

Life Insurance Access and Financial Resilience: Fostering Sustainable and Inclusive Growth in  
Latin America

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April 2022

Senior thesis submitted in partial fulfillment  
of the requirements for a  
Bachelor of Science degree in Economics  
and  
the Coolidge Otis Chapman Honors Scholar Designation  
at the University of Puget Sound

# **Life Insurance Access and Financial Resilience: Fostering Sustainable and Inclusive Growth in Latin America**

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## **Abstract**

Existing literature has documented an increasing focus on financial resilience to better address the issue of multidimensional poverty in developing regions. The move to financial resilience is a part of a long process that has examined the relationship between poverty and financial access. Yet because financial resilience is a relatively new topic, the specifics of how financial resilience can be fostered using specific financial products has yet to be substantiated. Thus, this study offers an examination of the relationship between life insurance access and financial resilience in a sample of 16 middle-income Latin American countries, the first study of its kind. The objective of the research is to analyze the contribution of life insurance on supporting the development of financial resilience to strengthen the emergent middle-class to continue sustainable and inclusive growth in middle-income Latin America. This study reveals that life insurance access contributes positively and significantly to increasing financial resilience in middle-income Latin America with potentially significant effects on middle class resilience and sustained poverty alleviation.

*Keywords:* financial resilience, life insurance, sustainable development, Latin America

## 1 Introduction

In the past 15 to 20 years, Latin America has experienced an immense amount of economic growth that has fueled poverty alleviation and an expansion of the middle class. In the 2000s, the region's GDP grew at close to 4% a year, which increased per capita income from US\$7,200 in 1990 to US\$14,160 by 2018, firmly cementing the region as middle-income (De la Cruz et. al. 2020; World Bank 2017). This trend of persistent growth since 2000 led to a decline in poverty from 60% of the population to approximately 25%, growing the middle class from 25% of the population to over 70% (De la Cruz et. al. 2020). As a result, Latin America is a strongly middle-income region with a middle-class composition that represents the majority of the region's population. Despite gains in poverty reduction and middle-class growth, almost 40% of those in the middle-class remain vulnerable to falling back into poverty (De la Cruz et. al. 2020). Therefore, consolidating and strengthening the middle-class to prevent individuals from falling back into poverty must be a priority to drive economic growth, poverty alleviation, and ultimately, the convergence between Latin America and the high-income economies of the Global North. Accordingly, to preserve and strengthen the position of the middle-class in Latin America, it is necessary to study methods to increase financial resilience to reduce susceptibility to risks—one way being with life insurance. Thus, this study seeks to examine the impact of life insurance access on financial resilience in a sample of 16 middle-income economies in Latin America.

Financial resilience is the ability of individuals to mitigate, cope, and recover from shocks without negatively impacting future wellbeing (Salignac et. al. 2019; Moore et. al. 2019). It stands as a new framework that evaluates how well households and individuals can manage, confront, and deal with present and future risks. The goal of fostering financial resilience is to prevent the burgeoning middle-class to fall back into poverty and to increase their ability to maintain their income standing and continue their path of growth. Financial resilience has grown out of the literatures of microfinance and financial inclusion as a new subject matter that is primarily concerned with how inclusion and, ultimately, access to financial products and services can prevent the cyclical nature of poverty and create sustainable, inclusive growth in the long run.

Life insurance, as a financial product used to mitigate a variety of risks, can theoretically contribute to increasing financial resilience through its unique structure that provides two main services: 1) income replacement in the occasion of accidental death (i.e., death insurance) and 2) long-term savings. The typical conception of life insurance is that of providing death insurance—providing only mortality risk coverage—but certain products allow policy holders to designate a portion of their premiums to a cash value component that can be invested and grown over time in the market according to the policy holder's risk tolerance and desired level of market exposure. With this cash value component, policy holders can take out loans against the cash value at rates close to zero to fund retirement savings or use it as needed when emergency funds are required by the policy holder. Therefore, through the unique policy structure of life insurance, it stands that access to life insurance products may have a substantial positive impact on financial resilience among the vulnerable middle-class of Latin America.

Overall, this study quantitatively examines the impact of life insurance access on financial resilience in a sample of 16 middle-income economies in Latin America using a probit

and a linear probability model, contributing to the literature in four main ways. First, this study investigates the connection between life insurance access and financial resilience in middle-income Latin America, the first known study of its kind. Second, this study contributes to expanding the knowledge of how increasing financial resilience can build resilient individuals, communities, and countries that are able to face the challenge of development and maintain sustainable growth to eventually converge with high-income economies. Third, this study examines the implications of life insurance access on increasing middle class financial resilience in Latin America to continue driving growth in the region. Lastly, this study aims to solidify financial resilience as a framework for driving economic development in developing regions in Latin America and beyond.

The rest of the paper is organized as follows: Section 2 explores the literature on financial resilience, life insurance, and their application to Latin America. Section 3 provides theoretical expectations on the link between life insurance access and financial resilience. Section 4 examines the data. Section 5 presents the analytical model. Section 6 looks at results, and Sections 7 and 8 cover the discussion and conclusion, respectively.

## **2 Literature Review**

There is no shortage of literature considering financial resilience or the use of insurance in economic development. Previous research and the resultant literature have almost exclusively focused on these two topics as distinct realms. The financial resilience literature has primarily focused on financial literacy and questions of resilience in OECD nations. Scholarship on insurance-development studies have emphasized the insurance-growth nexus and the impact of microinsurance on poverty in rural areas and lesser developed countries. Few studies look at the specific effect of life insurance or financial resilience on development, and in particular their effects outside of the OECD and east Asia. Thus, this study joins the literatures of financial resilience and life insurance to investigate the impact of life insurance access on financial resilience in Latin America.

