Financial Inclusion, Inequality, and Retirement Trends among Older Workers

Isaac Marcelin[a], Wei Sun[b]

Abstract

The research created a financial inclusion index with three dimensions: usage, barriers, and access to financial resources. A Principal Component Analysis was used to determine the weights for each dimension. This index aids in evaluating how financial inclusion affects various factors, such as ethnic groups, minorities, human capital, retirement, wealth outcomes, and mental well-being. Our findings have uncovered new psychological and sociological effects of having access to financial products. Households with higher financial inclusion scores are likelier to have higher income, own homes, and possess real estate wealth. They also have a greater chance of creating intergenerational wealth and escaping poverty. Financial inclusion leads to long-term improvements in wealth and retirement outcomes, benefiting minority groups and genders. It also improves family and work resilience, reduces stress, and lowers drug-related problems. Results have several policy implications, including bridging the wealth gap, enhancing retirement security, and bettering socioeconomic outcomes.

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[a] Isaac Marcelin School of Business, Management and Technology, University of Maryland Eastern Shore, Princess Anne, MD 21853, USA, E-mail: imarcelin@umes.edu
[b] Department of Accounting, Law & Finance, The Scott L. Carmona College of Business, Saginaw Valley State University. wsun123@svsu.edu

1. Introduction

The United States has a well-established financial system but needs to be more inclusive. About 25% of the population lacks access to banking facilities or has limited access, which leads to racial and ethnic disparities in financial services (Stein & Yannelis, 2020). Factors like high fees, exclusionary marketing, and lack of qualification thresholds limit access to financial services for large amounts of the population. This exclusion adversely affects socioeconomic opportunities and growth for households and firms. It also hampers retirement preparation and may cause a decline in living standards after retirement.

Financial inclusion brings the unbanked population into the formal financial system, allowing them to access savings, payments, transfers, and credit (Marcelin et al., 2022; Hannig & Stefan, 2010). It helps with retirement planning, investing, and making better financial choices. Being financially included means people can store money safely, save more, stabilize spending, get insurance, make significant investments, create job opportunities, improve social mobility, and build wealth for future generations. It also improves health and education. Financial inclusion is about providing financial services to marginalized groups. For example, two countries may have similar banking systems, but one may mainly give loans to big companies while the other spreads the money to individuals and smaller businesses. Thus, it is essential to identify barriers and market problems that stop financial inclusion in developed markets, which bears relevance for policymakers, households, and small businesses.

Inclusive finance is essential for everyone, including small businesses. People who need proper identification face barriers to saving money, making handling unexpected financial emergencies challenging. Older adults and small firms with limited access to information can benefit from daily money management and financial services. By providing mainstream financial services to these individuals, they can quickly pay bills and receive electronic payments such as wages, pensions, and government assistance. Inclusion can reduce the reliance on expensive services like check cashing and cash transactions for bill payments, lower down payments, and the associated stigma. This reliance negatively impacts living standards, wealth accumulation, and retirement planning.

The study seeks to analyze the influence of financial inclusion on multiple socioeconomic dimensions, including real estate acquisitions, wealth accumulation, inequality, and retirement planning and outcomes. Previous research has connected financial exclusion to impediments that

prevent (Carbo et al., 2005; Conroy, 2005; Leyshon & Thrift, 1995) some societal groups, specific segments of society, from accessing appropriate, low-cost, fair, and safe financial products and services from mainstream providers (Mohan, 2006). An inclusive financial system strives to enhance the "availability" and parity of opportunities to access financial services (Marcelin et al., 2022; Nanda & Kaur, 2016). Facilitation of savings mobilization stems from an inclusive banking approach (Allen et al., 2016; Aportela, 1999), which curtails income inequality and poverty (Bruhn & Love, 2014; Beck et al., 2007; Burgess & Pande, 2005; Kempson et al., 2004), and promotes innovation, job creation, and growth (Prasad, 2010; Ayyagari et al., 2008; Levine, 2005). Further impacts of inclusive finance encompass improved mental well-being (Angelucci et al., 2013; Karlan & Zinman, 2010), decision-making (Mani et al., 2013), and educational achievements (Flug et al., 1998).

Financial institutions can mitigate the problem of information asymmetry by utilizing innovative and affordable financial delivery models. Ahmed and Mallick (2019) suggest that expanding customer outreach and minimizing marginal production costs can help achieve this goal. Inclusive banking can allow households and firms to obtain credit and access secure facilities to store their assets. Access to formal financial services is essential for individuals and the economy, given its potential to remove credit constraints and enhance capital allocation efficiency. Poor individuals with high-expected-return investment opportunities face income inequality risks, which the lack of capital flow can exacerbate (Marcelin et al., 2021; Aterido et al., 2013; Sarma & Pais, 2011; Lopez & Serven, 2009; Beck et al., 2007; Galor & Moav, 2004; Aghion & Bolton, 1997; Galor & Zeira, 1993).

Various theories and hypotheses can help explain the impact of financial inclusion on wealth and retirement outcomes. Firstly, the Life Cycle Hypothesis (LCH) suggests that individuals plan their consumption and savings over their lifetime to maintain a steady level of consumption. Financial inclusion is crucial in enabling older workers to save efficiently and plan for retirement, reducing inequality by improving retirement preparedness. Secondly, the cumulative (dis)advantage theory states that inequalities experienced throughout one's life can accumulate, resulting in significant disparities in retirement. Financial inclusion initiatives targeted at older workers can help mitigate these accumulated disadvantages by providing access to financial resources and planning tools. This theory relates to social stratification and how social and economic inequalities perpetuate within societies. Pension policies that favor specific

employment or income levels can worsen inequality among older workers. Promoting financial inclusion and implementing equitable pension reforms to address these disparities is essential.

Moreover, the financial literacy hypothesis suggests that differences in financial literacy contribute significantly to retirement planning inequality. Individuals with higher financial literacy are more likely to participate in financial markets, effectively use financial products, and save for retirement, influencing retirement trends. Empirical studies often find that financial inclusion can improve retirement outcomes, particularly for marginalized groups. However, financial inclusion strategies' effectiveness depends on the financial product's design, the regulatory environment, and the accompanying financial education programs. Despite the abundance of theories and research, further investigation still needs to be conducted into the effects of financial inclusion, wealth, and retirement. This exploration may lead to comprehensive policy approaches that address the barriers and challenges in achieving financial inclusion for all.

The literature has not considered the impact of financial inclusion on retirement wealth disparity, which is a vital policy question to understand better how to help those who cannot handle financial shocks prepare for retirement. Limited access to financial products slows down wealth creation in minority households. Despite its relevance for combating poverty and improving household well-being, significant gaps exist in our knowledge about financial inclusion. Identifying these gaps can help us increase financial literacy and encourage minorities to participate more in financial markets, which can help narrow the wealth gap. Financial exclusion seems to have more substantial adverse effects on minorities, which raises important questions. Does financial exclusion lead to earlier retirement among minorities, resulting in reduced Social Security benefits and lower post-retirement living standards? Does it also worsen the wealth gap between whites, blacks, Hispanics, and other minorities?

Previous studies have mainly focused on financial inclusion experiments in developing countries or minor changes in financial services for excluded populations. However, there needs to be a comprehensive measure of financial inclusion in the U.S. despite many financially excluded individuals. This gap suggests the need for a new era of financial inclusion. Differences in financial inclusion across different regions in the U.S. can significantly impact financial risk-taking, resource allocation, wealth creation, income distribution, and retirement security. A

comprehensive measure is necessary to assess the extent of financial exclusion in the U.S. and its effects on households and small businesses. This study aims to address this gap by proposing a U.S.-based financial inclusion index that takes a multidimensional approach.

This study addresses policymakers' concerns about exclusion and market failures by investigating why people face these issues. We have developed a new index to measure financial inclusion and conducted instrumental variable regressions and robustness tests. Our findings indicate that minority and younger women heads of households and those living in high-crime and economically challenged areas are less likely to rely on formal bank finance than non-minority males in low-crime and affluent areas. We have also analyzed the reasons behind being unbanked or under-banked and examined their implications on wealth, homeownership, and retirement security. We have differentiated between access to and use of formal financial services and measured their impacts.

This study adds to the existing literature on financial inclusion by providing new and important findings. The results show that financial inclusion benefits married individuals and those with higher education by increasing the likelihood of creating an estate, building intergenerational wealth, and breaking the cycle of poverty. Specifically, financial inclusion increases the probability of breaking the poverty cycle by 7.08% for married couples. It is associated with a 3.17 percentage point increase in the chances of women living to age 85 or older. Individuals who achieved financial inclusion experienced a decline of 37 bpts in overall family problems, with a lesser effect observed for white households (9 bpts). Among African American populations living in financially inclusive counties, there was a significant decrease of 92.29% in chronic stress and drug-related issues, compared to a decrease of only 20.95% among white households. The African American community also experienced a 12.51% reduction in working problems through financial inclusion, while the white population experienced an 8.41% reduction. Financial inclusion is associated with increased satisfaction with income among married couples (5.97 percentage points), African Americans (27.46%), and white Americans (16.11%).

This study joins the existing literature on development and household finance (Stein & Yannelis, 2020; Augsburg et al., 2015; Bruhn & Love, 2014; Morse, 2011) and socioeconomic outcomes (Butler & Cornaggia, 2011; Allen et al., 2013; Demirgüç-Kunt et al., 2013). Inclusive finance positively impacts low-income individuals' living standards (Allen et al., 2013; Bruhn &

Love, 2009; Beck et al., 2007; Burgess & Pande, 2005). This positive effect is evident even for those without a salaried job, with less education, and without homeownership (Allen et al., 2013). Access to adequate financial services can improve daily financial management (Sarma, 2008), enhance domestic savings and investment (Prasad, 2010), provide safer financial transactions, and help individuals escape poverty by investing in education and businesses (Demirgüç-Kunt & Singer, 2017). Formal financial services to under-banked households in disadvantaged areas help bridge the gap between the affluent and the impoverished. Access to these services helps individuals avoid relying on loan sharks and pawnshops, which often deteriorate living standards. A study by Bruhn and Love (2014) in Mexico showed that increased access to financial services resulted in higher income for low-income individuals. Informal business owners can sustain their businesses and contribute to employment growth by operating within the formal financial system.

The study augments the body of literature that examines how demographic characteristics account for disparities in financial access.[1] Stein and Yannelis (2020) study the impact of the Freeman Bank's collapse in the 19th century on African Americans' current financial inclusion and wealth outcomes. Celerier and Matray (2019) highlight the connection between financial inclusion and wealth accumulation through branch deregulation. Aaronson et al. (2021) and Appel and Nickerson (2016) analyze the practice of "redlining" and denying real estate loans to African Americans in specific areas. Brown et al. (2019) investigate the credit market outcomes of individuals living on Native American reservations. This study uses a comprehensive financial inclusion index that considers various demographic characteristics, such as race, ethnicity, gender, and economic background. Women face challenges obtaining financing from formal financial institutions (Muravyev et al., 2009) and venture capital opportunities (Brush et al., 2004). Burgess and Pande (2005) find a decrease in rural poverty because of the expansion of bank branches in rural areas, although Kochar (2011) and Panagariya (2006) do not find supporting evidence.

This study expands the existing research on access to savings and its impact on savers' well-being. Dupas and Robinson (2013a) found that providing a secure place for savings can increase investments in preventive health by up to two-thirds, implying that savers can improve their welfare without relying on credit. In a randomized controlled trial, Schaner (2018)

[1] see Klapper and Parker (2011) for an excellent survey.

discovered that individuals who earned the highest interest had a 28% higher chance of becoming entrepreneurs and saw improvements in business profit and capital. Similarly, Dupas and Robinson (2013b) found that market women in the treatment group had 37% higher daily private expenditures after six months. Choudhury (2001) found disparities in saving behavior among White, Black, and Hispanic households, with minority households hesitant to invest in riskier, higher-yielding financial instruments. Limited access to savings prevents households from accumulating capital for large investment projects and wealth development through higher-yielding products. Financial institutions often offer financial guidance, marketing, resource distribution, retirement planning, portfolio expansion, exclusive financial and insurance products, estate planning, and retirement savings for account holders with increasing balances in unexpected circumstances.

The study adds to the existing literature highlighting the societal benefits of banks' information advantage in financial intermediation. Financial inclusion establishes a banking relationship that addresses agency problems frequently encountered in small firms and financially excluded individuals who experience information asymmetry issues. Financial inclusion signifies a banking connection where financial institutions gather private information about future borrowers. Information asymmetry among borrowers leads to more severe external finance barriers, which cause credit rationing (Marcelin and Mathur 2014, 2015; Mathur & Marcelin, 2014; Petersen & Rajan, 1997; Stiglitz & Weiss, 1981). As the relationship between banks and customers strengthens, banks gain insight into customers' characters and repayment habits, thus granting them access to future funds. Although the cost may become excessive for the "newly financially included," they may advance to full-scale banking customers with more straightforward funding access for creditworthy ventures. Promoting financial inclusion eliminates obstacles to future external financing, unlocks entrepreneurial activity, and facilitates optimal allocation of assets.

