymmetry.

Short of mandatory insurance laws which are a long-term goal, Doctor Sergio Puente of the Colegio de México A.C. recommends that the government set up a **structural safety certification for buildings**.

Index Insurance

The traditional insurance market in Mexico is formally regulated to the highest international standards, but the discretion with which these regulations are enforced is problematic, according to an industry informant.³³ These complex regulations are accompanied by high capital requirements for companies operating in Mexico, which do nothing to expand the very poor rate of insurance penetration in Mexico. **Index insurance**, however, is relatively unregulated. This may allow for more flexibility in regards to the structure of a microinsurance product linked to less stringent capital requirements of firms and smaller premiums for clients.

Insurance professionals from large multinational companies, such as Liberty Underwriter Insurance, agree with small microfinance institutions such as MiCRO that **index insurance** is the fastest and easiest way to provide beneficiaries their coverage immediately following a natural

³³ Interview, Yves du Hayaux Tilly, February 14, 2018.

hazard. Indeed, from a market supply side, it is more efficient and streamlined to be able to disburse based on a predetermined set of indices, rather than having to assess each individual claim before unlocking the benefits. While some favor a **mixed approach**, where an assessment can take place once the index is triggered, the majority agree that the pre-determination of an index of destruction is useful for the provision of microinsurance.

Distribution Channels

Another common feeling among insurance professionals in Mexico was that traditional models of insurance would not fulfill the goal of providing protection to those that need it most because the current distribution channels are inadequate. Many currently existing forms of property insurance are very complex and therefore very expensive. The **complex nature of existing insurance** has fed the **growing distrust** of insurance because people may not truly understand what their loan covers. This gives clients the impression that the company is not paying them what they are owed and that insurance companies are sharks or thieves. It is vital that lending institutions spend time designing simpler and more direct forms of coverage with cheaper premiums if they want to broaden their client base.

Beyond simplifying their insurance policies to target earthquake damage, insurance companies have also stressed the need to identify **brokers** with wide reaching networks in order to explain and sell this insurance. The precise mode of distribution will vary widely based on who the primary provider is, but the question of **distribution channels** is clearly a central one. Failing to elect an adequate distribution channel could lead to slow uptake, which would in turn lead to higher premiums, thus kickstarting a vicious cycle of price hikes and client base decline. The viability of earthquake microinsurance depends on the simultaneous alignment of multiple market stakeholders, from brokers to insurance providers to reinsurers.

While the supply side of the potential earthquake microinsurance market has provided us with encouraging insights, it has also highlighted some of the **foreseeable difficulties** in launching this type of product. For instance, certain insurers predict a problem with horizontal property. If you own an apartment, you can insure your apartment against damages but if the entire apartment complex falls down and no one else in your building has purchased insurance, then the compensation you receive will not be enough to rebuild your house. Doctor Sergio Puente calls this the imperative of **co-responsibility**.

IV. Recommendations

A. Microinsurance Products to Mitigate Earthquake Risk

The following recommendations attempt to bridge the gap between demand-side needs and supply-side feasibility to best mitigate the impact of earthquake hazards for low-income urban populations in Mexico. The recommendations cover product design, partnerships, outreach and risk mitigation. We also outline an initial pilot strategy.

Recommendation 1: Product Design

We recommend that Mexico design an index earthquake insurance product, bundled with another financial product -- such as a loan -- or with a service, like one's electricity bill, or property tax. We further recommend that the product be designed for benefits to be received as a cash payout and that the premium payments occur in convenience stores and banks.

1.1 Index Insurance

To create an earthquake index, we recommend to take a three-step action plan:

1. Collect archival information on the magnitude of previous earthquakes, the corresponding damage, and how much FONDEN has paid out in each instance.
2. Aggregate publicly available sources of seismic data from NASA, the World Meteorological Organization, the Global Seismographic Network, Mexico's Servicio Sismologico Nacional at UNAM, and the United States Geological Survey.
3. Build database to set up earthquake trigger metrics and pricing with actuaries.

Index insurance addresses two of the most prominent concerns of insurance providers and the Mexican public--complexity and corruption. Furthermore, while many of the respondents indicated that they had physical damage (property, belongings), many individuals also indicated they experienced a loss in income due to days missed from work, or a decline in business following the earthquake. An index insurance would pay out to everyone in the area where the index was triggered and could help cover both damages and the drop in income. Furthermore, index insurance is the fastest and most efficient option to distribute coverage to a multitude of beneficiaries immediately following an earthquake, making it more desirable for both providers and beneficiaries alike.

1.2 Insurance Bundled with Another Product or Service

We recommend that an earthquake insurance product in Mexico be bundled with another financial product or service -- such as a loan, electricity bill, or property tax -- as opposed to an independent stand-alone insurance product.

One of the problems that the SIPA Workshop Team identified is that insurance providers have trouble reaching large networks of potential clients. With a traditional independent insurance product, the companies bear the responsibility of reaching out to clients through a massive advertising campaign. Due to the lack of insurance penetration in Mexico, the cultural attitudes toward insurance in general, and the complexity of current property insurance policies, it does not seem feasible to launch an independent product to adequately protect low-income households from earthquake hazards.