### **2.1 Financial Resilience**

#### **2.1.1 Defining Financial Resilience**

Since emerging as a relatively new topic in development studies, two competing definitions of financial resilience have emerged. The first and most employed definition is utilized by Demirguc-Kunt et. al. (2018) in the Global Findex Database 2017, which defines financial resilience as the ability of an individual to come up with a specified quantity of money within a certain time frame if faced with an adverse shock. Adverse shocks include but are not limited to losing a main income earner, natural disasters, economic recessions, and increasing food prices. This definition is the primary method used to collect data on financial resilience but has been criticized by scholars such as Salignac et. al. (2019) who say it recognizes only a single dimension of the issue—access to funds—instead of understanding and addressing financial resilience as multidimensional in nature. As a result, Salignac et. al. (2021) proposes utilizing a financial resilience framework to best understand and measure financial resilience. This financial resilience framework is composed of four parts which are summarized below:

*Economic resources* consider money related factors that can influence how individuals respond to a shock. This includes the components of an individuals' income, access to emergency funds, and how individuals deal with unexpected expenses.

*Financial Products and Services* evaluate access to financial services such as payments, savings, credit, and insurance products.

*Financial Knowledge and Behavior* studies financial literacy and how well an individual can confidently understand and interact with the financial sector.

*Social Capital* examines the impact of community connections in fostering financial resilience, specifically looking at how network effects between individuals can create resilience at individual, community, and country levels.

Salignac et. al.'s (2021) framework brings to fruition the idea that financial resilience is multidimensional in nature and provides a competing framework to define and measure financial resilience that contrasts with the simplicity of Demirguc-Kunt et. al.'s definition.

Although Salignac's financial resilience framework supports this study's understanding of financial resilience, its use as the primary definition of financial resilience would considerably limit our ability to conduct quantitative analysis. Due to the novelty of this framework, there exists no data on a per country basis that can be used to measure financial resilience via Salignac's financial resilience framework. Thus, due to the lack of available data which uses Salignac's financial resilience framework, our study depends on measuring financial resilience through the definition provided by Demirguc-Kunt et. al. (2018). However, Salignac's financial resilience framework informs our overall understanding of financial resilience which allows us to strategically control for variables that contribute to financial resilience such as variables that build social capital and financial knowledge and behavior.

Therefore, drawing on Salignac's financial resilience framework, this study defines financial resilience as the ability of individuals to mitigate, cope, and recover from shocks without negatively impacting future wellbeing (Salignac et. al. 2019; Moore et. al. 2019). This definition identifies what it means for an individual to be financially resilient by considering how well households and individuals can manage, confront, and deal with present and future risks. As such, we center financial resilience around the goals of preventing a return to poverty and increasing the ability of individuals to maintain their income standing to continue their path of future growth. Hence, when we refer to fostering financial resilience and the impact life insurance access has on financial resilience, this definition is critical in understanding the individual level effect of increasing levels of financial resilience.

### **2.1.2 Financial Resilience and Financial Inclusion**

Resulting from the discourse on microfinance and financial inclusion, the topic of financial resilience has complicated and expanded the understanding of how the poor utilize a complex set of tools to manage risk and to remain on an upward trajectory for growth without falling back into poverty. Microfinance as a topic in development studies has its roots in the 1970s when new and existing organizations in Asia and Latin America sought to provide financial services to the world's poor, formerly a group excluded from the formal financial sector

(Collins 2009). These services began solely as a means to provide access to borrowing or lending services but expanded into offering more complicated financial products such as savings and insurance for the poor. These microfinance initiatives and the literature that has developed around them primarily focus on access to simple financial products for the world's poorest individuals with the goal of expanding the reach of the financial services industry. By expanding this reach, these initiatives have provided several innovative new ways of reaching low- and middle-income people, which have undoubtedly improved their lives (Collins 2009). The extension of these services to the world's poor has contributed to increasing access and inclusion in the financial services industry but has failed to look at the implications of increasing access to financial products on poverty reduction as well as increasing sustainable and inclusive growth, more generally. As such, the literature of financial inclusion emerged from the literature of microfinance.

The discourse on microfinance expanded with the emergence of the financial inclusion literature, furthering our understanding of the poor's access to and inclusion in the formal financial services sector. Financial inclusion is a key component of modern development studies which examines the impact of access to payments, savings, credit, and insurance on reducing poverty as well as increasing sustainable and inclusive growth for those in low and middle-income countries (Demirguc-Kunt et. al. 2018). Despite the efforts of financial inclusion to reduce poverty and increase sustainable and inclusive growth, the effects of financial inclusion are widely contested and do not show a strong relationship between elevated levels of access (i.e., financial inclusion) and rising household incomes or general poverty reduction (Duvendack and Mader 2020). Moreover, the lack of specificity in the goals of financial inclusion—aside from increasing access—prevent it from effectively promoting developmental goals. On its own, the financial inclusion framework and associated financial inclusion initiatives do not stand as a substantial framework to address the multidimensional nature of poverty, as it only addresses a single dimension of the issue—access to funds (Salignac et. al. 2021). Broadly speaking, although financial inclusion has failed to raise household incomes or reduce poverty directly, financial inclusion efforts have rallied support for reaching the world's poor and middle-income individuals through financial products and services with the explicit goal of contributing to economic and social development. Consequently, financial resilience as a field of study has emerged with the intent of extending past the failures of financial inclusion by using the momentum created by microfinance and financial inclusion initiatives to address how the poor interact with the financial system. Thus, financial resilience builds on the microfinance and financial inclusion literatures, while seeking to go beyond the bounds of the current literature.