Economic agents can capitalize on economic opportunities, invest in education, save for retirement, and insure against risks through financial inclusion (World Bank, 2007). In addition, financial inclusion pertains to taking part in mainstream finance through financial products, investments, assets, and resource allocation, thus narrowing the income gap among different demographic groups. The variation in financial developments across countries handles almost 30% of the difference observed in the rates of poverty reduction across countries (Beck et al.,

2007). Despite being the most developed financial market, the United States population only sometimes enjoys the advantages of financial intermediation, which could negatively impact risk-taking behaviors, retirement planning, income distribution, and poverty rates.

This study examines the relationship between literature and financial satisfaction, finding that financially satisfied individuals are more satisfied with retirement, home ownership, and sociometric measures. Disparities in access to financial services based on race, gender, age, and location can adversely affect households, entrepreneurs, and the economy. Financial inclusion can help diverse demographic groups achieve social and economic success, leading to retirement security and equality. However, there is not enough evidence on how financial inclusion impacts older adults, including whether it worsens wealth disparities among ethnic and racial groups, affects the retirement outcomes of the financially excluded, and leads to reliance on reduced Social Security benefits.

This study relates to the literature that looks at how finance can help people during unexpected events. The COVID-19 pandemic caused numerous people to lose their jobs, which made it difficult for them to pay off their debts, bills, and services. The resulting financial pressures made it harder for them to support their families, acquire assets, or retire on time. It also worsened financial vulnerability and the gender gap. Dang and Nguyen (2021) found that women were 24% more likely to lose their jobs permanently because of the pandemic. Van Aardt et al. (2009) define financial vulnerability as the feeling of being financially insecure when people cannot manage their finances. Stein and Yannelis (2020) suggest that including more people in the financial system can help households and businesses after a major disaster, mainly by providing access to loans and savings products.

This study introduces a new quantitative measure of financial inclusion for policymakers and academic researchers. It addresses a gap in the existing literature by providing a multidimensional measure designed explicitly for the United States. Previous studies have focused on density indicators such as the number of ATMs, branches, and deposit accounts per capita. The index and its subcomponents can reveal differences in socioeconomic outcomes across geographic areas and help reduce disparities among demographic groups. This approach is critical given the recent increase in inequality resulting from unequal participation in formal financial markets. The index can assist policymakers in benchmarking and promoting fairer financial inclusion policies that aim to distribute the benefits of the U.S. financial markets more

equitably. It can also compare levels of financial inclusion among counties and evaluate the effectiveness of policy initiatives. Additionally, academics can utilize the index for empirical research on financial inclusion and its impact on socioeconomic outcomes.

This study is partitioned into seven sections. Section 2 provides the institutional background and an overview of financial inclusion in the United States. Section 3 discusses the data and measurements and the sample characteristics. Section 4 presents the financial inclusion index and how it is calculated. Section 5 covers the data and method used to create the index. Section 6 presents the empirical strategy applied to estimate the effect of financial inclusion on the outcome variables. Section 7 analyzes the results. Section 8 provides some concluding remarks.

2. Institutional backgrounds and inclusion overview

The Federal Reserve has taken multiple steps to achieve greater financial inclusion, including promoting equity through innovation.[2] The 1997 Community Reinvestment Act mandates banks to provide credit inclusively within their jurisdiction, forbidding them from selectively targeting affluent neighborhoods.[3] Section 7 of the Reform Act of 2005 requires the FDIC to monitor member banks' efforts to bring the unbanked into the traditional banking system. The unbanked are people who do not check their savings accounts. Factors such as wealth, language barriers, lack of proper identification, and transaction costs inhibit their inclusion.[4] The FDIC National Survey of Unbanked and Under-banked Households conducted in 2019 revealed that about 7.1 million households were "unbanked." Approximately 29% of these households reported their inability to maintain minimum balance requirements, while 16.1% attributed their nonparticipation in the formal banking system to a lack of trust in banks. Primarily, a higher percentage of black (13.8%) and Hispanic (12.2%) households were unbanked compared to their white counterparts (3%). Among households, 33% or one-third stated that they do not have bank accounts because of a lack of trust in banks, especially among African Americans, with a 16-percentage points. Stein and Yannelis (2020) have found that African Americans who live in counties where Freedman's Savings Bank had a branch earlier are

[2] https://www.frbsf.org/our-district/about/sf-fed-blog/creating-an-on-ramp-for-financial-inclusion/
[3] Central banks around the world have stepped up initiatives to achieve greater financial inclusion (Marcelin et al., 2022).
[4] Federal Deposit Insurance Reform Conforming Amendments Act of 2005, Pub. L. 109–173, 119 Stat. 3601, H.R. 4636 (2006),: E:\PUBLAW\PUBL173.109 (congress.gov)

more inclined to identify distrust of financial institutions as a ground for being unbanked. They did not observe this correlation among individuals identified as whites.

2.2. The channels: effects of financial inclusion and its inhibitors

Financial inclusion affects wealth and retirement outcomes through various channels. One theory is taste discrimination in financial intermediation. In this theory, prominent ethnic groups dominate financial services, creating obstacles for minorities to access them. Taste-based discrimination occurs when lenders stigmatize certain groups based on observable characteristics unrelated to loan performance. They choose to forgo potential profits rather than engage with those groups. This theory suggests that individuals who face discrimination or financial exclusion encounter more difficulties when accessing the formal banking system. However, they do not default more than their privileged counterparts do. Taste-based discrimination can also act as a roadblock to government financial resources.

Small businesses in some industries may need help to obtain funds to finance their operations and acquire physical assets if they lack access to credit. This phenomenon holds for the agricultural sector, where loan applications from some borrowers face delays or rejections, resulting in foreclosure and financial ruin. With external funding, such as government benefits, loans, and debt restructuring, these businesses can invest in technology and become more competitive, leading to bankruptcy. Discrimination against minorities also prevents them from accessing government resources, which ultimately affects their quality of life. Over the last century, the share of black farmers declined from 14 percent to 1.4 percent, with a market share of just 0.5 percent (Aminetzah et al., 2021)[5] because USDA denied them timely loans and debt restructuring (USAD, 2013). Black farmers in the South alleged that USDA local loan authorities, who were part of all-white county committees, had discriminated against them for decades, deliberately refused their loan applications, and rejected their loan requests unlawfully until at least the 1990s.[6]

By contrast, statistical discrimination models suggest certain groups are associated with disutility, leading to higher barriers to accessing modern payment instruments, mainstream banking, financial services, safe value storage, consumer credit, retirement, and insurance products. This disutility view may explain marketing walls and redlining, which can exclude

[5] McKinsey & Company (2021)
[6] The Nation (2010). The Real Story of Racism at the USDA.

certain groups due to lacking information. Observable characteristics such as lower education, neighborhood crime and income levels, age, gender, and low financial literacy may explain the low participation of these groups in the formal market economy. Some studies that support this theory include Ravina (2019), Aterido et al. (2016), Phelps (1972), and Arrow (1973).

Financial inclusion impacts inequality and retirement outcomes through moral-hazard and adverse selection. According to economic theory, the equilibrium between supply and demand occurs at clearing market prices. However, there is a difference between financial credit and insurance markets. Stiglitz and Weiss (1981) highlight that higher interest rates attract riskier borrowers (adverse selection) and affect repayment incentives (moral-hazard). Financial exclusion can also occur because of self-exclusion caused by low expectations, negative experiences, and technical, cultural, religious, and educational reasons. Self-exclusion leads to a reduced need for financial products and services. Lack of financial capability and distrust of banks are significant barriers to financial inclusion, although the exact causal relationship is unclear (Karlan et al., 2014; Fernandes et al., 2014). Policymakers are not concerned about non-utilizers, as their non-use is because of insufficient demand. Non-monetary barriers — high crime rate areas, remote or rural locations, and inadequate identification for opening bank accounts, result in financial exclusion for many individuals.

Scholars have concluded that a product or service that enables savings is a commitment mechanism for saving (Thaler & Benartzi, 2004). The availability of savings can enable households and small businesses to accumulate resources to make substantial investments. As highlighted by Ruiz-Duran (2016), the provision of financial services plays a crucial role in enabling consumption smoothing, which is otherwise a formidable task. Kast et al. (2012) found that implementing simple savings reminders can lead to heightened awareness and elevated savings levels among households. The initial expenses linked to beginning a bank account include prerequisites such as minimum balance demands, gathering required documentation, and identity verification.

Like savings, credit exclusion hinders households from mitigating consumption volatility as a safeguard against income turbulence that may arise from unforeseen circumstances, such as job loss, health deterioration, marital separation, the demise of a primary earner, and natural calamities. Enhanced accessibility to formal banking resources can prevent individuals from being impoverished. The challenge for banks lies in balancing the need for households or firms

to access credit with the level of risk as they strive to serve clients who range from wholly excluded to fully and adequately served. Credit providers frequently reject applicants who lack established credibility or quantifiable creditworthiness, depending on the pre-contractual realized risk quality to set contract and loan terms. Information asymmetry regarding hard-to-vet applicants makes credit applications more complex for banks to evaluate the default risk and monitor projects ex-post, causing high price sensitivity. Elevated credit expenses hinder the debtor's reimbursement capacity, making it more complex to determine an ideal interest rate that offsets the expected default risk, resulting in credit rationing or increased financial exclusion.

Financial inclusion impacts wealth and retirement outcomes through market failures caused by supply and demand factors. The availability and accessibility of financial services vary across different areas in the U.S., including rural and metropolitan regions. Some neighborhoods face significant delays, even in significant marketplaces like Chicago, New York City, and Philadelphia, and they need to catch up. Geographically challenging areas require assistance in promoting financial inclusion. Financial exclusion refers to the inability of social groups to access financial systems, particularly credit, owing to barriers. Inclusive finance ensures access, usage, adequacy, regulation, and fair pricing of financial services and products.

Improving financial inclusion has many benefits. It can lead to increased investment in education, businesses (Brune et al., 2011), gender equity (Ashraf et al., 2010), and health outcomes (Dupas & Robinson, 2013a). It can reduce inequality (Beck et al., 2007), especially for those with existing businesses who gain access to financial services for the first time (Demirgüç-Kunt & Klapper, 2013; Banerjee et al., 2010; Karlan & Zinman, 2010). Financial inclusion promotes upward mobility, enhances retirement savings, and improves post-retirement living standards. Access to credit is crucial for small firms to grow (Beck et al., 2005; Banerjee et al., 2015; Klapper et al., 2006; Guiso et al., 2004), and savings services can encourage enterprise investment, particularly among female entrepreneurs (Dupas & Robinson, 2013b), leading to increased future income and social returns on inclusion.

3. Data and measurement

This study uses data from the Health and Retirement Study (HRS) and the Bureau of Economic Analysis (BEA) database. The HRS provides information about individuals' lives until they leave the biannual survey. The questions refer to economic status, childhood, family or

marital status, health conditions, employment, retirement, etc. We use the survey to test how financial inclusion affects financial health, mental wellness, and life quality. This study builds upon 15 waves of HRS biannual data, covering 1992 to 2020. The HRS is a longitudinal database on a national scale that initially targeted individuals born from 1931 to 1941. The survey focuses on the respondents' health, wealth, retirement, and economic status. HRS uses a bracketing technique to get a wealth of information, which produces high-quality data (Choudhury, 2001).

3.1. Sample characteristics

The HRS sample imputes missing pension wealth using group means calculated by race, education, and status. The primary respondent, who is most knowledgeable about household financial matters, provides information. Married households have a primary and a secondary respondent, while single households have only a primary respondent. Black and Hispanic households and Florida residents have a disproportionate representation in the HRS. We employ household weights to describe a representative population, with the analysis conducted at the household level while excluding cases where only one spouse in a married household participated. We only included counties in our sample if they had at least five households. The ultimate sample we used had 2641 households.

Table 2A, in the Appendix, shows the demographic, income, wealth, psycho- and sociometric characteristics of the households analyzed in this study. Characteristics such as age, gender, race, and ethnicity refer to the head of household or the primary respondent during the survey. We use the terms "whites" and "blacks" to refer to non-Hispanic whites and non-Hispanic blacks, respectively. A household is a minority if it is black or Hispanic. Other racial and ethnic groups include American Indians and Asian-Pacific Islanders. We only included whites and blacks, since the other ethnicities were too small to form a distinct category.