With a bundled insurance, the insurance premium is added to a pre-existing bill or payment, which makes it easier for both the client and the provider. The insurance provider gains instant access to a wide network of clients by partnering with a third party system. Since the client base would be larger, the insurance premium would decrease. This would encourage more people to buy the insurance, thereby creating a positive feedback loop.

Insurance Bundled with Loan		
Potential Partners	Pros	Cons
<ul style="list-style-type: none"> ⇒ Compartamos Banco ⇒ CrediConfia ⇒ BBVA Bancomer ⇒ Citibanamex 	<ul style="list-style-type: none"> ⇒ Existing distribution channels and partners ⇒ Easy for advertising and payment 	<ul style="list-style-type: none"> ⇒ Smallest customer base among the three options ⇒ More risks for private providers: loan default risk & payout risk ⇒ Dependence on the discretion of private providers
Insurance Bundled with Electricity Bill		
Potential Partners	Pros	Cons
<ul style="list-style-type: none"> ⇒ Comisión Federal de Electricidad ⇒ MAPFRE ⇒ GNP 	<ul style="list-style-type: none"> ⇒ Largest customer base among the three options ⇒ Public-Private Partnership, better project risk allocation and fewer regulatory barriers 	<ul style="list-style-type: none"> ⇒ Additional investment in marketing and financial education ⇒ Difficulties in building partnership with electricity companies
Insurance Bundled with Property Tax		
Potential Partners	Pros	Cons
<ul style="list-style-type: none"> ⇒ CDMX Government ⇒ MAPFRE ⇒ GNP 	<ul style="list-style-type: none"> ⇒ Access to government funds ⇒ Public-Private Partnership, better project risk allocation and fewer regulatory barriers 	<ul style="list-style-type: none"> ⇒ No mature model yet ⇒ Additional investment in marketing and financial education ⇒ Difficulties in law enforcement ⇒ Threats of policy discontinuity due to potential shifts in government leadership ⇒ Possibility of corruption

Figure 11. Summary of Pros and Cons for Each Different Type of Bundle

1.3 Cash Payouts

Our study shows that the impact of the earthquake, in general, was mainly economic, due to the aforementioned effects on labor.

In our survey, people expressed a preference for receiving a service rather than receiving a cash payout (67% vs 33%). For a service-based product, the insurance company would send someone to repair the damage to the building structure, for example. However, a service would not offer optimal coverage for those who had economic losses to their income or business. In order to cover both effects, those who suffered damages to their homes and those who suffered a loss in

income, the best option would be a cash payout to all those in the area affected once the index of the insurance is triggered for the predetermined and corresponding coverage level.

1.4 Payment at Convenience Stores

The majority of the respondents (34%) in our survey chose convenience stores as their preferred place to pay for insurance, independently of their age or socioeconomic level. Therefore, we recommend this payment method in terms of ease of access for the clients. The second preferred location to make payments was at the bank (32%), but some of the respondents commented that the long lines at banks are a problem. Thus, we recommend that clients be offered the option to pay insurance premiums at convenience stores and/or at a bank.

Potential convenience stores with whom to partner: 7 Eleven, Oxxo, Superama, Circle K, or larger grocery stores, such as Aurrerá and Wal-Mart.



Figure 12. Top 3 Mexican Supermarkets by Market Share in 2016³⁴

Recommendation 2: Public Private Partnership (PPP)

We recommend that the insurance product be offered through a PPP, as opposed to being solely offered through the government or a private company. Survey results show that respondents are split in their opinion of the ideal service provider; while 39% prefer a private insurance company offer the product, 30% prefer the government as the insurance provider. Therefore, we recommend a PPP to address client preferences and concerns. This would require the creation of an oversight board composed of experts from:

³⁴ Celis, Fernanda. 2017. "Estos Supermercados Son Los Dueños De Tu Quincena." *Forbes México*. <https://www.forbes.com.mx/estos-supermercados-son-los-duenos-de-tu-quincena/> (20 April 2018).

- The Secretariat of Social Development in partnership with the Ministry of the Interior, which also houses FONDEN;
- The Financial Institution which is offering the loan;
- The Broker (if different from the financial institution);
- Civil society, to make sure that the product is designed with the user in mind;
- Asociación Mexicana de Instituciones de Seguros (AMIS);
- Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros (CONDUSEF);
- ProDesarrollo, Finanzas y Microempresa, A.C.

We do not recommend a product be offered solely by the government due to distrust of the government following its failure to adequately provide assistance after the September 2017 earthquakes. Additionally, the government is not subject to the same regulations as private companies. For example, private companies must meet capital requirements to be solvent, proving that they are capable of covering beneficiaries; the government can offer a product with zero evidence of viability, which appears to be the case of the earthquake property insurance for homeowners in CDMX. This is evident as none of the insurance experts we interviewed believed the CDMX insurance to be viable and we were unable to identify a department of the government dedicated to this project.

While the product could feasibly be offered by private insurance companies alone, it is not recommendable. Regulations increase the cost of products, making it less profitable, which is not attractive to a private insurer nor to our target client base. Thus, the best option is for a public-private partnership to offer the insurance product because of the difficulty in meeting the capital requirements required for private companies to offer a catastrophic microinsurance.