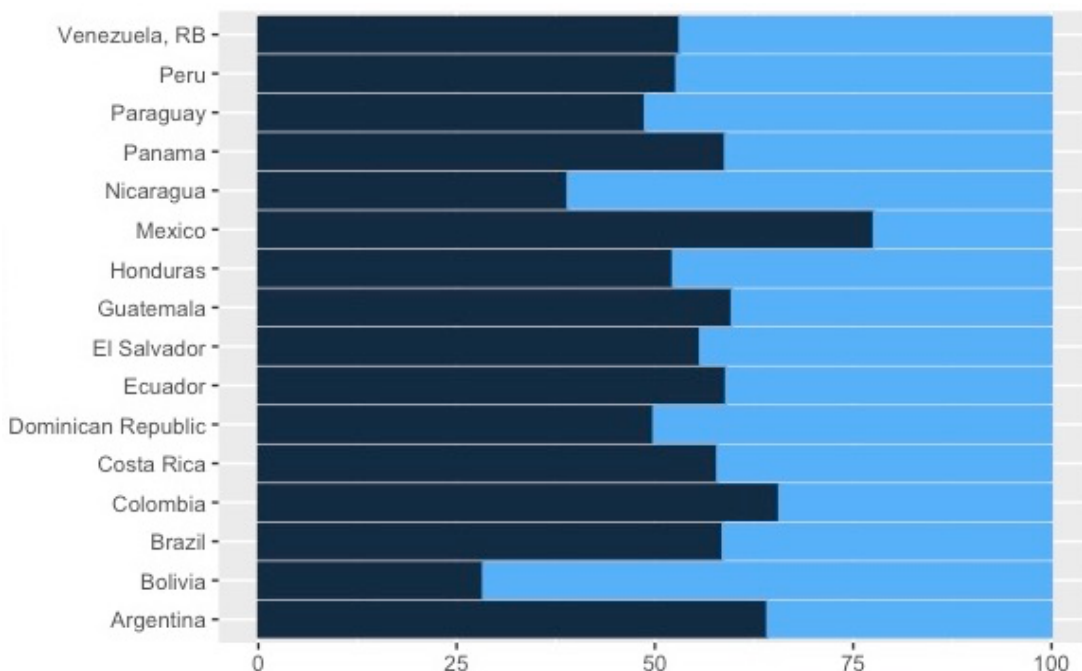
Resilience studies have been a critical component of modern academia specifically with the rise of climate related disasters and issues of physical resilience. There is an extensive literature base that draws on analyzing and providing solutions to the risk of disasters (i.e.: Martín et. al. 2020; Salignac et. al. 2019). Beyond the literature on physical resilience and into the literature on financial resilience, we see that much of it is focused on conceptualizing measures of financial resilience in a multidimensional way that looks beyond how individuals access financial products and services, and instead seeks to understand how the poor use a variety of resources to bounce back from adverse shocks. In that spirit, financial resilience as a literature examines the multifaceted and complicated nature of the poor's financial and personal interactions and how they shape their ability to foster resilience. As a result, using the existing literature on financial resilience compiled by Salignac et. al. (2019, 2021), Martín et. al. (2020),

and De la Cruz et. al. (2020) among others we hope to add to the financial resilience literature by investigating how life insurance access affects financial resilience.

### 2.1.3 Questions of Resilience in Latin America

Due to its relative youth, studies measuring financial resilience are limited. Little work has been done to analyze financial resilience on a regional or per-country basis both in Latin America and throughout the high-, middle-, and low-income regions. Of the literature that exists on financial resilience, studies done principally by Salignac et. al. (2020) and Salignac et. al. (2021) have examined Australia and Indonesia, but have yet to analyze the world on a per country basis. As for the remaining literature on financial resilience, much of it comes from studies utilizing the Global Findex Database 2017, the only source to quantitatively measure financial resilience on an individual level and the key data source for this study. Using the Findex, Demirguc-Kunt et. al. (2018) measures financial resilience by investigating the number of respondents who can come up with an amount equal to 1/20 of gross national income (GNI) per capita in local currency within the next month. Globally we see that by this measure, 54% of respondents are financially resilient, 73% in high-income countries, and just 50% of respondents in developing countries (Demirguc-Kunt et. al. 2018). In our sample of 16 middle-income Latin American countries, we see levels of financial resilience under 50% throughout the region with few exceptions. Below, in Figure 1 we see the levels of financial resilience in our sample where the percentage of respondents who are resilient appears in light blue and those who are not resilient appears in dark blue. Considering this data from 2017, levels of financial resilience in Latin America are considerably lower than the values seen in high-income countries but are on track with the trends in other developing countries.

*Figure 1: Financial Resilience in 16 Countries in Latin America. Light Blue = Resilient, Dark Blue = Not Resilient*



Beyond the findings of the Findex, De la Cruz et. al. (2020) provides several insights into the state of financial resilience in Latin America, characterizing the region's slowing growth and the current challenges faced by the middle class. Financial resilience in Latin America rose dramatically in the past twenty years as the portion of the population in the middle class rose to 70%. Of the total 70% of the population that is in the middle class, 41% is in the vulnerable middle class defined as having a daily income of between US\$5 and US\$12.4 and 31% is in the consolidated middle class defined as having a daily income of between US\$12.4 US\$62 (De la Cruz et. al. 2020). Of these groups, the consolidated middle class faces higher levels of financial resilience but is still vulnerable to shocks that could push them back into poverty. With a weaker external economic environment in the past five years, the region's growth is slowing, increasing the portion of the middle class with the chance of falling back into poverty. Of those individuals who were in the middle class in 2003, 14% of them had one incidence of poverty in the following ten years (De la Cruz et. al. 2020). Looking at the breakdown between vulnerable and consolidated middle-class groups, De la Cruz et. al. (2020) finds that "36 percent of those who were vulnerable in 2010 had fallen into poverty by 2016, and 31 percent of those who belonged to the consolidated middle class in 2010 were in the vulnerable middle class in 2016". This demonstrates a trend of consolidation for the middle class due to low levels of financial resilience as the middle class has begun to shrink under pressure from the external economic environment. Despite this consolidation, in the period between 2010 and 2016, the majority of those in the vulnerable and consolidated middle classes retained their standing in the middle class, but not without significant losses (De la Cruz et. al. 2020). As a result, the large middle class of Latin America is facing a challenge to remain in the middle-class considering a less favorable global economic outlook, particularly now with the rise of the COVID-19 pandemic.

With the beginning of the pandemic, financial resilience in Latin America declined, making vulnerable a larger portion of the middle-income segment in the region. Economic growth in the region was forecast to reach 3% in the calendar year of 2020, but with the onset of the pandemic, the region saw contractions between -2% and -5% (De la Cruz et. al. 2020). Consequently, because a large portion of those in the vulnerable and consolidated middle classes remain close to the poverty line, De la Cruz et. al. (2020) predicts a decline of the consolidated middle class from 31% of the population to 27% and a rise in the vulnerable middle class from 40% of the population to 42%. This fall from the consolidated middle class to the vulnerable middle class and the fall from the vulnerable middle class back into poverty illustrates the consequences of a middle class that has not built sufficient financial resilience through access to social safety nets, retirement systems, the formal economy, and private insurance. Thus, as the risk of falling back into poverty increases because of the COVID-19 pandemic, increasing sustainable and inclusive growth utilizing financial products and services like life insurance to build financial resilience will be necessary to continue the past trajectory for growth in the region and to ultimately achieve convergence between high and middle-income economies.