Table A2 comprehensively lists variables, definitions, and summary statistics. These variables are crucial for understanding the data used to study the impact of financial inclusion on emotional well-being, personality traits, and socioeconomic outcomes. The table includes various variables with detailed explanations, emphasizing the thorough approach taken to examine financial inclusion's effects. The summary statistics highlight variations in emotional well-being, personality traits, and economic conditions among participants, exhibiting diverse experiences and perspectives. Including demographic and macroeconomic control variables

ensures potential confounders are accounted for, allowing for more reliable conclusions about the relationship between financial inclusion and the variables of interest. Broadly, Table A2 lays the foundation for a detailed investigation into the multifaceted impact of financial inclusion and to understand how financial inclusion can influence various aspects of individuals' lives, from psychological well-being to economic security.

3.2. Wealth measures

The satisfaction rate for household income is 3.27%, and for housing is 4.025%. These indicators show wealth accumulation in the financial atmosphere. Over 56% of respondents were married, with an average age of 67.96. 74.73% of respondents plan to leave a bequest or inheritance. 65.42% intend to leave an estate worth $10,000 or more, 44.05% expect to leave $100,000, and 18.78% expect to leave half a million dollars, indicating wealth distribution in the U.S. population. These indicators show the ability to create an estate from external finance and qualify for investment products or credit at reasonable costs. The likelihood of a bequest or estate can lead to cost savings and improved welfare. The survey also asked about thoughts on mortality. About 62.22% believe they will live until 75, while 43.34% think they will live until 85. These results relate to wellness and life quality.

The HRS oversamples homeowners, with a 74.2% ownership rate across 15 waves. The Census Bureau reports that the homeownership rate of 65.9% is not statistically different from the rate in the second quarter of 2022 (65.8%) or the rate in the first e of 2023 (66.0%).[7] Respondents owned vehicles worth $21,999 on average. Their average earning per capita was $28,232, while the average wage topped $45,967. The average personal income per capita was $43,993, and the average retirement per capita was $6,422. The satisfaction levels of respondents with retirement, family, health, home, income, and life are low, with the highest satisfaction level being 4.82% for life and the lowest being 1.39% for retirement.

3.3. Psycho and sociometric measures

We use various measures to assess the psychological and social aspects. The psychological measures include personality traits like agreeableness, consciousness, loneliness, and neuroticism. The social measures comprise issues like family illness, chronic stress, drug abuse, emotional distress, health problems, housing issues, relationship challenges, and

[7] currenthvspress.pdf (census.gov)

work-related problems. Using these measures helps us analyze financial inclusion's impact more effectively and uncover new insights that have yet to be explored in previous research.

The data depicted in Figure 1 provides graphical evidence that supports the hypothesis that financial inclusion can improve chronic stress, drug addiction, emotional and health problems, housing conditions, and relationship issues. Each of these indicators exhibits an inverse relationship with our financial inclusion measure. The figures suggest that better accessibility to financial resources and services has a positive impact on reducing chronic stress and drug and substance abuse and improving health and emotional stability. Enhancements in these aspects may lead to improved work outcomes and productivity, enabling better-living housing arrangements. Figure 1 shows how financial inclusion is related to mental wellness, health, and relationship problems in different counties. The solid line represents the financial inclusion score and the outcomes. The dashed line is a 95% confidence band, showing the strength and variability of the relationship.

Figure 1 suggests that improving financial inclusion can have broader benefits, like reducing mental health issues and improving community relationships. It also shows a link between financial inclusion and health outcomes, indicating that financial and health counseling and services can address financial and health concerns. A study by Kim and Garman (2003) found a connection between financial stress and mental health issues, supporting the idea that higher financial inclusion could help reduce these concerns. These findings underscore the benefits of financial access for public health. The data depicted in the figure offers preliminary evidence that increased inclusion in the financial system yields benefits for psychological well-being and, ultimately, for the entire economy. Financial inclusion promotes emotional stability in individuals, creating more opportunities for investment and wealth growth, ultimately supporting increased economic activity.

[Insert Figure 1 about here]

Figure 2 has three panels, with Panel A showing the relationship between financial inclusion, agreeableness, and conscientiousness. Panel B illustrates the association between financial inclusion, extroversion, and loneliness. Panel C refers to the relationship between financial inclusion, neuroticism, and openness. Financial inclusion improves interactions among individuals by increasing agreeableness, conscientiousness, extroversion, and openness while

reducing loneliness and neuroticism. Figure 2 shows a complex relationship between financial inclusion and psychological traits. The solid line represents the financial inclusion score, while the dashed line represents the 95% confidence band, indicating a statistical analysis of these relationships. Positive relationships with agreeableness, conscientiousness, and extroversion suggest that financial inclusion promotes social cooperation, diligent financial management, and increased social interaction. Negative relationships with loneliness and neuroticism indicate that higher levels of financial inclusion are associated with better mental health and reduced feelings of isolation. The graphic suggests financial education can address psychological traits to enhance engagement and effectiveness. Financial products and services can consider customers' psychometric profiles in product design, providing personalized financial advice and services that cater to individual psychological needs. A study by Neto and Pinto (2014) found that financial inclusion significantly contributes to individuals' quality of life and psychological well-being, which aligns with the positive correlations observed in Figure 2 between financial inclusion and traits like agreeableness and extroversion. Figure 2 underscores the intricate connections between financial inclusion and psychometric indicators, revealing how financial access can intertwine with and influence psychological profiles. These insights have implications for financial policies and products' development and contribute to a broader understanding of financial inclusion's role in enhancing social and psychological well-being.

[Insert Figure 2 about here]

We present a graphical depiction of how financial inclusion impacts wealth measures, including retirement satisfaction, income, home ownership, and health and life quality indicators. Panels A and B in Figure 3 depict the connection between financial inclusion and the possibility of establishing a bequest valued at no less than $100,000 and $500,000. The graphical representations in Panels C and D portray the correlation between financial inclusion and the subjective measures of living up to 75 and 85. The graphs indicate improved quality of life for those with access to formal financial resources. The outcome is not surprising, given that individuals with access to financial services cannot endure unforeseen shocks but can also participate in insurance systems, enabling them to access healthcare resources for improved living outcomes. Panels E and F in Figure 3 illustrate the influence of financial inclusion on income and retirement outcomes. As predicted, financial inclusion has a positive effect on

income and retirement. Based on the diagrams, those accessing formal financial services can employ income-generating financial products to level their income and strengthen their retirement safety nets. In Panels G and H of Figure 3, the relationship between financial inclusion and family and health is depicted. The graphs imply that individuals with financial inclusion experience greater stability in their homes and a more convivial family. The trends support the observed relationship with healthcare outcomes or longevity.

[Insert Figure 3 here]

Lusardi and Mitchell (2007) found significant financial literacy and retirement planning knowledge gaps. These gaps affect individuals' ability to save and invest for retirement. Figure 3 shows a positive relationship between financial inclusion and retirement income expectations. This correlation highlights the need for better financial education and inclusion for a secure retirement plan. Kopczuk and Lupton (2007) examine the motives behind bequests. They found a link between significant wealth transfers and financial planning, reflecting individuals' desire to provide for their descendants. This planning cannot occur for the financially excluded. Figure 3 also shows a connection between financial inclusion and the probability of making a bequest. The prima facie evidence indicates that having access to financial services improves an individual's ability to engage in this type of planning. Figure 3 emphasizes the importance of financial inclusion in empowering individuals to manage their financial futures effectively. Such planning positively impacts retirement planning, family well-being, and health outcomes. It is clear from the insights in this figure and the related literature that comprehensive policies promoting financial inclusion are crucial for enhancing long-term financial security and overall quality of life.

Figure 4's Panels A and B show that financial inclusion strongly positively correlates to home ownership and life quality. Homeownership indicates financial stability and security; life quality reverberates health, education, income, housing, and safety. Financial inclusion can facilitate saving up for a down payment and managing mortgage payments. Homeownership helps build wealth, improve financial security, and positively impact life quality. Financial inclusion can also improve life quality by providing access to savings accounts and credit to cope with unexpected financial shocks, reducing stress and anxiety, and improving mental and physical health. Figure 4, Panels C and D show the correlation between financial inclusion and

leisure and town. The graphs suggest that financially included individuals, such as homeowners, have a better quality of life, higher civic engagement, and community involvement. They also show greater satisfaction with their town or neighborhood, a strong proxy for quality of life. Financial inclusion can help people access savings accounts and other financial products, allowing them to save money for leisurely activities. It can also help them generate disposable income or access credit to finance home improvement projects and vacations. It can help people manage their finances more effectively, freeing time for leisure activities. Financial inclusion can promote social cohesion in towns by providing more leisure time for people to interact with each other and build relationships.

[Insert Figure 4 about here]

Figure 4 shows a positive correlation between financial inclusion and improved home and life quality, implying that financial inclusion has benefits beyond just economics. It also includes aspects like housing quality and overall life satisfaction. The link between financial inclusion and home quality suggests that policies to improve access to affordable housing finance can have a significant impact. Initiatives like first-time homebuyer programs, subsidies for low-income families, or incentives for banks to offer more accessible mortgage products can help. The broader impact on life quality reveals the importance of financial inclusion for social welfare. Leung and Ng (2013) found that financial inclusion significantly positively affects overall well-being. The relationship shown in Figure 4 suggests that financial inclusion can improve living conditions, and life satisfaction supports that view. Figure 4 reinforces the societal benefits of financial access. It calls for policies that promote financial inclusion and address its role in enhancing living conditions and overall well-being. Rohe and Stegman (1994) highlighted the positive relationship between housing quality and life satisfaction for low-income individuals. The positive correlation shown in Figure 4 supports this research, showing that financial inclusion can improve housing conditions and life quality.

Figure 5, shown in Appendix A, denotes the distribution of different factors across census regions in the U.S. These factors include (1) having a bequest, building intergenerational wealth, or creating an estate; (2) the probability of living to 85; (3) satisfaction with personal income; (4) individual earnings; and (5) the value of vehicle owned and financial inclusion. The graphs reveal that people in the West and Northeast regions have higher financial inclusion scores. They

are also more likely to create a bequest worth $500,000 than those in the Southwest and Southeast. The Midwest region falls somewhere in the middle of the spectrum. People in the Northeast live longer than those in the Southeast, especially up to age 85. The West and Northeast score better than the Southeast and Southwest in financial inclusion and other categories. This finding highlights the need for policies to improve financial inclusion and quality of life in the South.

Kempson et al. (2017) showed that financial inclusion positively impacts well-being, including emotional health. The depiction in Figure 5 highlights the broader benefits of financial access beyond just economic stability. Neto and Pinto (2014) also found that financial stability is crucial for mental and emotional health. Figure 5 supports this idea, suggesting financial inclusion can be a foundation for improved emotional well-being. Therefore, it is crucial to view financial inclusion not only as an economic issue but also as something significantly affecting emotional well-being. This analysis underscores the import of a holistic approach to financial inclusion, recognizing its potential to positively impact mental and emotional health, which aligns with the existing literature.

4. Financial inclusion indexes: background

Academics and policymakers use financial indicators to measure financial inclusion. The most common indicators are density measures that show banking depth and infrastructure. However, these indicators accurately represent the isolation of some communities across the country. In 2021, U.S. banks shuttered 2,927 branches, up from 2,126 in 2020,[8] leaving many small towns and low-income communities with no branches. The American Banker in 2020 reported that the last bank branch in Duncan, Arizona, closed in July 2016. The nearest alternative is 40 miles away, leaving the town with only one ATM, which charges $2.75 for a cash withdrawal. Closing several bank branches has left many elderly and small businesses without access to essential financial services, such as credit for large purchases, savings, bill payments, insurance, Etc. A household survey conducted in Washington D.C., Los Angeles, and Chicago shows that many individuals use informal non-bank services instead. These services are often of lower quality and come at a higher cost.

[8] S&P Global Market Intelligence.

A multidimensional financial inclusion index and its subcomponents are preferable to general inclusion indicators, as the latter often disregard the practical difficulties that hinder the access of marginalized population segments to fundamental financial services. Employing banking sector variables, Sarma (2008) proposes a financial inclusion index covering penetration, availability, and usage of banking services. Arora (2017) and Chakravarty and Pal (2013) developed a financial inclusion index using a method resembling that of Sarma (2008). Notwithstanding, Chakravarty and Pal (2013) monitor the contribution of distinct constituents through an axiomatic technique, while Arora (2017) presents outreach indicators encompassing demographic and geographic penetration and transaction cost convenience. These studies address the limitations inherent in Sarma's (2008) inclusion indexes that equally weigh the evaluation of banking services' accessibility, availability, and usage. Mialou et al. (2017) have endeavored to overcome challenges associated with equal weights by normalizing the variables, using a distance metric to a reference point, calculating the relative position of a specific variable concerning its reference point, and employing a weighted geometric mean to generate the intermediate dimensional variables and a cross-dimension composite index.

There are slight variations in approaches, dimensions of financial inclusion, indicators, and sample size across studies. The critical persistent dimensions are outreach, availability, and use of essential financial services. Tram et al. (2023) used a two-stage principal component analysis to create a financial inclusion index for 41 developing countries. Cámara and Tuesta (2014) did the same for 82 countries. Aslan et al. (2017) used a joint correspondence analysis technique to create an index for 140 countries.