Figure 13. Summary of Stakeholders

2.1 Purchase Incentive Subsidy

Currently, we operate under the assumption that earthquake insurance will be optional in the short-term. One long-term plan could be for the government to incentivize the purchase of the insurance through subsidies. CADENA was very successful in subsidizing insurance for states, as all the states opted to purchase the insurance in 2017, thus offering universal coverage.

We believe a similar process would be beneficial for states affected by natural hazards, in this case, earthquakes. Thus, we recommend that the government provide a purchase incentive subsidy in the long-term to reach maximum coverage. Furthermore, we recommend that the government strive to make earthquake insurance mandatory in the long-term to maximize protection and drive down the cost of the premium. Cognizant of the fact that FONDEN has received a new catastrophe bond, we recommend that FONDEN be incorporated in the PPP.

Recommendation 3: Outreach

3.1 Advertisements through Social Media and Television

We recommend that this new insurance be advertised primarily through social media, as well as on television in order to reach those who do not use social media.

Survey results revealed that a plurality of respondents (38%) marked social media as the best communication channel to advertise the insurance. This percentage increased to 58% for those aged 18-34. Internet users in Mexico are among those who spend the most time on social media (ranking fourth globally).³⁵ According to a 2018 study by UNAM, over 51% of the population is connected to the internet and have social media profiles.³⁶

3.2 Clarity in Coverage

A total of 36% of the respondents stated that they would consider reputation as the most important factor when purchasing insurance. Due to the general distrust toward insurance companies, a good reputation among the clients is one of the most valuable assets for a company. One way to gain trust is to avoid a mismatch of expectations. With this aim, there must be clarity in what is covered under the insurance: conditions under which the coverage would be triggered, what would be covered, and which benefits the person insured would receive.

³⁵ Ibid.

³⁶ “México, cuarto lugar a nivel mundial en uso de redes sociales”. 18 January, 2018. *Excélsior*. <http://www.excelsior.com.mx/hacker/2018/01/18/1214650>

A general comment from our interviews with Mexican citizens was the problem with the fine print of insurance clauses. This generates doubt and distrust among potential clients and needs to be addressed through simpler insurance policies.

3.3 Financial Education Programs

Another reason coverage can be misunderstood is the population's low level of financial literacy. Consequently, we would recommend an educational component be included in the earthquake insurance. This has been previously done by MiCRO, which provides information about how business interruption insurance works, and how their insurance policy covers specific catastrophic events. Also Compartamos Banco includes an educational component in all their insurances, as a representative is sent to explain what is covered to the clients, using easy examples of events and making sure that the clients understand how it works.

Recommendation 4: Risk Mitigation

4.1 Structural safety certification for buildings

Following the 1985 earthquake in Mexico City, the CDMX Government put in place new building codes to withstand earthquake hazards. On paper, these codes are among the best in the world but in practice they are inconsistently enforced. Indeed, building inspections have been outsourced to a network of private engineers who are paid directly by the developer, which opens the door to corruption.³⁷ A 2016 survey found that 71% of inspected buildings did not meet a high threshold of compliance to CDMX standards.³⁸

To address these inconsistencies in building standards, an independent certification commission should be convened by state level governments to provide structural safety certifications for buildings, based on the regional natural hazard risks. Once the commission verifies that the building is up to code, the owners of buildings in seismic zones could proudly display their certification in the lobbies of apartment buildings or restaurant fronts.

The certification process would be entirely voluntary, thus making it cheaper for the government to roll out. The voluntary nature of the certification would also create a business and financial incentive to demonstrate the superior structural quality of your building.

³⁷ Ahmed, Azam, Marina Franco, and Henry Fountain. 2017. "Luck, Not Tougher Building Standards, Spared Mexico In Quake." *Nytimes.com*.
<https://www.nytimes.com/2017/09/23/world/americas/mexico-city-earthquake-buildings.html?mtrref=undefined&gwh=9A9A67219DA25CC848AB710CAA623297&gwt=pay> (10 April 2018).

³⁸ Ibid.

Recommendation 5: Pilot Strategy

5.1 Targeted Income

We recommend the insurance product be targeted at individuals with a household income of 800-3,400 pesos per week. This group of individuals expressed the strongest willingness to purchase earthquake insurance (>70%) among the survey respondents. Our results show that when household income is above 2,000 pesos per week, income does not affect their willingness to purchase -- irrespective of damage from the earthquake, they are interested in purchasing insurance.

5.2 Client Preferences

For the targeted income group, we recommend the following strategy based on our findings:

1. What motivates them to purchase insurance: reputation of the product and provider
2. Where to advertise the insurance product: Television
3. Payment location: Bank branches (>40%)

Respondents with a weekly household income of 800-3,400 pesos exhibited the strongest willingness to purchase earthquake insurance. This segment of the population therefore seems the ideal target for a pilot.

The following box contains results and findings aimed specifically at Compartamos Banco.

⇒ Compartamos Banco

Methodology:

The SIPA Workshop Team conducted eight focus groups with a total of 45 Compartamos clients in small villages and rural areas in the state of Puebla. All participants have loans from Compartamos and are already familiarized with other insurance products bundled with their loans.

The focus groups and street surveys are used to compare the perspectives of those who are already Compartamos clients with those of the general public, respectively.

Interest in the Insurance:

All Compartamos clients expressed interest in an earthquake insurance. In the focus group discussions, participants expressed fear of future earthquakes. Compartamos clients thought that a monthly price of 67 pesos for earthquake insurance was reasonable, even when they had initially expressed concerns regarding their capacity to afford insurance.