## **2.2 Life Insurance**

### **2.2.1 Understanding Life Insurance**

Historically, the literature on life insurance has examined the macro-economic developmental effects of the growth of the financial services and insurance sectors on GDP



growth as an indicator for development (i.e., the insurance growth nexus). This study departs from examinations of the insurance growth nexus and joins scholars such as Moore et al. (2019) and Martín et. al. (2020) in investigating the effect of life insurance access on fostering financial resilience. On a broad level, life insurance is seen as providing two critical services: income replacement in the event of premature death and/or a long-term savings instrument (Beck & Webber 2003). In reviewing the determinants of life insurance consumption across countries, Beck and Webber (2003) group the types of products into two groups: those that offer only income replacement in the event of premature death and those that combine mortality coverage and long-term savings. The first group usually are called *term* policies and provide mortality coverage for a specified period before expiring. The second group has a variety of product names including *whole life*, *variable universal life*, and *permanent life*, among others. Products in the second group allow policy owners to accrue interest by allocating a specified portion of the premiums to sub-accounts that invest the capital that is later returned to the policy owner through dividends, cash value, or endowment sums once the product reaches maturity. It is necessary to know that measures of life insurance do not separate the effects of these two groups of products, thus we look at the combined effects life insurance has by providing mortality coverage and acting as a long-term savings instrument.

Access to life insurance and insurance products more generally is established within the literature as an effective mechanism to promote financial resilience. Moore et al. (2019) finds that insurance is highly capable at promoting resilience in four ways: (1) allocating investments more effectively, (2) reducing exposure to risk, (3) increasing preparedness for unexpected risks, and (4) enhancing the ability to respond to shocks. These four impacts indicate the effectiveness of insurance in preventing the cyclical nature of poverty by creating more efficient allocations of capital, reducing risks that poor and middle-income individuals face, stimulating preparedness for unexpected shocks, and enhancing their ability to respond to shocks. Due to Moore et. al.'s findings, we conclude that life insurance is uniquely poised to increase financial resilience via its ability to act as a source of emergency funds through cash value and/or death benefit, which provides a cushion of capital that enhances efficient investment allocation, actively manages risk exposure, and increases how well-equipped individuals are to respond to a shock and recover from it. This specifically indicates that life insurance access positively contributes to increasing individual resilience to poverty traps causing rising levels of financial resilience. As such, insurance fits within Salignac et. al.'s (2019) framework of financial resilience by contributing to financial resilience as a financial product/service and enhancing access to economic resources.

Despite the benefits associated with life insurance and its relationship to financial resilience, no conversation of the literature would be complete without noting its limitations. The literature finds that even in the face of the positive benefits associated with life insurance, poor and middle-income households rarely utilize insurance products—including but not limited to life insurance—due to the complicated nature of products, credit constraints (lack of income) and lack of accessibility (Bernards 2019; Lester 2014). Structurally speaking, access to insurance products is generally subpar in low and middle-income countries where private and public companies have issues addressing moral hazard, adverse selection, and non-diversifiable risk (Lester 2014). In efforts to close the protection gap<sup>1</sup>, microinsurance initiatives have been launched to reach the droves of potential low and middle-income consumers, but with truncated and uneven rollout, microinsurance has largely been ineffective (Bernards 2018). Although there are limitations to the extent in which insurance, and specifically life insurance services, are

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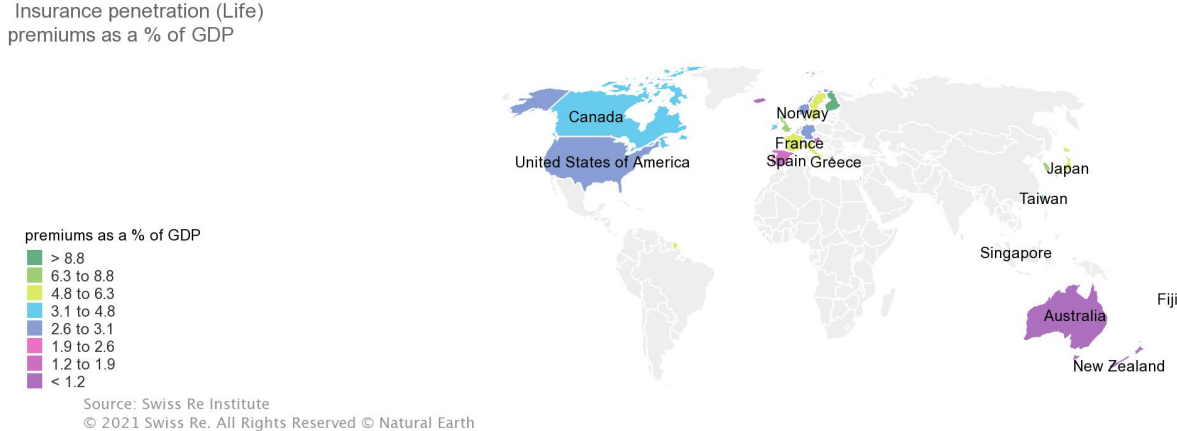
<sup>1</sup> The protection gap is the difference between the socially optimal amount of insurance versus existing coverage.

available, the presence of insurance in the Global South is increasing through initiatives led by the UNDP’s Insurance and Risk Finance Facility (IRFF), among others. Despite limitations, life insurance draws on established themes within the literature that establish its capabilities of protecting the world’s poor and middle-income populations.