The existence of high-grade data provides an array of indicators, including usage costs, often overlooked in financial inclusion indexes on an international scale. Despite the ongoing difficulty of determining appropriate weights for the components of current financial indices, Sarma (2008) has implemented a method that aligns with the one utilized by the United Nations Development Program (UNDP) for creating a diverse range of indices, such as the Human Development Index (HDI), Human Poverty Index (HPI), and Gender-related Development Index (GDI). We suggest a financial index for the U.S. based on Tram et al. (2023) and Cámara and Tuesta (2014). This index is dynamic and improves financial inclusion in various areas. It avoids the equal-weight problems faced by Sarma (2010) and the UNDP indexes.

4.1. U.S.-based financial inclusion index

Measuring financial inclusion is a significant concern for policymakers, governments, and researchers. Several studies have created financial inclusion indexes considering the accessibility and usage of formal financial services (Amidzic et al., 2014; Sarma, 2012, 2008; Chakravarty & Pal, 2010; Honohan, 2008). These authors measure the financial inclusion index by considering dimensions of utilization and accessibility of formal financial services, i.e., supply-side aggregate data. Demirguc-Kunt and Klapper (2013) use demand-side micro-data to examine usage and barrier-related sub-dimensions. However, using separate indicators can only provide a partial understanding of financial inclusion across nations. Many comprehensive studies suffer methodological issues and measurement errors (Carama & Tuesta, 2014).

An inclusive financial system should be accessible to all and ought to lessen instances of involuntary financial exclusion. Financial exclusion arises when individuals face barriers that impede access to the official financial system. We expound that the level of financial inclusion is a function of three factors: usage, barriers, and access. The assumption is that assessing financial inclusion requires evaluating individual demand indicators related to usage and impediments and county-level supply indicators for access. Thus, we examine financial inclusion from the perspectives of those with access to formal financial services and the barriers those without access to such services face. An assessment of obstacles to financial inclusion operates through analysis of the barriers perceived by those without access. Having formal financial services or many access points does not ensure financial inclusivity. The literature has focused on socio-economic factors, like per capita GDP, human capital, and development status, as factors that significantly influence the use of formal financial services by individuals (see Sarma, 2012, 2008). Participation in formal financial services alone is not a sufficient measure of the comprehensiveness of a financial system; instead, it is merely a byproduct of financial inclusion. The fundamental assumption is that the existence of a financial system with extensive reach through branch presence and ATM networks does not inherently ensure automatic access to the formal financial system. While access and usage are critical to financial inclusion, other factors that are difficult to observe may cause individuals to self-exclude.

Banks engage with customers in a comprehensive financial system, regardless of geographic distance, ethnic background, and economic circumstances, driving local economic growth. The level of penetration in the banking sector exemplifies the adoption of new models

and technology by financial intermediaries to gather information and evaluate the riskiness of individuals who are challenging to assess. Penetration reflects how institutions provide financial services to geographically remote and disadvantaged communities. While financial depth and local economic growth may positively correlate, inclusion efforts demand reaching out to hard-to-vet individuals to increase take-up rates. Banks can improve the community's financial situation by increasing investment and productivity, which reduces poverty. The banking system's penetration reflects private credit to GDP and the number of individuals with a banking account, which is widespread in the U.S.

Banks strive to engage with customers within a comprehensive financial system, irrespective of geographical distance, ethnic identity, or economic circumstances, promoting local economic growth. The extent of banking sector penetration signifies the adoption of new models and technology by financial intermediaries for collecting information and evaluating the risk associated with individuals who are difficult to scrutinize. This process enables the provision of finance to communities that are hard to monitor and underprivileged. Banks' provision of finance to communities leads to a decline in poverty levels as total factor productivity and investment increase. Financial depth can improve financial inclusion, which can have benefits that exceed the financial realm and extend to the real economy, leading to welfare effects. However, financial depth does not determine financial inclusion. Marcelin et al. (2021) present emerging evidence of a correlation between financial inclusion and economic growth or inequality. Demirguç-Kunt et al. (2017), Beck et al. (2007), and Levine et al. (2000) agree that financial depth leads to the enhancement of growth while reducing income inequality.

4.2. Dimensions

Our financial inclusion index involves access, barriers, and usage. To calculate this, we used a large dataset at the individual level. The Health and Retirement Study tabulated the dataset at the University of Michigan. It is one of the most comprehensive and harmonized sets available. The extant literature on financial inclusion has extensively employed three factors.

4.2.1 Access

Accessing formal financial services is imperative for individuals. However, increased access only sometimes corresponds to greater financial inclusion. Camara and Tuesta (2014) suggest that there is a threshold for access. Upon reaching this threshold, further expansion of

accessibility may not cause greater financial inclusion. While it could enhance the frequency of usage, there is no assurance that the percentage of accounts held, or other financial services used, would increase. If access falls below the threshold, enhancing the availability of financial services could contribute to improving financial inclusion. The escalation of competition among financial institutions might enhance the availability and utilization of financial services, surpassing the limit.

The World Bank (2015) defines access as the depth of outreach of financial services, measured by factors such as the availability of bank branches or point of sale (POS) devices in rural areas and customer-facing barriers like cost or information-related issues. The current research suggests a connection between access to financial services, financial depth, proximity of financial institutions, low costs for financial accounts, and a robust legal system, as highlighted in studies by Allen et al. (2016) and Beck et al. (2007). To measure the availability of financial services, we can look at the number of bank branches and ATMs per 1000 individuals and the number of branches and ATMs per 100,000 km2.

4.2.2. Barriers

Many individuals cannot take up formal financial services, perhaps because of perceived barriers to financial inclusion. To evaluate the level of financial inclusion, we need to understand the obstacles that prevent some individuals from being part of the formal financial system. Financial exclusion can be voluntary or involuntary. With financial inclusion, it is a matter of behavior. People participate in the formal financial system based on their budgetary constraints. Some individuals may choose to exclude themselves because of cultural reasons, lack of funds, or lack of awareness of the benefits of formal financial services. Imperfect information about financial services' utility for risk management, savings, and affordability of investments like education or real estate can also influence this decision. Sometimes, exclusion may be due to market imperfections such as insufficient access to financial services or unsuitable product lines, which can cause involuntary exclusion, where people cannot satisfy their demands.

The Global Findex report indicates that almost 20% of the unbanked population attributes their lack of an account to distance. This reason emerges more in developing countries with distant access points (Demirguç-Kunt & Klapper, 2013). About 20 percent of the unbanked consider documentation requirements a perceived obstacle to financial inclusion. The second

most cited obstacle to financial inclusion is affordability, following only a lack of funds, which prohibits a quarter of the unbanked from accessing formal financial services. Thirteen percent of adults cite the absence of trust in the financial system as their concern. After obtaining consistent results across two datasets — the FINRA and the HRS-, we introduce proxies for variables in building the financial inclusion index.

4.2.3. Usage

Kempson et al. (2004) underscore that in several highly banked countries, many individuals with a bank account make limited use of the services offered because they are "under-banked" or "marginally banked." The existence of a bank account" Usage measures how clients use financial services, including the regularity and duration of the financial product/service over time (e.g., average savings balances, number of transactions per account, number of electronic payments made) (World Bank, 2015). We assess the credit and deposit volume ratio to county GDP to include formal banking services in our financial inclusion index. Merely offering elementary bank accounts does not lead to considerably higher savings or other downstream outcomes (Dupas et al., 2018) or asset accumulation (Prina, 2015). The provision of cost-free bank accounts and the expansion of local banks appearances the adoption of these bank accounts (Prina, 2015). Providing cost-free bank accounts could facilitate the unbanked in building banking relationships and receiving government benefits and transfers from acquaintances.

5. Principal Component Analysis

We created a financial inclusion index that represents the hidden nature of inclusion as an economic concept. This index has three dimensions: ACCESS, USAGE, and BARRIERS. We employed the Principal Component Analysis (PCA) to derive financial inclusion as a latent construct. The initial step involves selecting variables based on theory and establishing criteria for reducing information. We subsequently assigned weights to the sub-components empirically. The weight assignment is crucial in optimizing the information retrieval from a dataset in an index. The two-stage PCA accounts for relevant information from all indicators, displaying no marked bias towards any specific indicator (Camara & Tuesta, 2014). Fragmenting the sub-indices into smaller components would facilitate exploring and planning policies for specific issues. Mishra (2007) notes that the PCA method is biased towards indicators with high

correlation, which can create a partiality. To avoid this, we create sub-indices in the first stage and then use them as exogenous variables to estimate the dimensions' weights and the overall financial inclusion index in the second stage.

Assuming the following linear relationship between latent determinants of financial inclusion:

$$FI_i = w_1 Z_i^A + w_2 Z_i^B + w_3 Z_i^U + \epsilon_i \quad (1)$$

where *i* indexes the county or state, and (Z_i^A, Z_i^B, Z_i^U) denote the dimensions of ACCESS, BARRIERS, and USAGE, respectively. The model can explain the total variation in financial inclusion with two components: the causal indicators and the error term (ϵ_i). If the model is correctly specified, it can capture all the variation in financial inclusion.

5.1 First stage Principal Component Analysis

We used the same approach as Camara and Tuesta (2014) to develop a Financial Inclusion Index for counties. We employed a two-stage Principal Component Analysis (PCA) for this purpose. In the first stage, we estimated the three dimensions - Usage, Access, and Barriers - which are the three unobserved endogenous variables. We estimated the parameters of these dimensions using a system of equations.

$$Usage_{i,t} = \beta_1 Checking_{i,t} + \beta_2 IRA_{i,t} + \beta_3 CD_{i,t} + \beta_4 Saving_{i,t} + \beta_5 Mortgage_{i,t} + \beta_6 Debt_{i,t} + \beta_7 Pension_{i,t} \quad (2)$$

$$Access_{i,t} = \theta_1 Business_{i,t} + \theta_2 Bond_{i,t} + \theta_3 Stock_{i,t} \quad (3)$$

$$Barriers_{i,t} = \gamma_1 Below\_Poverty_{i,t} + \gamma_2 Income\_To\_Poverty\_Threshold_{i,t} + \gamma_3 Income\_To\_Poverty\_Threshold\_Below\_Poverty_{i,t} + \gamma_4 Ongoing\_Concern\_Financial\_Problems_{i,t} + \gamma_5 Satisfication\_Financial\_Status_{i,t} \quad (4)[9]$$

[9] We only used the first three components (Below Poverty, Income to Poverty Threshold Ratio, and Income to Poverty Threshold Ratio for Below Poverty) for the period of 2000-2010 because of data availability. However, we used all five components for the period of 2010-2020 in our estimation.

where the indicators CHECKING, IRA, CD, SAVING, MORTGAGE, DEBT, and PENSION denote the ratios of residents possessing the mentioned bank accounts in each county, as reported in the HRS data. We can categorize residents into three groups based on their investments: those who own businesses, those who invest in bonds, and those who invest in stocks. The variables Business, BOND, and STOCK represent these groups, respectively. BELOW_POVERTY measures the proportion of families with incomes below the poverty threshold in every county. INCOME_TO_POVERTY_THRESHOLD is the average family income ratio to each county's poverty threshold. INCOME_TO_POVERTY_THRESHOLD_BELOW_POVERTY is the average ratio of family income to the poverty threshold for families below the poverty threshold in each county. ONGOING_CONCERN_OF_FINANCIAL_PROBLEMS is the average score of ongoing financial concerns in each county. SATISFACTION_OF_FINANCIAL_STATUS indicator is the average score of financial satisfaction in each county. Unobserved, the endogenous indicators $Z_i^A,\ Z_i^B,\ and\ Z_i^U$ are simultaneously determined employing unknown parameters: γ, λ, and ξ. Assume that Γ_p represents the correlation matrix of p standardized indicators for dimensions, $Z_i^A,\ Z_i^B,\ and\ Z_i^U$. Let $\theta_k\ (k = 1,\ ...,\ p)$ represent the *k-th* eigenvalue, with *k* indexing the number of principal components corresponding to the number of indicators or subindices, p. Furthermore, assume that $\psi_j(px1)$ denotes $\Gamma_p^{'}$s eigenvector, $\delta_1 > \delta_2 ... > \delta_p$ capturing $P_l(l = 1,\ ...,\ p)$, the *l-th* principal component. Accordingly, we obtain the consequent estimator of each dimension, according to the corresponding weighted averaged as follows:

$$Z_i^a = \frac{\sum_{k,l=1}^{p} \delta_k^a P_{li}^a}{\sum_{k=1}^{p} \delta_k^a} \tag{5}$$

$$Z_i^b = \frac{\sum_{k,l=1}^{p} \delta_k^b P_{li}^b}{\sum_{k=1}^{p} \delta_k^b} \tag{6}$$

$$Z_i^u = \frac{\sum_{k,l=1}^{p} \delta_k^u P_{li}^u}{\sum_{k=1}^{p} \delta_k^u} \tag{7}$$

where $P_l = X\,\delta_k$, with δ_k capturing the variance or the weight of the *lth* principal component and *X* the indicators matrix. The weights of the components decrease, explaining more significant variance in the dimensions first. The principal component of the pth is a linear combination that accounts for the minimum variance. Cámara and Tuesta (2014) discuss the issue of determining how many factors to retain in principal component analysis. They suggest using a reduced set of the first few principal components that account for a substantial portion of the total variance in the sampled variables instead of the entire set of causal variables. Macedo et al. (2022) and Tram et al. (2023) also similarly apply PCA to construct their financial inclusion.