The survey data lead to the same conclusion: there is a general interest in an earthquake insurance. A total of 67.9% of respondents expressed interest in purchasing an earthquake insurance and 60.6% are willing to pay at least 34 pesos per month for the insurance.

It must be noted that 42% of survey respondents earn between 3,200 and 8,000 pesos per month, which belongs to socioeconomic level (NSE) “D” of the Index of the Mexican Association of Agencies of Market Research (AMAI). As Compartamos focuses on levels C-, D+ and D, the results of our research are highly relevant for their client profile.

Recommendations

Recommendation 1: Product Design

We recommend Compartamos offer its loan clients an index earthquake insurance product in Mexico, bundled with their loans as a voluntary opt-in. Our study shows that bundling insurance with another financial service is the best option for access to customers. We further recommend that the product be designed in a way that is clear, accessible, adequate, and convenient for clients.

1.1 Index Insurance

Index insurance addresses two of the most prominent concerns of insurance providers and the Mexican public: complexity and corruption. While some respondents indicated that they had physical damage from the earthquake (property, belongings), many individuals also, or instead, experienced a loss in income due to days missed from work, or a decline in business following the earthquake. An index insurance would distribute benefits to everyone in the area where the index was triggered and could help cover both damages and the drop in income. Furthermore, index insurance is the fastest and most efficient option to distribute coverage to a multitude of beneficiaries immediately following an earthquake, making it more desirable for both providers and beneficiaries alike.

To create an earthquake index, we recommend a three-step action plan be taken:

- 1) Collect archival information on the magnitude of previous earthquakes, the corresponding damage, and how much FONDEN has paid out in each instance.

- 2) Aggregate publicly available sources of seismic data from NASA, the World Meteorological Organization, the Global Seismographic Network, Mexico's Servicio Sismologico Nacional at UNAM, and the United States Geological Survey.'
- 3) Build database to set up earthquake trigger metrics and pricing with actuaries.

1.2 Insurance Bundled with Loan in the first stage

Since Compartamos clients are already familiarized with other insurance products and they all expressed interest in this additional coverage, starting with a pilot earthquake insurance program would be a sensible option. Bundling the earthquake insurance with an already existing microloan would be the best option because of the ease of accessing pre-existing clients.

1.3. Entering the Open Market

The data shows that there is a general interest among the Mexican population in earthquake insurance, which could be a good opportunity for Compartamos to launch this type of product. However, at this time, we do not recommend that Compartamos enter the "open market" because accessing new client networks is too tenuous.

The majority of survey respondents (39%) did say they would prefer a private insurance company offer this earthquake insurance. However, only 10% preferred a bank to offer the insurance. Thus, Compartamos could reevaluate their options for expanding into the open market at a later time.

1.4 Cash Transfer

When asked about the most important aspect of coverage, 58% of respondents identified repairing damaged walls and roofs as the priority. However, we noticed that the majority of respondents had not suffered damages themselves but had missed days of work or suffered a catastrophic drop in business sales. Thus, economic activity seemed to be impacted more than infrastructure.

In our survey, people expressed a preference for receiving a service above receiving a cash transfer. In the case of repairing a building, for example, the company would send some workers to repair the structures affected. However, a service would not provide optimal coverage for those who experienced economic losses in their salary or business. In order to cover both -- those who suffered damages in their building and those who suffered an income loss -- the best option would be a payout to all those in the area affected once index of the insurance is triggered.

One Compartamos client suggested during a focus group that they would like to receive construction materials and that community members would then help with rebuilding. In remote areas where construction materials are sparse, providing clients with logistic support could add value to the Compartamos insurance.

1.5 Payment at Yastás

The majority of the respondents (34%) in our survey chose convenience stores as their preferred place to pay for insurance, independently of their age or socioeconomic level. Therefore, we recommend that Compartamos design an insurance product payable through Yastás for ease and convenience of the client. The second preferred location to make payments was banks (32%), but some of the respondents commented that the long lines at banks are a problem.

Recommendation 2: Outreach

2.1 Advertisements through Social Media and Television

We recommend that Compartamos advertise new insurance products primarily through social media. Those who do not use social media continue to prefer television as a means to hear about new products.

Survey results revealed that a plurality of respondents (38%) marked social media as the best communication channel to advertise the insurance. This percentage increased to 58% for those aged 18-34. Internet users in Mexico are among those who spend the most time on social media (ranking fourth globally).³⁹ According to a 2018 study by UNAM, over 51% of the population is connected to the internet and have social media profiles.⁴⁰ Thus, we recommend a strong social media advertising plan.

2.2 Clarity in Coverage

A total of 36% of the respondents stated that they would consider reputation as the most important factor when purchasing insurance. Due to the general distrust toward insurance companies, a good reputation among the clients is one of the most valuable assets for a company. One way of gaining trust is avoiding a mismatch of expectations. With this aim, there must be clarity in what is covered under the insurance: conditions under which the

³⁹ Ibid.

⁴⁰ “México, cuarto lugar a nivel mundial en uso de redes sociales”. 18 January, 2018. *Excélsior*. <http://www.excelsior.com.mx/hacker/2018/01/18/1214650>

coverage would be triggered, what would be covered, and which benefits the person insured would receive.