**2.2.2 Life Insurance Access in Latin America**

With respect to life insurance access, Latin America stands above most of the developing world with relatively higher rates of life insurance penetration. Beck and Webber (2003) note that life insurance penetration is defined as the ratio of premium volume to GDP and is the most common statistic used in measuring access to life insurance and is a widely cited statistic in most of the literature that investigates life insurance. Globally, life insurance penetration rates are the highest in the Global North in high-income OECD countries, as seen in Figure 2. These countries are followed by developing countries in eastern Asia, such as China, Taiwan, and the Philippines among others, seen in Figure 3. These two groups of countries have received the most scholarship on life insurance and its impact on economic development, but it is important to note the growing size of life insurance premiums in Latin America as compared to the first two groups, as seen in Figure 4. Swiss Re (2021) finds that despite the pandemic, regional real premium growth across all product lines is expected to rebound to 4.4% in 2021 after falling 3.4% in 2020. As this expectation becomes realized, the region is on target to see substantial increases in life insurance penetration in the region, in addition to rapid growth in the insurance industry due to rising risk awareness and large insurance protection gaps.

*Figure 2: Life Insurance Premiums as a % of GDP 2017 – High Income Economies*



*Figure 3: Life Insurance Premiums as a % of GDP 2017 – Middle Income Economies*

Insurance penetration (Life)  
premiums as a % of GDP



*Figure 4: Life Insurance Premiums as a % of GDP 2017 – Latin American Economies*

Insurance penetration (Life)  
premiums as a % of GDP



### 3 Theoretical Expectations

Despite the lack of substantial literature on the relationship between financial resilience and access to life insurance in Latin America, the literature predicts that as life insurance access increases, financial resilience, or the ability for individuals to mitigate, cope, and recover from shocks without negatively impacting future wellbeing will also increase (Salignac et. al. 2019; Moore et. al. 2019). Our study builds on the literature by examining the specific role that life insurance access plays in bolstering financial resilience in Latin America. This study acknowledges the contributions of the existing literature that indicates the potential positive relationship between life insurance access and financial resilience. We contribute to the literature by examining the effect of life insurance access on financial resilience at the country level to discuss the implications of life insurance access on middle class financial resilience in Latin America.

While there is relatively limited literature directly examining life insurance access and financial resilience, the existing literature substantiates that increasing life insurance helps low and middle-income individuals allocate investments more effectively, reduce exposure to risk, increase preparedness for unexpected shocks, and enhance an individual’s ability to respond to shocks, thus increasing financial resilience (Moore et. al. 2019). In providing these services, access to and the use of life insurance products increases financial resilience by increasing their access to economic resources and financial products and services, two critical components of

Salignac et. al.'s (2019) financial resilience framework. Hence, by increasing access to life insurance, individual financial resilience will follow.

Beyond individual resilience, building financial resilience has the potential to decrease the probability that middle class individuals in Latin America fall into poverty, increasing their ability to continue growing as a part of Latin America's middle class. Seeing that the middle class is slowly beginning to contract after 20 years of incredible growth, fostering Latin American financial resilience in the middle class is critical to avoid erasing years of progress in the region. De la Cruz et. al. (2020) posits that the COVID-19 pandemic among the changing external economic environment has already caused a return to poverty for many, increasing the urgent need for expanded social insurance systems throughout the region. As a result, the call for public social insurance schemes highlights the need for an examination of both public and private solutions to the issue of Latin American middle-class resilience. Thus, by investigating the theorized positive relationship between life insurance access and financial resilience in this study, we hope to examine the effects of increasing financial resilience on fostering sustainable and inclusive middle-class growth in Latin America.

#### **4 Data**

To explore the impact of life insurance access on financial resilience in middle-income Latin America, this study uses data from the Global Findex Database 2017 and the World Economic Forum's Global Competitiveness Report of 2017-2018. The Global Findex Database 2017 is the third iteration of the Findex Database, which has been produced every three years since 2011. The database is the most recent and comprehensive set of indicators that measure how adults save, borrow, make payments, and manage risk (Demirguc-Kunt et. al. 2018). The dataset contains microdata covering almost 150,000 individuals in 155 countries, with a sample representing roughly 97% of the world's population. The data measures over 100 variables spanning key components of financial inclusion such as access to savings accounts, individual borrowing behavior, and how individuals make payments and a measure of financial resilience.

The Global Findex Database world microdata is collected by Gallup Inc, as part of its Gallup World Poll. The Gallup World Poll annually surveys 1,000 adults above the age of 15 in more than 160 economies. The Findex Database microdata used in this study is composed of the survey responses which were collected by Gallup during the 2017 calendar year using random selection at all levels of data collection to reduce bias. The survey used in the world microdata dataset asks over 50 questions to individuals using local languages and local terminology to survey the population on financial inclusion and resilience. The data is collected in person where telephone coverage represents less than 80% of the population or where this is the norm, otherwise, responses are collected over the phone (Demirguc-Kunt et. al. 2018). Random route procedures are used to select households. Within chosen households, eligible adults are randomly selected, and multiple attempts are made at different times of the day to reach respondents. The target of the data is the entire adult, civilian, non-institutionalized world population and the data is commonly collected in two to four weeks in each country.

The Global Competitiveness Report of 2017-2018 is a yearly report released by the World Economic Forum whose aim is to measure the competitiveness of the world's economies to contribute to policy making that will drive economic growth. It measures a wide variety of variables that are grouped into 12 categories related to institutions, the macroeconomic environment, financial market development, market size, and more (Klaus 2017). The

information is collected from a variety of national authorities, international agencies, and private sources during the year prior to the release of the report. The key source of information obtained from this report relevant to this study is the measure of life insurance penetration rates for the 16 middle income Latin American countries used in the study.

#### **4.1 Sample**

This study selects data from 16 middle-income economies in Latin America, covering 16,000 individual observations over 21 variables. The countries included are Argentina, Bolivia, Brazil, Colombia, Costa Rica, The Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Paraguay, El Salvador, and Venezuela. The selection of these countries is a result of their status as middle-income countries as determined by the World Bank World Development Indicators in 2017 (World Bank, 2017). The 21 variables chosen include the dependent variable: financial resilience, independent variable of interest: life insurance access, and control variables which are meant to control for the components of financial resilience not being measured directly in this study: financial knowledge/behavior and social capital. The variable names, variable definitions, and the descriptive statistics of the sample are shown below in Table 1.