5.2 Second stage Principal Component Analysis

We constructed the financial inclusion index in two stages. In the second stage, we compute the overall index by using latent constructs $Z_i^A,\ Z_i^B,\ and\ Z_i^U$ in Eq. (1). Then, we apply the PCA procedure to derive the parameters δ, just like in the first stage. Finally, we use the subsequent estimator to generate the financial inclusion index.

$$FII_i = \frac{\sum_{k=1}^{p} \delta_k P_{li}}{\sum_{k=1}^{p} \delta_k} \tag{8}$$

The first principal component has the highest weight because it accounts for the highest variation in the causal variables. We can rearrange equation (8) and express P_{li} as a linear combination of the three sub-components, with p=3. To do this, we use the eigenvectors of the corresponding correlation matrices, ψ.

$$P_{1i} = \psi_{11} Z_i^a + \psi_{12} Z_i^b + \psi_{13} Z_i^a \tag{9}$$

$$P_{2i} = \psi_{21} Z_i^a + \psi_{22} Z_i^b + \psi_{23} Z_i^a \tag{10}$$

$$P_{3i} = \psi_{31} Z_i^a + \psi_{32} Z_i^b + \psi_{33} Z_i^a \tag{11}$$

We can thus write the financial inclusion index as:

$$FII_i = \frac{\sum_{k=1}^{3} \delta_k (\psi_{k1} Z_i^a + \psi_{k2} Z_i^b + \psi_{k3} Z_i^u)}{\sum_{k=1}^{3} \delta_k} \tag{12}$$

After algebraic manipulations, we derive the financial inclusion index as a weighted average of the three dimensions in eq. (1):

$$FII_i = \omega_1 Z_i^a + \omega_2 Z_i^b + \omega_3 Z_i^u + \upsilon_i \quad (13)$$

where ω_k represents each dimension's relative weight or contribution to the financial inclusion index. We derive ω_k using the following relationship:

$$\omega_k = \frac{\sum_{k=1}^{3} \delta_k \psi_{kl}}{\sum_{k=1}^{3} \delta_k}, \quad l = 1, 2, 3. \quad (14)$$

5.3. First-stage results of financial inclusion index

In the initial stage, we need to determine the weights for the causal variables of each sub-index. These variables include access, barriers, and usage, estimated as dimensions of financial inclusion. To obtain the coefficients for each causal variable, we can construct sub-indices by taking weighted averages of the principal components. We derived these weights using equations (2-4) and normalized them so that their sum is 1. We obtain the corresponding estimator of each dimension through the following weighted average:

$$Dimension_{i,t} = \sum_{j=1}^{p} \lambda_{t,j} Variable_{j,i,t} \quad (15)$$

where $\lambda_{t,j}$ represents the normalized weight for the *jth* principal component, derived from the variance of this principal component and the indicators matrix. We normalized the PCA weights and sorted them in descending order, with the first principal component explaining the most significant variance in the dimension. Table 1 shows the average normalized weights of the principal components for each dimension. The weights for the estimated indices come from information in the principal components and their corresponding eigenvalues. To understand the structure of the indices, it is crucial to study the composition of these components. The results show the total variance explained by different components cumulatively and by dimensions.

5.4. Second stage of financial inclusion index

The next phase of the process involves the application of PCA on the three sub-indices, namely usage, access, and barriers, to determine their weights in the comprehensive financial

inclusion index. We determined the makeup of the principal components and computed the standardized weights for each sub-index or dimension. We estimated the Financial Inclusion Index with the following equation:

$$Financial\ Inclusion\ Index_{i,t} = \sum_{j=1}^{p} \lambda_{t,j} Dimension_{j,i,t} \quad (16)$$

Using $\lambda_{t,1}$, we observed that the normalized weight of the first principal component, Access, explains the largest proportion of the total variance in all the causal variables. Table 1 provides a detailed breakdown of the components and characteristics of the financial inclusion index and its sub-components. This table is crucial for understanding the extent of financial inclusion across a sample of 2,641 observations, which could encompass individuals, households, or possibly different geographic or administrative regions depending on the study's scope. The financial inclusion index has a mean of 1.290 and a standard deviation of 0.732, suggesting some variability in financial inclusion across counties. There are noted differences in the Usage of financial services, with a mean of 0.332 and a standard deviation of 0.086, showing less variability than the overall index. As for Usage, this component likely measures how frequently or extensively financial services are used by the observed entities. Access shows a mean of 0.116 and a standard deviation of 0.066, indicating even less variability and a generally lower level of access to financial services than Usage. This result points to potential barriers that prevent individuals or entities from accessing financial services. Barriers have a mean of 3.101 and a significant standard deviation of 3.170; this indicates a wide range in the barriers to financial inclusion experienced by different entities. The relatively high mean suggests that barriers are significant within the observed sample.

The average weight assigned to Usage in the financial inclusion index is 0.431 with a standard deviation of 0.174, indicating that Usage is a significant component of the overall index calculation but with variation across the sample. Similarly, access has a mean weight of 0.436 (slightly higher than Usage) with a standard deviation of 0.188, reflecting its importance in the financial inclusion index and variability across the sample. About the weights on barriers, this component has a much lower mean weight of 0.132 but a higher standard deviation of 0.362. Compared to Usage and Access, the low mean weight suggests that while barriers weigh significantly in the financial inclusion index, they have a minor impact on the overall index

value. However, the high standard deviation indicates that the impact of barriers might be much more significant for certain entities.

The summary statistics provided in Table 1 offer a foundational understanding of the financial inclusion landscape within the sample. The relatively high standard deviation in the barriers component suggests that while some entities face significant obstacles to financial inclusion, others may not, highlighting the importance of targeted policy interventions. The fact that access has the lowest mean but is almost equally weighted with Usage in determining financial inclusion indicates a recognition of the fundamental role of access in financial inclusion efforts. The variability in the weights assigned to each component suggests a nuanced approach to measuring financial inclusion, considering different aspects of financial services beyond mere availability or Usage. These insights bear relevance for policymakers and financial institutions designing more effective strategies for improving financial inclusion, reducing barriers, and enhancing access to and using financial services among underserved populations. Table 1 sheds light on the multifaceted nature of financial inclusion and the varying challenges and opportunities across the observed sample. Understanding these dynamics is crucial for developing comprehensive policies and interventions to achieve a broader financial system.

Our financial inclusion index performed well compared to the existing indexes. Previous studies have evaluated financial inclusion by looking at individual indicators separately, such as the number of bank accounts, bank branches, ATMs, bank credit, and bank deposits. While these indicators provide valuable information on the outreach of the financial system, they only offer limited insights into financial inclusion. Financial exclusion is a complex process that cannot adequately capture by a single indicator. Kempson et al. (2004) emphasized that having a bank account alone is not enough for an inclusive financial system; it is also essential to use banking services effectively. Sarma (2008) developed the IFI, a more comprehensive financial inclusion measure incorporating information from three dimensions to address this. The author builds the IFI using a multidimensional approach similar to the Human Development Index (HDI) but with improvements to address some of the HDI's'limitations. However, the IFI also has limitations, such as losing country-specific information because of data aggregation. The constructed financial inclusion index is operationally dynamic, as the financial status of individuals is subject to change. We constructed the financial inclusion index through two-stage least squares on a two-year rolling window, with HRS data waves as the matching criteria.

[Insert Table 1 about here]

6. Empirical framework

We begin our analysis by comparing the effect of financial inclusion on various socioeconomic outcomes. We estimate the effect of holding an account using ordinary least squares (OLS) estimation of the following regression specification:

$$y_{ict} = \alpha + \beta_1 FININCLUSION_c + \beta_2 FININCLUSION_c * X_{ict} + \sum_3^n \beta_n Controls_{ict} + \gamma_c + \delta_t + \varepsilon_{ict}$$

where *y* is an outcome of interest for individual *i*, occupational income, home ownership, stock, and bond investments, labor force participation, etc. The vector of controls X_{ict} comprises a multitude of individual demographic characteristics, including ethnicity, marital status, gender, and employment situations, such as working more than one job. The regression model includes additional controls, including: γ_c for county-specific fixed-effects and δ_t for years, and ε_{ict} is an idiosyncratic error term. Unobservable factors can affect financial inclusion and related outcomes. To address this, we use county-fixed effects. These are the most detailed geographic fixed effects that allow us to identify variations in financial inclusion across the country. The county fixed effects help control regional economic differences, although there may still be differences in economic activity within states. To account for the influence of economic activity or development on inclusion, we controlled for income in the county where the individual lives. We used county-level GDP data from the Bureau of Economic Analysis database. County-level GDP alone may not account for variations in economic opportunity owing to factors such as teleworking or commuting. To address this limitation, we included other factors, such as human capital (education level), socioeconomic indicators (marital status, family characteristics), Etc.

However, these additional controls did not significantly affect our findings on the impact of financial inclusion on individuals' economic and financial well-being (β1+ β2). If there were differences in long-term economic opportunities among counties and socioeconomic factors among individuals, those affected by these circumstances or exhibiting the corresponding characteristics would experience different financial outcomes. We used the 2SLS method to create a financial inclusion index. This index is free from measurement errors and shows strict

exogeneity. This process circumvents issues about endogeneity problems between financial inclusion and wealth outcomes.

7. Empirical results

7.1. Financial inclusion and intergenerational wealth

We estimate equation (17) to assess the implications of the view that financial inclusion augments an individual economic welfare. This perspective holds that financial inclusion disproportionately influences individuals by enabling access to the resources essential for wealth creation. We use our financial inclusion index to test this prediction. We aim to determine if financially included individuals have better outcomes on various financial, psychometric, and socioeconomic indicators. We confront several challenges in identifying the impact of inclusion on an individual's financial welfare, including direct and indirect pathways. The direct channels comprise savings, credit, formal financial services or payment system participation, investment, and insurance. The sub-dimensions of the financial inclusion index directly take into consideration these drivers. Among the indirect channels are financial literacy, entrepreneurship, and economic growth. Neglecting these mechanisms would limit our estimates to variations in wealth and retirement results or events or policies that stimulate job creation, income growth, and overall prosperity among individuals rather than the extent of restricted access to formal financial resources and services.

We investigate how access to finance impacts intergenerational wealth creation through five outcomes: the likelihood of receiving a bequest, including $10,000, $100,000, and $500,000 bequests, and two longevity measures. Table 2 uses a linear probability model to determine the probability of having an estate owing to financial inclusion. The coefficients in the model represent the marginal effect of having an estate linked to financial inclusion. We must consider the total effect by combining the main effect and the coefficient estimates on the interaction term between financial inclusion and individual exogenous characteristics.

This research suggests that having access to formal financial resources can significantly improve financial health, leading to long-term wealth-building and estate creation for generations. We conducted a series of evaluations to test this theory, starting with examining county-level financial inclusion using HRS data. We analyzed whether financial inclusion leads to the creation of an estate and whether the effect differs based on individual characteristics like

marital status, gender, race, and education level. The findings show that, while the main effect is negative and significant, the interaction effect varies based on these characteristics.

Table 2 reports regression results evaluating whether financial inclusion improves the probability of building intergenerational wealth in terms of inheritances. An estate or inheritance usually comprises several assets, including bank accounts, life insurance, stocks, bonds, automobiles, jewelry, artwork, antiques, real estate, and other tangible properties. We use five measures of intergenerational wealth. The dependent variable in columns 1-5 is PROB_BEQUEST, which denotes the probability of building either an inheritance or a bequest. In columns 6-9, the dependent variable is PROB_BEQUEST10, representing the likelihood of acquiring an inheritance worth $10,000.00. Columns 10-12 use PROB_BEQUEST100, the probability of creating a bequest worth no less than $100,000.00. Columns 13-15 employ PROB_BEQUEST500, the likelihood of accumulating assets worth a minimum of half a million dollars at death. Columns 16-18 use PROB_LIVING75 or 85, which is the probability of a respondent living up to 75 or 85 years old. The variable of particular interest is the interaction between FININCLUSION and individual characteristics, like MARRIED, AGE, BLACK, WHITE, and EDUCATION. This term denotes the degree of financial inclusion that fosters the achievement of accumulating adequate wealth by the time of demise, which varies based on individual attributes.