A general comment from our interviews with the Mexican citizens was the problem with the fine print of insurance clauses. This generates doubt and distrust among potential clients and needs to be addressed through simpler insurance policies.

V. Risks and Challenges

It is a challenging time to implement this type of project in coordination with the government ahead of the presidential election on July 1, 2018. At this time, it is uncertain whether an earthquake insurance would be on the political agenda of the elected government. The five-month transition period between governments might be a propitious time to build consensus around reforms to strengthen earthquake risk mitigation. It is therefore important to get issues onto the agenda before December 1st, 2018.

Another risk is that the recommendation of incentivizing the purchase of this insurance through subsidies would require a large amount of government resources. It would be an expensive program, which leads to uncertainty about whether the government would be interested in participating in the PPP. However, the announcement of a new property insurance in CDMX points to an early willingness of the government to participate.

The insurance sector in Mexico also faces major challenges. The low levels of penetration are mainly due to the lack of an insurance culture and distrust toward insurance companies. Cultural attitudes are difficult to change and it is a process that requires time. Although most of the citizens surveyed expressed interest in an earthquake insurance, there is no certainty about whether they would embrace the product if it were offered.

To address the difficulty of accessing client networks, we recommend a bundled insurance. However, we are aware of the potentially coercive nature of opting-in to a bundle, as clients may be pressured to purchase additional features without fully understanding the constraints. In fact, certain Compartamos clients mentioned that they thought that purchasing the insurance was a requirement to receive the loan.

Furthermore, people are still coping after the September 2017 earthquakes and the fear that this event caused could have increased interest in protection for the future. However, this attitude could change over time, and this current interest in an earthquake insurance could vanish in the

near future. Therefore, a big challenge would be to retain the client base. Furthermore, earthquakes are relatively unpredictable and infrequent. If earthquakes do not occur for a period of years, the clients could feel that they are wasting their money on the insurance and drop the insurance.

The characteristics of the product also make it difficult to offer for insurance companies and we are aware of previous failures. Due to the accumulation of damages in the case of earthquakes, companies are subject to extremely high capital requirements. It is for this reason that offering this type of insurance is out of reach for smaller companies. The high capital requirements also cause the premium to increase, which makes the insurance unaffordable for some people.

There are also risks in the issues of scalability and replicability. As the survey results show, people's interests vary by region and how affected they had been by the previous earthquake. It is for this reason that while the insurance could work in certain areas, it could fail in others, impacting replicability.

VI. Conclusion

In achieving our main project objective to identify and quantify the gap in insurance coverage for earthquakes among Mexico's low-income population, we focused our qualitative research on the supply side through our expert interviews and the quantitative research on the demand side through our survey instrument for market segmentation.

Our research finds that the majority of the low-income population is uninsured, and therefore vulnerable to earthquake damage, but that the majority is willing to purchase earthquake insurance. Furthermore, in the aftermath of the September 2017 earthquakes, many individuals reported the prevalence of corruption as a reason as to why they are still awaiting the benefits that the government promised. This provides an opportunity for EA Consultants to use these findings to work with private insurers to create an index insurance product to protect individuals against damage to their property and a loss in income caused by earthquakes.

The market segmentation will further assist EA Consultants in working with insurers in Mexico for methods of product delivery, publicity, and payment methods as reported in our demand-side findings. With this information, it is our hope that the findings and recommendations of this report will be shared with a wider set of stakeholders to increase the public benefit. Through larger engagement from diverse stakeholders, public sector involvement should increase to achieve the necessary buy-in to achieve a PPP for earthquake microinsurance; the desire of the government to provide and support this form of protection to its citizens is apparent through the conversations and actions of the government, particularly SAGARPA and CDMX local government. It is with this in mind that we recommend the pilot strategy for a targeted household income group of 800-3,400 pesos weekly along with their specific buyer preferences.

Beyond the scope of this project, it is our hope to contribute toward a broader impact on the developmental sphere through influencing a transformative, pragmatic, sustainable product to improve the livelihoods of low-income urban households in Mexico.

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IX. Appendix

A. Acronyms

AMAI - Index of the Mexican Association of Agencies of Market Research

AMIS - Asociación Mexicana de Instituciones de Seguros

CDMX - Ciudad de México

IO - International Organization

NSE - Nivel socioeconómico (Socioeconomic Level)

PPP - Public Private Partnership

SIPA - School of International and Public Affairs

B. Glossary of Terms⁴¹

Catastrophe insurance: Insurance that protects against natural disasters such as earthquakes, floods and hurricanes, and against man-made disasters such as terrorist attacks.

Index insurance: Insurance that pays out according to an index rather than the actual losses an individual experiences. For example, a rainfall index insurance product will pay out when a rainfall index is below or above a certain value stipulated in the contract rather than for losses experienced as a consequence of bad weather, such as crop failure.

Microfinance: Financial services, such as loans, savings, insurance and fund transfers offered to entrepreneurs, small businesses and individuals who lack access to traditional banking services.

Microinsurance: Insurance protects low-income individuals against risk, in exchange for insurance premium payments tailored to their income and level of risk. Microinsurance usually involves small amounts and affordable premiums.