Table 1: Descriptive Statistics

Variable	Variable Description	N	Mean	St. Dev.	Min	Max
LIP_2017	Life insurance premiums as a percentage of GDP	16,000	0.517	0.316	0.123	1.183
NLIP_2017	Non-life insurance premiums as a percentage of GDP	16,000	1.309	0.603	0.797	3.200
female	Sex	16,000	0.395	0.489	0	1
age	Respondent Age	15,987	41.222	18.132	15	99
educ	Respondent education level	16,000	1.718	0.655	1	5
inc_q	Within economy income quintile	16,000	3.140	1.428	1	5
emp_in	Respondent is in the workforce	16,000	0.673	0.469	0	1
fin2	Has a debit card	15,900	0.308	0.462	0	1
fin7	Has a credit card	15,910	0.121	0.326	0	1
fin19	Has loan from a financial institution	15,954	0.067	0.250	0	1
fin24	Possibility of coming up emergency funds	15,680	0.450	0.497	0	1
fin26	Sent domestic remittances in the past 12 months	15,938	0.127	0.333	0	1
fin28	Received domestic remittances in past 12 months	15,931	0.172	0.378	0	1
fin32	Received wage payments in past 12 months	15,916	0.284	0.451	0	1
fin37	Received government transfers in past 12 months	15,923	0.122	0.327	0	1
mobileowner	Owens a mobile phone	15,978	0.783	0.412	0	1
fin48	Has a national ID	15,976	0.946	0.226	0	1
account	Has an account	16,000	0.499	0.500	0	1
saved	Saved in the past year	16,000	0.396	0.489	0	1
borrowed	Borrowed in the past year	16,000	0.354	0.478	0	1
Country_Name	Pseudo entity fixed effects	16	-	-	-	-

## 4.2 Measures

This study analyzes the relationship between life insurance access and financial resilience, controlling for 19 variables. Of these measures, *fin24* is the dependent variable that measures financial resilience and *LIP\_2017* is the independent variable of interest that measures life insurance access. The rest of the variables are controls that inform a multidimensional view of financial resilience by providing controls for the two components of financial resilience that are not directly tested: financial knowledge/behavior and social capital.

### 4.2.1 Dependent Variable

We utilize data from the Global Findex Database 2017 to measure financial resilience through *fin24*. This measure defines financial resilience as the ability of an individual to come up with an amount equal to 1/20 of gross national income (GNI) per capita in local currency within the next month. Thus, this is an individual-level variable. The values of the variable are binary and range from 0 to 1, where 0 = not resilient and 1 = resilient. It is important to note that among the additional variables measured and included in the Findex Database 2017, this is the first iteration of the Findex that includes financial resilience, and thus the results of this study are exclusively relevant to 2017.

### 4.2.2 Independent Variable of Interest

This study utilizes data from the Global Competitiveness Report of 2017-2018 to measure life insurance access through life insurance penetration in 2017. Beck and Webber (2003) report that life insurance penetration is defined as the ratio of life insurance premium volume to GDP and is the most common statistic used in measuring access to life insurance and is a widely cited statistic in most of the literature that investigates life insurance. For this reason, we use *LIP\_2017* as our indicator for life insurance access. Within the data, the values of the variable range from 0.123% of GDP to 1.183% of GDP with a mean of 0.517% of GDP as seen above in Table 1. Additionally, it is important to note that this is a country-level variable.

### 4.2.3 Control Variables

The other 19 variables utilized in the study are control variables that control for a variety of factors from sex to country name. These variables are compiled from the Global Findex Database 2017 and seek to control for the four components of financial resilience: economic resources, financial products and services, financial knowledge and behavior, and social capital to isolate the effects of life insurance on financial resilience. These control variables are seen above in Table 1.

## 4.3 Limitations

The primary limitation of our study is that the proxy for financial resilience is not the most precise measure of financial resilience, but instead the only available measure that currently exists. The proxy for financial resilience utilized by this study is identified by the Global Findex Database 2017. Financial resilience is defined in the study by Demircuc-Kunt et. al. (2018) as

the ability of an individual to come up with a specified quantity of money within a certain time frame if faced with an adverse shock. This proxy for financial resilience is an incomplete definition according to Salignac et. al. (2019) as it only discusses access to funds as opposed to including measurements of an individual's access to economic resources, financial products/services, financial knowledge and behavior, and social capital. In our study, life insurance access is theorized to impact financial resilience through the economic resources and financial products/services components of Salignac et. al.'s (2019) framework, which focus on access to funds. As a result, our analysis of how life insurance access impacts financial resilience only speaks to how life insurance access can increase an individual's access to funds and thus financial resilience through the economic resources and financial products/services components of financial resilience. Thus, our analysis on the impact of life insurance access on financial resilience does not include how access to life insurance can increase financial resilience through the financial knowledge and behavior and social capital components of Salignac et. al.'s (2019) framework. Though this limits our discussion of how life insurance access impacts all components of financial resilience, it must be noted that there exists no comprehensive data on financial resilience beyond the work of the Global Findex Database 2017. Thus, our use of the proxy for financial resilience from the Global Findex Database 2017 is the only way to proceed with this study and as a result limits our analysis due to the lack of a financial resilience index that is based on the multidimensional definition of financial resilience provided by Salignac et. al. (2019).

Furthermore, the pairing of the data between the Findex Database 2017 and the Global Competitiveness Report 2017-2018 limits the level of analysis in examining the relationship between life insurance access and financial resilience. The 2017 Findex microdata measures 1,000 individual responses at the individual level for each of the 16 countries in Latin America. Each of these 16,000 individual values across 16 countries is then paired with a single country level life insurance penetration rate, this study's proxy for life insurance access. As a result, we have results only at the country level instead of at the individual level, which would have required additional data to create individual-level fixed effects. Overall, because we do not have access to individual-level observations for life insurance access the results of this study are relevant to the country level of analysis instead of the individual level of analysis.