The results agree that financial inclusion improves individuals' entry to formal financial resources, such as investment and savings, facilitating consumption smoothing and intergenerational wealth creation. Columns 1 and 5 of Table 2 indicate that the coefficient on the interaction terms FININCLUSION*MARRIED and FININCLUSION*EDUC exhibits negative and statistically significant results at the 5% and 10% levels, respectively. The main effect is positive and statistically significant at a level of 1% in all specifications outlined in columns 1-5. The economic magnitudes are meaningful. To comprehend this, consider a hypothetical "average" married person with an average MARRIED value (0.563) in a hypothetical county that is "financially inclusive," with a FININCLUSION value 0.732 standard deviations above the norm (1.295=0.563+0.732). This result implies that the typical hypothetical MARRIED person has a higher chance of financial inclusion, as reflected by an average financial inclusion index of 1.29. Ceteris paribus, the coefficient estimates shown in columns 1 and 5 of Table 2 demonstrate

that financial inclusion results in a higher likelihood of developing intergenerational wealth trade-credit financing among those who are married.

[Insert Table 2 about here]

The coefficient estimate on the interaction term FININCLUSION*MARRIED is economically and statistically significant, indicating the crucial economic function of financial inclusion in enabling married couples to access financing sources, thus mitigating constraints related to conventional financial channels or resources. The estimated value of FININCLUSION stands at 13.32, while that of the interaction term, FININCLUSION*MARRIED, is at -11.87. The latter is statistically significant at the 5% level, whereas the former is statistically significant at the 1% level. The estimates indicate that an increase of one standard deviation in the FININCLUSION measure (0.732) corresponds to a 4.63-percentage-point increase (=13.32-11.87*0.732) while keeping other factors constant. The estimate results in a 7.08% increase, equivalent to 4.63/65.42. The impact of FININCLUSION on breaking the poverty cycle among married couples is of significant economic magnitude.

The results agree that financial inclusion improves individuals' entry to formal financial resources, such as investment and savings, facilitating consumption smoothing and intergenerational wealth creation. Columns 1 and 5 of Table 2 indicate that the coefficient on the interaction terms FININCLUSION*MARRIED and FININCLUSION*EDUC exhibits negative and statistically significant results at the 5% and 10% levels, respectively. The main effect is positive and statistically significant at a level of 1% in all specifications outlined in columns 1-5. The economic magnitudes are meaningful. To comprehend this, consider a hypothetical "average" married person with an average MARRIED value (0.563) in a hypothetical county that is "financially included," with a FININCLUSION value 0.732 standard deviations above the norm (1.295=0.563+0.732). This result implies that the typical hypothetical MARRIED person has a higher chance of financial inclusion, as reflected by an average financial inclusion index of 1.29. All else equal, the coefficient estimates stated in columns 1 and 5 of Table 2 demonstrate that financial inclusion corresponds to a higher likelihood of developing intergenerational wealth trade-credit financing among those who are married.

The probability of a longer lifespan is higher among individuals of white ethnicity who reside in counties with a high financial inclusion score, as opposed to those of other races. The figures displayed in column 17 of Table 2 provide evidence of the longevity impact of financial

inclusion. At the 1% level, the positive coefficient estimates on FININCLUSION*WHITE, which is 5.24, are statistically significant. Residing in a financially inclusive county while being of white ethnicity holds considerable economic importance. To illustrate this point, consider a hypothetical county with an average value of FININCLUSION (1.29) and another highly financially inclusive county with a value of FININCLUSION one standard deviation higher than the average (2.022=1.29+0.732).

With all other variables held constant across these counties, column 17 of Table 2 suggests that the coefficient estimate reveals that being white relates to an increased lifespan or a greater probability of surviving beyond 75. The estimated increase associated with being white and financially included amounts to 10.86 percentage points (=5.24*1.29/62.22) higher than individuals of other ethnic groups, where 62.22 denotes the average probability of living to at least 75 years—the coefficients in column 18 of Table 2 evidence that financial inclusion positively correlates with women's longevity. Ceteris Paribus, the estimates imply that a one-standard-deviation increase in financial inclusion leads to a 3.17-percentage point (=-6.16+12.74*0.732) boost in the probability of a woman living to at least 85 years.

The coefficient estimate for the interaction term FININCLUSION*MARRIED is both economically and statistically significant. This finding suggests that financial inclusion is crucial in enabling married couples to access financing sources and overcome constraints related to conventional financial channels or resources. The estimated value of FININCLUSION is 13.32, while the value of the interaction term, FININCLUSION*MARRIED, is -11.87. It is important to note that the latter is statistically significant at the 5% level, whereas the former is statistically significant at the 1% level. These estimates indicate that a one standard deviation increase in the FININCLUSION measure (0.732) corresponds to a 4.63-percentage-point increase in access to financing for married couples while holding other factors constant. This increase represents a 7.08% improvement, equivalent to 4.63 divided by 65.42. The impact of FININCLUSION on breaking the poverty cycle among married couples is of significant economic magnitude.

7.2. Financial inclusion and socioeconomic outcomes

Table 3 presents our analysis of how financial inclusion affects socioeconomic outcomes. The socioeconomic indicators encompass AILINGFAMILY, CHRONICSTRESS_DRUGS, EMOTIONAL_HEALTH, and WORKING difficulties. Table 3 displays the outcomes for AILING_FAMILY problems in columns 1-4. The findings indicate a robust correlation between

financial inclusion and familial issues. The financially excluded or lack access to formal financial services and resources may experience financial hardships that can exacerbate a range of issues, such as higher debt costs, housing and food insecurity, child neglect, and, ultimately, domestic violence. The first column of Table 3 indicates that older adults are more vulnerable to health problems related to their families. However, financial inclusion can improve these issues, as demonstrated by a positive and significant coefficient on FININCLUSION*AGE at the 5% level. The estimate is of significant statistical and economic magnitude. Ceteris paribus, the coefficient estimates suggest that financial inclusion reduces family issues by 37 basis points (-0.37=-0.358-0.005*1.29). This estimate illustrates a substantial 24.72% drop (=0.37/1.497) in familial problems caused by adopting formal financial resources or expanding financial inclusion. Table 3 has columns 3 and 4 for black and white individuals. In column 3, ailing family problems decrease by over 27 basis points (-0.2743=-0.113-0.125*1.29), which means a drop of 18.32% (=0.2743/1.497) in the mean of ailing family problems for blacks. In column 4, the reduction is lower for whites at nine basis points (-0.088=-0.186+0.076*1.29), equivalent to a 5.88% reduction in ailing family problems for whites. The implications of this outcome are noteworthy, as it highlights the potential for improved financial inclusion in reducing the prevalence of family issues, ultimately leading to a healthier and more prosperous society.

[Insert Table 3 about here]

Columns 5-9 of Table 3 show the effect of financial inclusion on chronic stress and drug problems. The table reveals a strong link between financial inclusion and chronic stress. When individuals lack access to financial services, they may face financial hardship, leading to chronic stress. It can cause adverse physical and mental health consequences, such as anxiety, depression, substance abuse, and productivity loss. Drug use can also cause financial problems, including employability and credit worthiness. This cycle can be hard to break and negatively impact individuals and families. The findings in column 8 of Table 3 suggest a correlation between financial inclusion and a decrease in chronic stress and drug-related problems among blacks, with a change of 0.35% (-0.3543=-0.126-0.177*1.29). As a result, counties with high financial inclusion scores observe a noteworthy 92.29% reduction in chronic stress and drug-related challenges among the black population (0.9227= 0.3543/0.384). Despite its

statistical and economic significance for the white population, this decrease is relatively modest, totaling to 20.95% or {(-0.081=-0.243+.126*1.29)/0.384)}.

Table 3, Columns 14-18, displays the correlation between financial inclusion and working problems. The table highlights a significant connection between financial inclusion and challenges in the workforce. The relationship's complexity and bidirectionality stem from the financial exclusion experienced by individuals who may not afford childcare or transportation to access their place of work. The consequences of this could include unemployment, financial distress, and stress. Correspondingly, work-related challenges can give rise to financial exclusion, since discontented employees may leave their jobs, resulting in loss of earnings and savings, which can impede their access to financial services. As indicated in column 15 of Table 3, financial inclusion positively affects working problems among individuals living in counties with high levels of financial inclusion. As an illustration, we observed that financial inclusion mitigates occupational challenges, resulting in a 5.72% decrease among married couples {0.073= [(-0.157+0.178*1.29)/1.27]}. Our findings suggest that financial inclusion eases working problems by 12.51% among African Americans (=-0.123*1.29/1.268) and by 8.41% among the white population {= [(-0.118+0.096*1.29)]/1.268}. Aaronson et al. (2019) and Appel and Nickerson (2016) emphasize the practice of "redlining" and the rejection of African Americans' access to real estate loans in particular locations. Celerier and Matray (2019) conducted a study examining the effects of financial inclusion on wealth accumulation by analyzing branch deregulation, and the findings show that financial inclusion has substantial benefits, as households with access to banking services accumulate higher levels of debt and durable assets. Brown et al. (2019) examined credit market results and focused their research on the inhabitants of Native American reservations.

7.3. Financial inclusion and wealth and health outcomes

Our third set of results considers the effect of access to financial resources on retirement, wealth, and life quality. Table 4 confirms that financial inclusion positively impacts occupational income, retirement, accumulated value of real property, health, and life quality. We also analyzed continuous measures of income and wealth, measured in logarithms. Doing so can interpret the estimated effects as approximate marginal in percentage. Columns 1-2 show the logarithm of

retirement income. Columns 3-5 show occupational income, which measures an individual's salary based on occupation. Column 6 shows the logarithm of the value of owned real property.

Table 4 shows that financial inclusion positively correlates with income, home, health, and life satisfaction. People with greater access to financial services are more satisfied with their income, housing, health, and overall well-being. There are several reasons for this. Firstly, financial inclusion can improve people's financial situation. For example, credit can help start or grow businesses, generating higher revenue. Savings accounts can act as a financial cushion against unexpected expenses, reducing stress and improving overall well-being. Secondly, financial inclusion can contribute to better living conditions, wealth building, and narrowing wealth gaps among different ethnic groups. Access to mortgages can facilitate purchasing homes in upper-income neighborhoods, creating a sense of security and stability. Thirdly, access to financial products like life and health insurance can protect against financial loss, improving overall quality of life and building wealth. Ultimately, financial inclusion can enhance overall quality of life, enabling people to enjoy activities like dining out and traveling. It leads to greater fulfillment and enjoyment in life.

The coefficient on FININCLUSION*GENDER in column 1 of Table 4 exhibits a statistically significant negative correlation at the 5% level. In contrast, it is worth mentioning that the coefficient on FININCLUSION shows a statistically significant positive correlation at the 1% level. Ceteris paribus, financial inclusion generates a 4.98-percentage point increase {=-0.0498= [(0.277-0.341*1.29)]/3.27} in total effect. The obtained results are surprising since they suggest that women's satisfaction at retirement declines as they become more financially included. The findings indicate that women's greater financial inclusion is associated with reduced satisfaction during retirement, possibly because of the gender pay gap, single parenthood, or divorce. Women may need to remain employed longer or allocate less for retirement due to specific life circumstances. The coefficients in columns 3, 4, and 5 reveal that financial inclusion is associated with a 5.97-percentage points increase in satisfaction with income among married couples, a 27.46% increase among African Americans, and 16.11% among white Americans.

[Insert Table 4 about here]

Across Table 4, we can ascertain that the coefficient related to FININCLUSION is positive and statistically significant. The positive association between FININCLUSION and individual characteristics emphasizes the pivotal role of promoting financial inclusion in enhancing welfare. It is of utmost importance to emphasize the positive correlation between financial inclusion, quality of life, and health. Enhanced financial inclusion amplifies the quality of life, encompassing physical and mental well-being, social relationships, economic stability, work, and housing conditions, particularly among underprivileged groups. Financial inclusion provides several advantages for health and life quality. Firstly, it is helpful for individuals to save money and build assets, which provide a cushion for unforeseen expenses such as medical bills or car repairs. Secondly, financial inclusion empowers individuals to obtain credit for ventures like education or entrepreneurship or significant acquisitions, like a residence or vehicle. Improving financial situations and achieving goals leads to a better quality of life. Thirdly, financial inclusion facilitates efficient management of personal finances, preventing debt and fostering savings. It results in making informed financial decisions, such as selecting appropriate insurance policies or investing in retirement plans, leading to enhanced peace of mind and quality of life. Financial inclusion ultimately provides access to financial education, which aids individuals in comprehending financial concepts and making sound decisions. It also diminishes the risk of scams and fraudulent activities, improving financial security and overall quality of life.