Reinsurance: Insurance purchased by an insurer. When the total exposure of risks goes beyond the limit that is prudent for an insurance company to carry, the insurance company may purchase reinsurance.

⁴¹ World Bank. 2012. *FONDEN: Mexico's Natural Disaster Fund - A Review (English)*. Washington DC: World Bank.
<http://documents.worldbank.org/curated/en/408711468286527149/FONDEN-Mexicos-natural-disaster-fund-a-review> (15 December 2017).

C. Survey Data

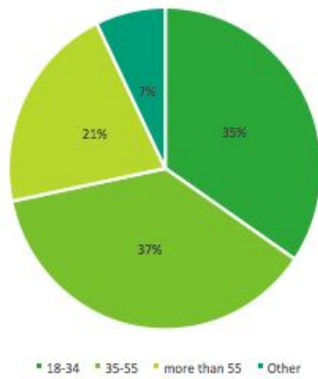


Figure A1. Age Distribution

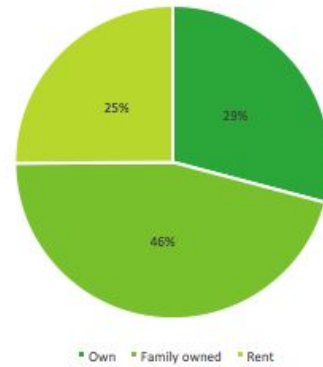


Figure A2. Home Ownership Distribution

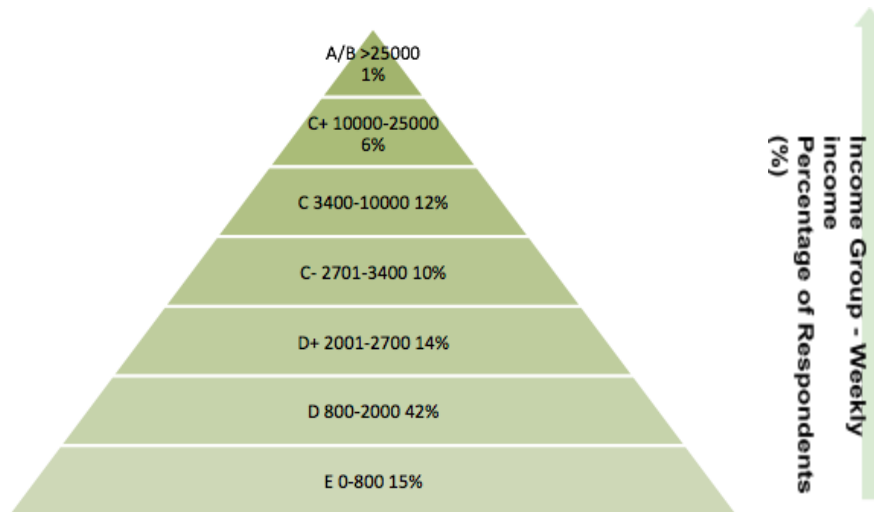


Figure A3. Household income

	More than 1000 Pesos	Between 1000 and 1300 Pesos	Between 1301 and 2500	Between 2501 and 3200	More than 3200	Others	Total
Female	32%	18%	19%	7%	4%	20%	100%
Male	18%	21%	26%	6%	17%	11%	100%

Figure A4. Gender difference in individual income

	0 - 800 Pesos	801 - 2000 Pesos	2000 -2700 Pesos	2701 - 3400 Pesos	3401 - 10,000 Pesos	10,001 - 25,000 Pesos	> 25,000	Others	Total
Female	13%	35%	12%	9%	8%	1%	1%	22%	100%
Male	11%	33%	11%	7%	13%	9%	1%	16%	100%

Figure A5. Gender difference in household income

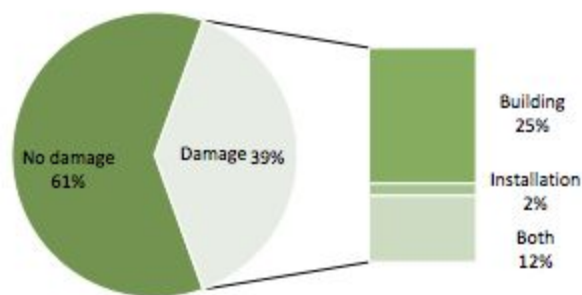


Figure A6: Damage levels

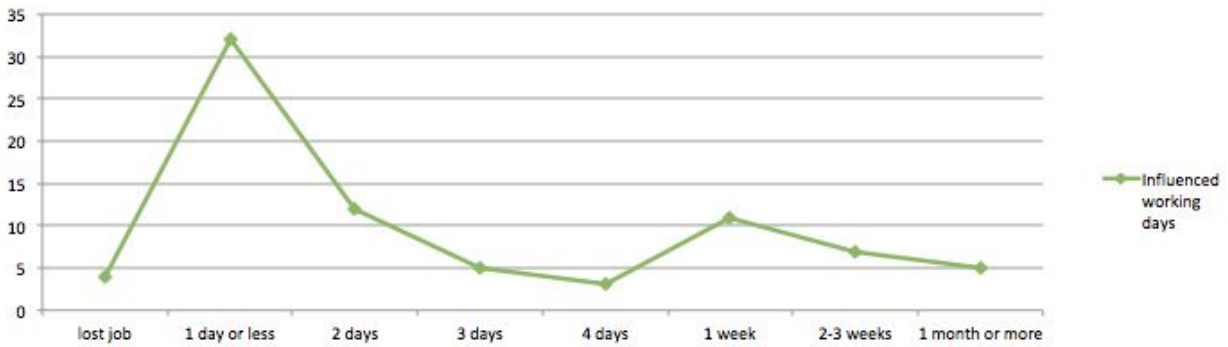


Figure A7. Disrupted working days (person/day)