## 5 Model

This study compares two models: a probit and a linear probability model (LPM) to measure the impact of life insurance access on financial resilience in Latin America using the following equation. The specific variables used in the equation were determined by calculating and minimizing the value of Akaike's Information Criterion (AIC) to optimize the model to best fit the data. In this optimization process, we created 28 different models using available data on possible control variables and selected the model with the lowest AIC value, or the model that statistically fits the data best.

$$\begin{aligned}
 Fin24_i = & \beta_1 LIP_{2017_i} + \beta_2 NLIP_{2017_i} + \beta_3 female_i + \beta_4 age_i + \beta_5 educ_i + \beta_6 inc\_q_i \\
 & + \beta_7 emp\_in_i + \beta_8 Fin2_i + \beta_9 Fin7_i + \beta_{10} Fin19_i + \beta_{11} fin26_i + \beta_{12} Fin28_i \\
 & + \beta_{13} fin32_i + \beta_{14} fin37_i + \beta_{15} mobileowner_i + \beta_{16} fin48_i + \beta_{17} account_i \\
 & + \beta_{18} saved_i + \beta_{19} borrowed_i + \beta_{20} Country\_Name_i + u_i
 \end{aligned}$$



## 6 Results

In Table 2 we see the results of our estimation of the impact of access to life insurance on financial resilience in a sample of 16 middle-income Latin American countries. It is important to note that we control for country level effects by using the variable *Country\_Name*, but that each of the countries and their associated coefficients are left out of Table 2 to present only the necessary information. The results show that most of our coefficients are highly significant across both models. Beyond the values of our coefficients, the utilization of two models is the result of our inability to calculate the marginal effects of the probit model due to singularity issues in the computation. As a result, we include estimations using a linear probability model (LPM) as well to look at the approximate effect of a change in the independent variable of interest, *LIP\_2017*, on the dependent variable, financial resilience.

*Table 2: Estimation Results*

<i>Dependent variable:</i>		
	fin24	
	Probit Model	Linear Probability Model
	(1)	(2)
LIP 2017	9.685*** (2.332)	2.419*** (0.938)
NLIP 2017	2.667*** (0.652)	0.656** (0.263)
female	0.248*** (0.023)	0.068*** (0.010)
age	−0.004*** (0.001)	−0.001*** (0.0003)
educ	0.157*** (0.020)	0.057*** (0.008)
inc q	0.174*** (0.009)	0.057*** (0.003)
emp in	0.067** (0.026)	−0.006 (0.010)
fin2	0.061* (0.034)	0.018 (0.014)
fin7	0.234*** (0.040)	0.077*** (0.018)
fin19	0.116** (0.047)	0.037* (0.021)
fin26	0.276***	0.095***

	(0.036)	(0.016)
fin28	0.055* (0.031)	0.026** (0.013)
fin32	0.119*** (0.027)	
fin37	-0.033 (0.035)	-0.022 (0.014)
mobileowner		0.100*** (0.012)
fin48	0.192*** (0.029)	0.057*** (0.011)
account	0.063 (0.052)	0.009 (0.019)
saved	0.124*** (0.030)	0.046*** (0.012)
borrowed	0.479*** (0.025)	0.157*** (0.010)
Observations	15,373	10,334
R <sup>2</sup>		0.200
Adjusted R <sup>2</sup>		0.197
Log Likelihood	-8,713.265	
Akaike Inf. Crit.	17,492.530	
Residual Std. Error		0.436 (df = 10301)
F Statistic		80.235*** (df = 32; 10301)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	

We find that the coefficient on life insurance penetration in 2017 (*LIP\_17*) is positive and significant in both models. In the probit model the coefficient is positive and significant at the

99% level. We were unable to generate the marginal effects of the probit due to singularity issues and as such can only conclude from this model that the relationship between life insurance access and financial resilience is positive and highly significant. In the LPM, the coefficient on *LIP\_2017* is 2.419 and is significant at the 99% level. In the LPM, we can present the marginal effects of a change in *LIP\_2017* on *fin24*. Here we find that for a 1% increase in *LIP\_2017* we find a 2.419% increase in *fin24*, or the probability of financial resilience. This finding is particularly important considering the low rates of life insurance penetration in Latin America.

Of the independent variables used as controls, the vast majority were significant between the 90% and 99% level with the expected sign except for *female* and *age*. *Female* is a binary variable where if the respondent's sex is female then the variable = 1 and if the respondent's sex is male the variable = 0. *Age* is a variable that accounts for the age of each individual observed in the sample of 16,000 individuals across the 16 countries. Both the probit model and the LPM estimate the effect of *female* as positive, which indicates that female respondents are more resilient than their male counterparts due to the positive coefficient value across both models. Both the probit model and the LPM estimate the effect of *age* as negative, which indicates that as respondents age their level of financial resilience decreases. Although both of these results are unexpected, they can be explained by the existing literature on life insurance and financial resilience.

Salignac et. al. (2021) theorizes that the fourth component of financial resilience is social capital. Social capital considers the social network of people that individuals may draw on in a time of an unexpected shock. This network can be composed of family, friends, and community connections. This is particularly relevant to developing countries in regions such as Latin America because many individuals in these countries rely on informal support mechanisms to increase their financial resilience. Social capital and networks can be critical in bridging the gap between a lack of government services and a shock being imposed upon an individual. In this sense, social networks self-insure their communities by providing support when shocks arrive. Salignac et. al. (2021) notes that women and the poor are usually the groups that benefit the most from high values of social capital. In this situation, this study's estimation reflects that women are more resilient than their male counterparts, suggesting that the rates of social capital may be higher in Latin America for women as compared to men. On the other hand, the coefficient may be biased due to the difficulty in measuring and controlling for social capital. This may have produced an estimation that does not account for the true effect of social networks and further research will be needed to accurately estimate the effect of social capital on fostering financial resilience among women and men in Latin America.

With respect to the coefficient on *age*, the negative values across both models— -0.004 and -0.001 respectively—imply that as age increases financial resilience decreases. This result is highly significant at the 99% level. In theorizing about the result of the negative coefficient on age, this study suggests that when an individual ages they become less adaptable to external shocks. When individuals age, their ability to adapt to shocks decreases. Thus, as the adult population ages, they are more susceptible to shocks and if they do not do more to mitigate against those increasing risks their financial resilience may fall. Even if individuals insure themselves when they are young, but stop at a certain level, they may fail to account for growing risks as they age, decreasing their financial resilience in the long-term. Again, more research will need to be done to better assess the impact of age on financial resilience.