7.4. Financial inclusion and accumulated wealth

Table 5 shows how financial inclusion affects long-term wealth creation. Owning a home is a big step towards building family wealth. Homes' value appreciates over time, increasing net worth and inheritance value. Having a home also allows for future borrowing and expanding wealth. According to columns 1-3 of Table 5, married couples are likelier to own a home. However, it is harder for women and Black Americans to achieve homeownership. It suggests that Black Americans and women are more likely to face financial exclusion, declined credit, or receive loans at higher costs compared to borrowers in other ethnic groups and genders with similar credit profiles.

Figure 4 depicts the distribution of mean total wealth by household income regarding financial inclusion. The findings indicate that disparities in home equity based on race and

gender continue to exist. These divergences are under the financial inclusion mechanism. Households with credit access may need help to purchase high-value homes in prime neighborhoods. An additional explanation for the lower rate of homeownership among women and African Americans is the taste discrimination hypothesis, which is prevalent among lenders. As household income increases, the disparities in equity among homeowners by race and ethnicity may decrease. A home is a shelter and the most significant asset for many households. The share of a household's portfolio allocated to housing shifts throughout the life cycle and income or wealth distribution. Life-cycle differences are not a concern because the studied sample is nearing retirement. Remarkably, the various racial and ethnic groups exhibit similar allocation patterns.

Columns 4-6 of Table 5 report the results of the impact of financial inclusion on car ownership, which is crucial for those who need to maintain regular employment. Those found at the lowermost part of the financial inclusion distribution shown in Figure 4, Panel G, may face steeper prices when acquiring a new automobile. The lack of secure savings or investment options, along with reliance on cash payments and informal lenders or personal networks for credit characterized the financial situation of the financially excluded. Financial inclusion is a significant issue with global implications. The World Bank (2022) reports that in emerging economies, formal savings and credit are not accessible to almost 1.4 billion people.[10] This issue is similarly widespread within the United States. Many American citizens still need more financial education, which denotes that although they have a bank account, they still rely on expensive services such as money orders, check-cashing, and payday loans rather than traditional loans or credit cards. Those who rely on such financing arrangements encounter considerable obstacles when buying a vehicle to sustain stable employment in several areas of the country. Those without reliable transportation experience a travel burden, a gravity framework characterized by the travel distance they face. Table 5's last two columns show how financial inclusion affects individual earnings. The results resemble those for home and vehicle ownership. People with lower earnings and income usually have more credit constraints. They also have less access to banks, especially in low-to-moderate-income and minority areas. Technology has made financial services available everywhere, but financially excluded people

[10] Global Findex Database 2021 reports increases in financial inclusion around the world during the COVID-19 pandemic (worldbank.org)

may need access. Targeted policy responses are necessary for financial services to low-income individuals in modest and minority communities.

[Insert Table 5 about here]
[Insert Figure 4 about here]

Figure 5 depicts the impact of financial inclusion on two aspects of mental state or emotional well-being: positive and negative emotional well-being. The HRS defines emotional well-being using five categories: "1=All of the time," "2=Most of the time," "3=Some of the time," "4=A little of the time," or "5=None of the time." HRS scores range from 1 to 5, with higher scores indicating less impact. Before averaging response scores, we inverted the inputs. A high Affect_Positive score indicates more frequent positive emotions, while a high Affect_Negative score indicates more frequent negative emotions. Emotional well-being means feeling relatively satisfied with life.

Figure 5 shows that financial inclusion can improve emotional well-being by reducing financial stress, improving financial security, and promoting social inclusion. The figure illustrates the relationship between financial inclusion and negative and positive metal states. Financial stress can decrease anxiety and depression, possibly through high savings for unexpected expenses and consumption smoothing. Feeling confident about meeting one's financial needs is financial security, facilitating better retirement planning. Financial inclusion, providing access to financial products and services, can improve financial security. Taking part in the financial system and accessing the same products and services as peers can reduce isolation and exclusion, promoting a sense of belonging and community. These factors can lead to a more positive and fulfilling life experience. Having a savings account can reduce stress when faced with unexpected expenses like a car repair or medical bill. A good credit score can help secure loans for starting a business or buying a home, leading to improved financial security and a sense of accomplishment. Access to financial products and services can increase a person's sense of belonging and inclusion in society.

[Insert Figure 5 about here]

7.4. Robustness checks

We employ the GMM-type estimator to check the robustness of the results. We conducted this devoid of any legitimate concerns regarding the exogeneity of our financial inclusion measure, which was created error-free using a two-stage procedure. The primary benefit of the

specification outlined in equation (17) is the richness of fixed effects that provide a flexible account for the unobserved geographical variations in economic activity. Employing the fixed effects in combination with the error-free financial inclusion measure produces robust econometric tests that resolve many confounding factors. The heterogeneity of economic opportunities at the county level plays a crucial role in shaping an individual's financial inclusion outcomes in the long run. The outcomes presented in Tables 2-5 reveal that financial inclusion or access to formal financial resources is an essential determinant of socioeconomic, mental wellness, retirement, and wealth outcomes even after controlling for various economic indicators such as county-level GDP, personal income, dividends, farming-income per capita, entrepreneurship, employment, unemployment insurance, population, among others. It eliminates hindrances to generating wealth and economic prospects that salaries or non-income means cannot achieve.

Individuals in the sample can move freely from one county to the next during the study period. The HRS tracks the respondent's movements. At a personal level, many individuals can shift from having negligible access to financial services to becoming part of the population that utilizes banking services, regardless of their physical location, owing to changes in personal economic conditions. Despite the robustness of the fixed-effects models that consider any arbitrary differences in the destination area's overall economic activity to which the consumer is moving, because of its fixed effects for i's current county. The primary remaining source of variation is the plausibly exogenous distinction in local finance, financial, or overall economic development. By combining first-difference equations with the level equations and applying the first difference as instruments, the GMM-type estimator should provide reliable and robust estimates that allow us to assess those acquired from the fixed-effects estimator. We utilize the GMM-type estimation method, as some variables employed in the regressions could be jointly determined. If such were the case, this would lead to reverse causality problems, distorting our ability to make causal inferences.

The GMM-type estimator removes effects specific to the county and uses lagged levels of the variables as instruments. Arellano and Bond (1991) assert that using standard tests to assess the validity of instruments and verify the lack of second-order serial correlation in the differenced equation guarantees consistency and efficiency. The instrument set includes up to two lags of levels of county-specific variables for difference equations and the second lag of

differences of county-specific variables for level equations. The results presented in Tables 7 and 8 demonstrate that the use of lagged values of the regressors effectively addresses reverse causality. The exogenous variables we consider are county-level indicators, which individual outcomes may jointly determine. Tables 6-7 provide evidence of the reliability of GMM estimates and the asymptotic distribution of the instrument, as assessed using Sargan's test of overidentifying restrictions. The Sargan statistic for overidentifying restrictions and the Arellano-Bond AR (2) tests show that our instruments are orthogonal to the error and that no second-order serial correlation in any of the models presented in Tables 7 and 8, at least at the 10% significance level.

[Insert Table 6 about here]
[Insert Table 7 about here]

We limit the results to a particular set of specifications, as we have already reported the main findings for 50 specifications in Tables 2-5. The outcomes resulting from GMM-type regressions are highly consistent with those obtained through our primary empirical strategy, further corroborating the tangible effects of financial services on outcomes. The results are consistent with a financial inclusion channel that financially included individuals exhibit better retirement, wealth, mental wellness, and socioeconomic outcomes. The results align with work in development and household finance (Stein & Yannelis, 2020; Brown et al., 2019; Celerier & Matray, 2019; Augsburg et al., 2015; Bruhn & Love, 2013; Morse, 2011).

7.5. Policy implications

This paper presents new findings on the relationship between financial inclusion and socioeconomic conditions, mental well-being, retirement, life quality, and wealth creation. The study has limitations, such as the lack of focus on different contexts. The results demonstrate that access to proper financial resources can improve welfare and suggest that promoting financial literacy and inclusion can improve financial health and reduce disparities among minority groups, particularly women and African Americans. Financially included households are less likely to face financial strain during unexpected life events, while financially excluded households are more likely to struggle to pay bills or access medical care. Financial inclusion provides valuable tools for managing personal finances and establishing a financial safety net for unexpected income shocks.

The study exhibits policy relevance since financial inclusion improves many societal outcomes, such as health, socioeconomic indicators, retirement wealth, life satisfaction, and emotional well-being. It shows the importance of increased access to financial services, especially for marginalized and underserved populations. World Bank (2018) stresses the positive effect of removing barriers to access and using financial services to promote economic participation and empowerment. The results show the importance of integrating financial education into financial services. The strong correlations between financial inclusion and well-being indicators suggest that financial education plays a crucial role. Integrating financial literacy programs into the education system and community outreach initiatives is vital to empower individuals with the knowledge and skills to navigate the financial landscape effectively (OECD, 2020). The results also highlight the potential of digital financial services in promoting financial inclusion.

GSMA (2019) underscores the importance of developing and adopting digital financial platforms to enhance financial services accessibility, efficiency, and cost-effectiveness. There is a link between financial inclusion and improved health and emotional well-being. CFPB (2015) argues for initiatives that combine financial services with health and wellness programs to address the holistic needs of individuals. These initiatives have the potential to improve life satisfaction and reduce economic vulnerabilities. ILO (2017) emphasizes the importance of targeted savings programs, insurance products, and pension schemes that cater to the diverse needs of the population, especially the most vulnerable groups.

The results reveal the multifaceted impact of financial inclusion, suggesting collaboration across sectors may be helpful. UNDP (2020) states that governments, financial institutions, educational entities, and non-profit organizations can work together to establish a unified framework that promotes financial inclusion and achieves broader socioeconomic goals. World Bank Group (2021) underscores the importance of investing in data collection and analysis tools to assess the effectiveness of financial inclusion policies and adjust strategies based on evidence to optimize outcomes. These implications of the findings underline the critical role of financial inclusion in achieving sustainable development goals. Financial inclusion can significantly enhance economic stability, reduce inequalities, and improve the quality of life for individuals across the country.

7.6. Limitations and future directions

While the analysis shows the impact of financial inclusion on wealth, well-being, and retirement, it has inherent limitations. The results involve counties across the United States. This specificity may limit the generalizability of the findings to other contexts, cultures, or economic environments from an international standpoint. For example, the impacts of financial inclusion in one country or region may not directly apply to another owing to differences in economic policies, cultural attitudes towards banking, or levels of technological advancement. Although the regression models and statistical analyzes consider numerous factors, there is always the possibility of confounding variables that need to be controlled for in the analysis. These unaccounted variables could influence the observed relationships, introducing biases or inaccuracies into the findings.

Some health, life satisfaction, and emotional well-being outcomes also rely on subjective measures that vary widely between individuals and cultures. The external economic environment and policy changes can also significantly impact financial inclusion and outcomes. These factors are challenging to model accurately and can change over time, affecting the external applicability of the study's conclusions. Future research can address these limitations by accounting for diverse populations and regions, more nuanced financial inclusion and well-being measures, and incorporating advanced statistical techniques to control for confounding variables. New research needs to explore the relationship between financial inclusion and various life outcomes. One area is to expand the geographic and demographic scope of studies to see how financial inclusion affects different cultures, economies, and societal structures. Such research will provide a more nuanced understanding of its effects across global contexts.

The rapid pace of technological change limits the study's long-term relevance, especially in the financial sector. Innovations like mobile banking, digital currencies, and FinTech solutions can significantly change the financial inclusion landscape, making some findings less applicable (Junarsin et al., 2023; among others) report that FinTech improves financial outcomes without impairing bank stability. It is crucial to investigate how digital banking, mobile money, and FinTech innovations impact financial inclusion. Research may focus on their effectiveness in reaching underserved populations and reducing barriers to financial access. Another area of research is to examine the behavioral economics of financial inclusion. By studying how individuals' behaviors and attitudes towards money, savings, and investment change with

increased access to financial services, we can gain insights into promoting healthier financial behaviors and the effectiveness of financial literacy interventions.

Understanding the impact of different policies and regulatory frameworks on financial inclusion is also important. Other studies may examine how policies and regulations affect access to financial services and identify best practices worldwide. Research can also explore the intersection between financial inclusion and environmental sustainability. This line of inquiry would involve studying how financial inclusion strategies can support sustainable economic practices, such as green financing, investments in renewable energy, and financial products that incentivize environmental stewardship. Finally, integrating financial inclusion initiatives with social programs to address broader societal issues, such as poverty alleviation, education, and healthcare, is a valuable direction for future research. This inquiry may study the synergies between financial inclusion and social safety nets, insurance schemes, and educational grants.

8. Concluding remarks

This paper documents that access to financial resources in proper form has significant effects on an individual's well-being, including retirement, wealth creation, mental wellness, and life quality. The effect is notable for married couples, age groups, education, gender, and ethnic groups. Having access to financial services is an essential feature of developed societies. Significant changes in financial inclusion can have noteworthy impacts. This study shows that when a population with limited access to banking services is provided with greater access, it significantly improves human capital and labor market outcomes. Individuals residing in counties with higher financial inclusion scores have better financial health and overall quality of life. The findings are consistent with Brown et al.'s (2019) study that revealed substantial improvements in consumer financial health among those who depart from regions with weak financial markets.