Interested in buying insurance?	Walls and Roof	Property or land	Cost of renting another apartment	Replace Damaged Belongings	Total
Yes	58%	19%	6%	16%	100%
Other	25%	25%	0%	50%	100%

Figure A8. Coverage content preference

Age	
18-35	40% bank, 24% convenience store, 24% mobile
35-55	45% convenience store, 25% bank, 15% mobile
more 55	30% convenience store, 30% bank, 15% insurance

Job	
public	29% bank, 29% mobile
private	38% convenience store, 27% bank, 20% mobile
independent	37% convenience store, 21% bank, 21% mobile
business owner	53% bank, 21% convenience store, 16% insurance
housewife	44% convenience store, 44% bank

Household Wealth	
0-800	45% convenience store, 36% insurance
801-2000	41% bank, 39% convenience store
2001-2700	47% bank, 27% convenience store, 20% mobile
2701-3400	45% bank, 27% convenience store
3401-10000	56% mobile, 25% convenience store
10001-25000	67% mobile

Figure A9. Preferred payment method is associated with age, job and household wealth

(Only top 3 choices are presented)

Motivation?	Price	Advertising/ Publicity	Reputation	Govt support	Others	No/I don't know
0 - 800 Pesos	6%	0%	17%	33%	11%	33%
801 - 2000 Pesos	25%	4%	35%	23%	4%	10%
2000 - 2700 Pesos	31%	0%	31%	15%	8%	15%
2701 - 3400 Pesos	46%	0%	46%	0%	9%	0%
3401 - 10,000 Pesos	31%	6%	38%	6%	13%	6%
10,001 - 25,000 Pesos	14%	0%	43%	14%	14%	14%
> 25,000	100.00%	0	0	0	0	0