Of the remaining independent variables used as controls, there were three variables with insignificant or inestimable coefficients in the probit model and five insignificant or inestimable

coefficients in the LPM. In the probit and LPM, *fin37*—received government transfers in the past 12 months—and *account*—has an account—are insignificant and as such do not bolster the strong relationship between themselves and financial resilience as life insurance access increases. This is particularly interesting with respect to *account* as it would be assumed that having an account would be a significant factor in determining financial resilience as it would demonstrate the impact of a financial account on building financial resilience. In the LPM, *emp\_in*—respondent is in the workforce—and *fin2*—has a debit card—are not significant, even though they are significant and positive in the probit model—0.067 and significant at the 95% level and 0.018 and significant at the 90% level respectively. This may be due to the misspecification of the model to a LPM, as a probit better models data where the dependent variable is binary. Also in the probit model, *mobileowner*—owns a mobile phone—and in the LPM, *fin32*—received wage payments in the last 12 months—are unable to be estimated and are left blank.

## 7 Discussion

Our results allow us to conclude that there is a significant positive relationship between life insurance access and financial resilience in our sample of 16 middle-income Latin American countries, with two key implications. First, life insurance access contributes significantly and positively in reducing individuals' susceptibility to poverty as a tool that can increase financial resilience, primarily theorized through its death insurance component. Second, increasing financial resilience by increasing life insurance access serves as one method to maintaining inclusive and sustainable middle-class growth by creating long term capital accumulation through the long-term savings component of life insurance. Beyond these two critical implications, we also explore possibilities for future research.

Life insurance access, because it serves as a risk mitigation tool providing death insurance, allows individuals to prepare for the possibility of an unexpected death of a main household income earner, which is particularly relevant considering the COVID-19 pandemic. Latin America has been particularly hard hit by the pandemic, accounting for 28.2% of global deaths despite containing roughly 8.38% of the world population (Sullivan and Meyer 2022). Considering the extent of the deaths in Latin America, thousands of households have been affected by losing a main income earner, forcing them back into poverty from the middle class. As a result, life insurance is of particular importance in reducing middle class households' perceptibility to poverty in its ability to foster financial resilience. In serving as a risk mitigation tool, life insurance financially prepares households for the unexpected shock of losing a main income earner to death. Providing relief to individuals and households in the case of accidental death offers the income needed to prevent the household from falling back into poverty or falling out of the middle class (Moore et. al. 2019). Additionally, relief provided from a life insurance claim smooths for lost income such that a household will continue to have the means to sustain their lifestyle while searching for employment to ensure that the lost income will be replaced without having a substantial negative impact on the family. This is of critical importance to low and middle-income individuals where when faced with the death of the main income earner the whole family may fall back into poverty if there is not sufficient social insurance or community support. As a result, life insurance access is imperative in light of increasing poverty due to the COVID-19 global pandemic.

Beyond the benefits to increasing financial resilience brought by the accidental death coverage component of life insurance, increasing financial resilience stands as a method to

maintain sustainable and inclusive middle-class growth in Latin America through the long-term savings component of life insurance. As referenced previously, life insurance products offer two critical services: income replacement in the occasion of accidental death (i.e., death insurance) and creating long-term savings. Through the long-term savings component, individuals can create the capital accumulation necessary to mitigate, cope, and recover from a variety of shocks (Salignac et. al. 2019; Moore et. al. 2019). By accumulating long term savings, individuals are saving for their future which could mean building retirement savings or simply building funds to manage the next shock that occurs. Considering the slowing growth of the middle class in Latin America brought on by a worsening external economic environment and the COVID-19 pandemic, capital accumulation to increase financial resilience is a critical pathway to sustaining long term growth. To continue the strides made in poverty alleviation and the transformation of Latin America from low- to middle-income economies in the past twenty years, increasing financial resilience by means of increasing life insurance access will be critical in promoting sustainable and continuous middle class economic growth, poverty alleviation, and eventually convergence with the high-income economies of the world. Hence by increasing financial resilience through increasing access to life insurance, capital accumulation will accrue on an individual level, allowing Latin America to continue making strides in their development.

Despite the potential effects of increasing financial resilience through access to life insurance in middle-income Latin America, there is a considerable amount of scholarly work that remains in investigations on life insurance access, its impact on financial resilience, and financial resilience more broadly before concrete policy recommendations can be outlined. There are four key areas of research that must be done. First, to better understand the nature of financial resilience at the country level, a financial resilience index must be created using the framework developed by Salignac et. al. (2021). Once this has been created, there will be a comparable metric that can be used to analyze levels of financial resilience across countries. Additionally, this will allow for country level studies of financial resilience to look at the local conditions that create financially resilient individuals, communities, and eventually countries. Second, as an index for financial resilience is created, it will be critical for local level data to be compiled to measure each of the four components of financial resilience. This will ensure that there is sufficient data to evaluate the extent to which each of the four components of financial resilience (i.e., economic resources, financial products and services, financial knowledge and behavior, and social capital) contribute to financial resiliency in a weighted manner. Third, it is necessary that scholarly work continues to measure the contribution of each of the four components of financial resilience to financially resilient individuals, communities, and countries. Demonstrating how much financial products and services contributes to resilience as compared to social capital will be critical in forming policy that fosters financial resilience. Finally, studies like this one must be carried out globally, measuring the effect of life insurance access and other variables related to risk management on financial resilience in regions across the world to get the most nuanced view on how to foster financial resilience in low- and middle-income developing countries.

## **8 Conclusion**

In our study, we have examined the impact of life insurance access on financial resilience in a sample of 16 middle-income Latin American countries, finding that life insurance access contributes significantly and positively to financial resilience. This has three main implications. First, this study investigates the connection between life insurance access and financial resilience

in middle-income Latin America, the first known study of its kind. Second, this study contributes to expanding the knowledge of how increasing financial resilience can build financially resilient individuals that are able to face the challenge of development and maintain sustainable growth to eventually converge with high-income economies. Lastly, this study examines the implications of life insurance access on increasing middle class financial resilience in Latin America to continue driving growth in the region. By considering the impact of life insurance access on financial resilience to drive middle class growth in Latin America, we further the work of many others seeking to increase life insurance access in developing regions. Although increasing life insurance access will require a substantial commitment by both the private and public sector, if they work together, they will be able to create resilient individuals, communities, and countries that are able to face the challenge of development to continue their path of sustainable and inclusive growth.

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