Figure A10. Incentive to purchase

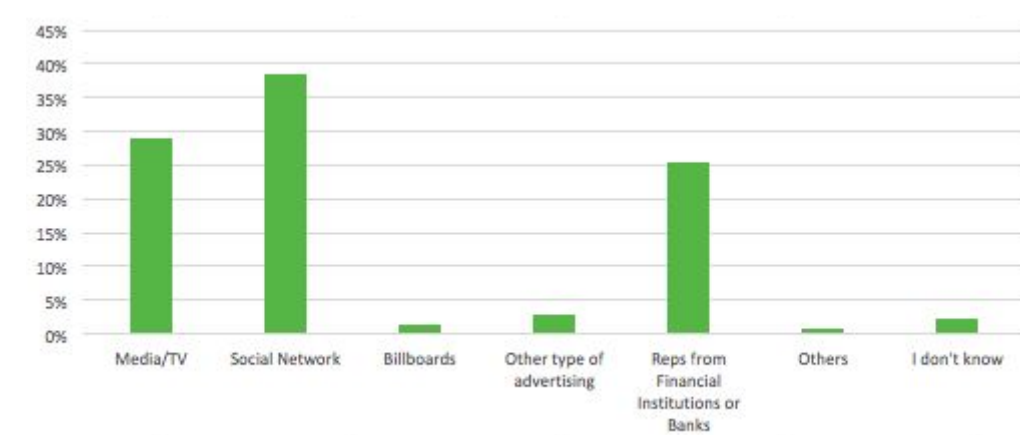


Figure A11. Marketing Channel Preferences

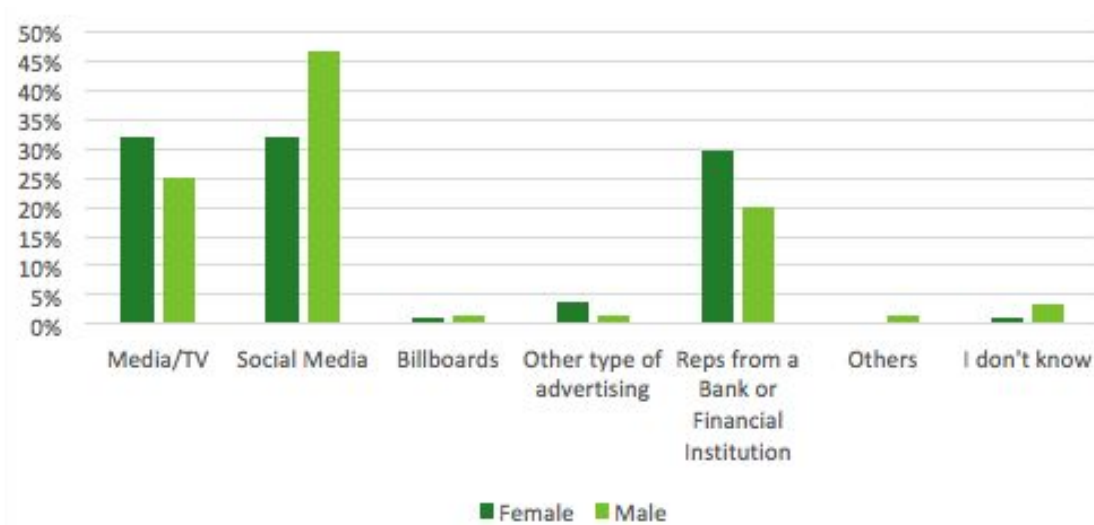


Figure A12: Preferred Communication Channel by Gender

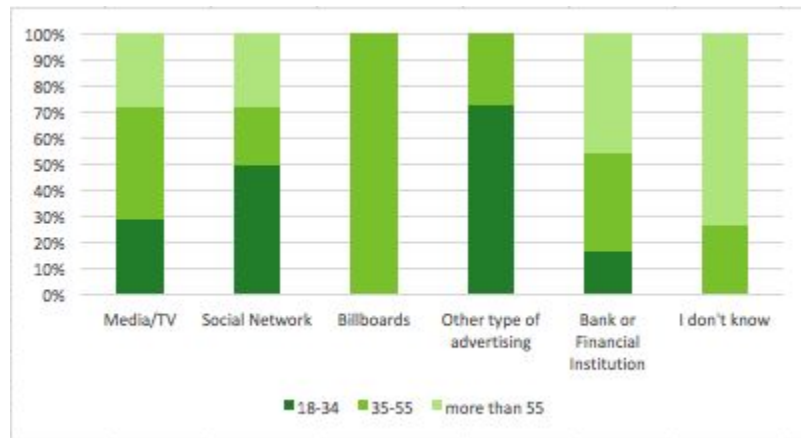


Figure A13: Preferred Communication Channel by Age group

	Media/TV	Social Media	Billboards	Financial Institution	Other	I don't know
0 - 800 Pesos	22.20%	22.20%	0.00%	55.60%	0.00%	0.00%
801 - 2000 Pesos	38.10%	26.20%	0.00%	35.70%	0.00%	0.00%
2000 -2700 Pesos	41.70%	25.00%	8.30%	16.70%	0.00%	8.30%
2701 - 3400 Pesos	20.00%	40.00%	10.00%	20.00%	10.00%	0.00%
3401 - 10,000 Pesos	8.30%	83.30%	0.00%	8.30%	0.00%	0.00%
10,001 - 25,000 Pesos	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%
Others	13.60%	50.00%	0.00%	18.20%	13.60%	4.50%

Figure A14: Preferred Communication Channel by Household Salary

D. Expert Interviews

	Interviewee	Affiliation	Title	Location
1	Oscar Pineda	MAPFRE	Director Técnico R. Industriales y Agro	Remote
2	Yves du Hayaux Tilly	Nader, Hayaux & Goebel Mexican Chamber of Commerce in Great Britain	Partner Chairman	Remote
3	Josh Ling	Mercy Corps (MiCRO)	Director of Financial Sector Initiatives	Remote
4	Alejandra D'Hyver	Oxfam	Coordinación de Acción Humanitaria	Field
5	Thelma Gomez Miriam Castillo	Mexicanos Contra la Corrupción y la Impunidad	Journalist Journalist	Field
6	Josh Ling	Mercy Corps (MiCRO)	Director of Financial Sector Initiatives	Field
7	Oscar Pineda	MAPFRE	Director Técnico R. Industriales y Agro	Field
8	Victor Celaya	SAGARPA	Director General de Atención al Cambio Climático en el Sector Agropecuario	Field
9	Sergio Puente	Colegio de Mexico A.C.	Profesor - Investigador	Field
10	Alvaro Salamanca	Liberty Mutual Insurance	Representative CEO	Field
11	Mario Vela Germán Aguado	Grupo Nacional Provincial (GNP)	CEO Director Canal Masivo	Field
12	Anonymous	Insurance Broker Firm	N/A	Field

E. SWOT and Recommendation Matrices

Insurance	Provider								
	Government			Commercial			PPP		
Type	Tradi	Mix	Index	Tradi	Mix	Index	Tradi	Mix	Index
Bundle Loan				J	M	P	S	W	AA
Independent				K	N	Q	T	X	AB
Bundle Electric	B	E	H	L	O	R	U	Y	AC
Bundle Property Tax	C	F	I				V	Z	AD

Light Grey: possible but inefficient

Dark Grey: it does not exist

DISCUSSION: Independent vs. Bundled**Independent SWOT:**

Strengths <ul style="list-style-type: none"> ● Profits for private companies ● Competition drives prices down 	Opportunities <ul style="list-style-type: none"> ● Partnerships
Weaknesses <ul style="list-style-type: none"> ● Private companies do not have wide distribution channels in low income sector ● Current private insurance policies are complex and hard to understand ● No subsidy = more expensive premiums 	Threats <ul style="list-style-type: none"> ● Low (2-3%) insurance penetration in Mexico ● Insufficient distribution channels ● Poor financial literacy ● Lack of trust in Insurance sector ● No culture of insurance in Mexico

We considered an independent insurance product. However, due to the lack of insurance penetration in Mexico, the cultural attitudes to insurance in general, and the complexity of current property insurance policies, the lack of distribution channels will be a huge disadvantage of this option. If the product were to be offered in this way, we fear that not many people would buy it.