This research has shed new light on the unintended consequences of financial development on customers, particularly emphasizing the significant long-term effects of the progress of local financial markets on the well-being of households. Thus, our work highlights the enduring advantages of financial inclusion and provides several first-order results attributed to the financial inclusion channel that conventional banking can address. Financial institutions have not closed all gaps in financial inclusion, as banking deserts still exist. The FDIC National

Survey revealed that a larger percentage of African American households are unbanked compared to white households. African American households had an unbanked rate of 18.2% in 2015, in contrast to white households' rate of 3.1%. African Americans need bank accounts primarily due to a lack of trust in banks. Our findings show the need for further research into how these gaps form and the practical policies implemented to improve long-term household financial health.

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Table 1
Summary statistics of the financial inclusion index

This table provides a summary statistic of the financial inclusion index and its sub-components.

	Financial Inclusion Index		
Variable	N	Mean	Std Dev
Inclusion Index	2,641	1.290	0.732
Usage	2,641	0.332	0.086
Access	2,641	0.116	0.066
Barriers	2,641	3.101	3.170
Weight on Usage	2,641	0.431	0.174
Weight on Access	2,641	0.436	0.188
Weight on Barriers	2,641	0.132	0.362

Table 2
Financial inclusion and probability of having a bequest

Table 2 shows the regression results for the relationship between financial inclusion and individual health and socioeconomic indicators. The dependent variables are AILLING FAMILY PROBLEMS (ongoing concerns about family health) in column 1-4, CHRONIC STRESS & DRUG PROBLEMS (ongoing chronic diseases and drug struggles) in columns 5-9, EMOTIONAL & HEALTH PROBLEMS (individuals with emotional and health issues) in columns 10-13 and WORKING PROBLEMS (ongoing work concerns) in columns 14-18. FININCLUSION is an index ranging from 1992 to 2020, with a mean of 0.732. It is calculated every two years during the study period. The index is dynamic and controlled by various factors, such as GDP, DIVIDEND, INTEREST, FARMING INCOME PER CAPITA, POPULATION, ENTREPRENEURSHIP, RETIREMENT_PER_CAPITA, EMPLOYMENT, and UNEMPLOYMENT_INSURANCE. GDP_PER_CAPITA is the natural logarithm of the two-year average of real gross domestic product (GDP) per capita in each county over the study period. DIVIDEND, INTEREST, and FARMING INCOME PER CAPITA are the natural logarithm of the two-year average of dividend income, interest income, and farming income per capita, respectively, in each county over the study period. POPULATION is the county population; ENTREPRENEURSHIP corresponds to the average number of respondents who own a business. RETIREMENT_PER_CAPITA is the natural logarithm of retirement income. EMPLOYMENT is the number of employed individuals in the county. UNEMPLOYMENT_INSURANCE equals to the average number of respondents likely to claim unemployment insurance during the survey period. All county level variables come from the Bureau of Economic Analysis. ENTREPRENEURSHIP and UNEMPLOYMENT_INSURANCE come from the HRS database. Other variables from the HRS database include AGE, MARRIED, BLACK, WHITE, and EDUCATION. Table 1 provides detailed definition for these variables. Regression coefficients are estimated using fixed-effect regressions. t-statistics are reported in parentheses and calculated using robust standard errors clustered at the individual level. Significance levels of 1%, 5% and 10% are indicated by ***, **, and *.

	Probability of creating any bequest				Probability of creating 10k bequest					Probability of creating 100k bequest			Probability of creating 500k bequest			Probability living 75 [16] or 85 [17-18]		
Dep. var	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
FININCLUSION	13.316**	13.91***	7.346***	10.416*	18.009**	9.607**	7.324*	5.863***	10.581*	7.668*	9.280**	7.99***	4.755*	9.253***	6.357***	3.051***	-1.368	-6.159***
	(2.888)	(4.136)	(4.980)	(1.998)	(2.382)	(3.135)	(1.916)	(5.239)	(1.884)	(2.062)	(2.310)	(5.639)	(2.001)	(4.421)	(6.293)	(4.580)	(-1.113)	(-3.428)
MARRIED	49.884***					-7.832**				32.47***			11.226***					
	(9.727)					(-2.487)				(9.353)			(4.273)					
FININCLUSION*MARRIED	-11.869**									-1.690			1.621					
	(-2.342)									(-0.380)			(0.583)					
FEMALE		-40.65***									-35.17***			-11.903**				-16.75***
		(-4.245)									(-4.162)			(-3.152)				(-4.672)
FININCLUSION*FEMALE		-9.333									-1.643			-4.971				12.742***
		(-1.281)									(-0.199)			(-0.998)				(4.073)
BLACK			-25.39**					-20.185***				-16.9***			-6.314**	8.917***		
			(-5.612)					(-5.412)				(-4.293)			(-2.450)	(6.287)		
FININCLUSION*BLACK			6.234					4.056				-0.236			-1.248	-1.983		
			(1.359)					(1.274)				(-0.062)			(-0.513)	(-1.428)		
WHITE				24.832***			19.57***										-9.73***	
				(5.277)			(5.342)										(-7.736)	
FININCLUSION*WHITE				-3.120			-1.366										5.24***	
				(-0.637)			(-0.392)										(4.849)	
EDUC [years]					6.684***				5.060***									
					(12.921)				(10.186)									
FININCLUSION*EDUC					-0.904*				-0.440									
					(-1.851)				(-1.126)									
Constant	49.453	190.5***	83.22**	42.481	165.2***	32.377	20.149	53.640	125.713**	-124.1***	-16.041	-114.7**	-195.93***	-154.56***	-196.44***	76.590**	70.088*	2.186
	(1.204)	(4.448)	(2.287)	(1.202)	(4.450)	(0.866)	(0.540)	(1.452)	(2.985)	(-4.20)	(-0.548)	(-4.532)	(-8.198)	(-7.766)	(-9.042)	(2.394)	(2.219)	(0.154)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,350	2,350	2,350	2,350	2,350	2,351	2,351	2,351	2,351	2,351	2,351	2,351	2,351	2,351	2,351	2,284	2,284	2,351
R-squared	0.298	0.257	0.255	0.267	0.335	0.366	0.336	0.320	0.088	0.432	0.386	0.400	0.444	0.431	0.435	0.108	0.105	0.131

Table 3

Financial inclusion effect on health and socioeconomic outcomes

Table 3 shows the regression results for the relationship between financial inclusion and individual health and socioeconomic indicators. The dependent variables are AILLING FAMILY PROBLEMS (ongoing concerns about family health) in column 1-4, CHRONIC STRESS & DRUG PROBLEMS (ongoing chronic diseases and drug struggles) in columns 5-9, EMOTIONAL & HEALTH PROBLEMS (individuals with emotional and health issues) in columns 10-13 and WORKING PROBLEMS (ongoing work concerns) in columns 14-18. FININCLUSION is an index ranging from 1992 to 2020, with a mean of 0.732. It is calculated every two years during the study period. The index is dynamic and controlled by various factors, such as GDP, DIVIDEND, INTEREST, FARMING INCOME PER CAPITA, POPULATION, ENTREPRENEURSHIP, RETIREMENT_PER_CAPITA, EMPLOYMENT, and UNEMPLOYMENT_INSURANCE. GDP_PER_CAPITA is the natural logarithm of the two-year average of real gross domestic product (GDP) per capita in each county over the study period. DIVIDEND, INTEREST, and FARMING INCOME PER CAPITA are the natural logarithm of the two-year average of dividend income, interest income, and farming income per capita, respectively, in each county over the study period. POPULATION is the county population; ENTREPRENEURSHIP corresponds to the average number of respondents who own a business. RETIREMENT_PER_CAPITA is the natural logarithm of retirement income. EMPLOYMENT is the number of employed individuals in the county. UNEMPLOYMENT_INSURANCE equals to the average number of respondents likely to claim unemployment insurance during the survey period. All county level variables come from the Bureau of Economic Analysis. ENTREPRENEURSHIP and UNEMPLOYMENT_INSURANCE come from the HRS database. Other variables from the HRS database include AGE, MARRIED, BLACK, WHITE, and EDUCATION. Table 1 provides detailed definition for these variables. Regression coefficients are estimated using fixed-effect regressions. t-statistics are reported in parentheses and calculated using robust standard errors clustered at the individual level. Significance levels of 1%, 5% and 10% are indicated by ***, **, and *.

	Ailing family problems				Chronic stress & drug problems					Emotional & health problems				Working problems				
Dep. var	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
FININCLUSION	-0.358**	-0.177**	-0.113***	-0.186***	-0.456**	-0.231***	-0.550**	-0.126**	-0.243***	-0.202**	-0.431**	-0.092*	-0.108***	-0.201*	-0.157***	-0.215**	-0.031	-0.118***
	[-2.537]	[-2.451]	[-3.907]	[-4.676]	[-2.670]	[-3.863]	[-3.114]	[-3.386]	[-6.285]	[-3.537]	[-3.120]	[-2.194]	[-4.012]	[-2.166]	[-4.052]	[-2.657]	[-1.014]	[-3.951]
AGE	-0.012***				-0.016***									-0.021***				
	[-5.404]				[-5.755]									[-7.994]				
FININCLUSION*AGE	0.005**				0.005*									0.002				
	[2.657]				[2.101]									[1.823]				
MARRIED		-0.197				-0.172				0.201					-0.118			
		[-1.245]				[-0.974]				[1.141]					[-1.846]			
FININCLUSION*MARRIED		0.085				0.153				0.142					0.178**			
		[0.853]				[1.515]				[1.585]					[2.909]			
BLACK			0.258***					0.122*				-0.087					0.156	
			[3.926]					[2.266]				[-1.034]					[1.731]	
FININCLUSION*BLACK			-0.125**					-0.177***				-0.087*					-0.123*	
			[-2.790]					[-4.567]				[-1.983]					[-2.296]	
WHITE				-0.217***					-0.111				0.149					-0.179*
				[-4.645]					[-1.447]				[1.568]					[-2.200]
FININCLUSION*WHITE				0.076**					0.126*				0.009					0.096*
				[2.696]					[2.160]				[0.174]					[2.142]
EDUC [years]						-0.018					0.001					0.028***		
						[-1.201]					[0.161]					[3.836]		
FININCLUSION*EDUC						0.030*					0.024**					0.011		
						[2.435]					[2.855]					[1.641]		
Constant	2.154**	-0.481	-0.379	-0.092	0.337	-0.434	-0.102	-0.969	-0.775	1.627	2.711**	1.499	1.391	3.300**	2.229**	2.473**	2.231*	2.587**
	[3.058]	[-0.612]	[-0.503]	[-0.118]	[0.299]	[-0.362]	[-0.083]	[-0.734]	[-0.573]	[1.801]	[3.652]	[1.783]	[1.535]	[3.530]	[2.452]	[2.622]	[2.293]	[2.612]
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,663	1,663	1,663	1,663	1,663	1,663	1,663	1,663	1,663	1,663	1,663	1,663	1,663	1,661	1,661	1,661	1,661	1,661
R-squared	0.029	0.158	0.165	0.164	0.117	0.087	0.094	0.092	0.088	0.073	0.064	0.064	0.061	0.192	0.062	0.081	0.058	0.058

Table 4
Financial inclusion and Retirement, wealth, and life outcomes

Table 4 shows the regression results for the relationship between financial inclusion and retirement, wealth, and life satisfaction. The dependent variables are RETIREMENT (satisfaction with retirement) in column 1-2, INCOME (satisfaction with income) in columns 3-5, HOME (satisfaction with one's home) in column 6, HEALTH (good health) in columns 10-11. And LIFE (satisfaction with life) in columns 12-14. FININCLUSION is an index ranging from 1992 to 2020, with a mean of 0.732. It is calculated every two years during the study period. The index is dynamic and controlled by various factors, such as GDP, DIVIDEND, INTEREST, FARMING INCOME PER CAPITA, POPULATION, ENTREPRENEURSHIP, RETIREMENT_PER_CAPITA, EMPLOYMENT, and UNEMPLOYMENT_INSURANCE. GDP_PER_CAPITA is the natural logarithm of the two-year average of real gross domestic product (GDP) per capita in each county over the study period. DIVIDEND, INTEREST, and FARMING INCOME PER CAPITA are the natural logarithm of the two-year average of dividend income, interest income, and farming income per capita, respectively, in each county over the study period. POPULATION is the county population; ENTREPRENEURSHIP corresponds to the average number of respondents who own a business. RETIREMENT_PER_CAPITA is the natural logarithm of retirement income. EMPLOYMENT is the number of employed individuals in the county. UNEMPLOYMENT_INSURANCE equals to the average number of respondents likely to claim unemployment insurance during the survey period. All county level variables come from the Bureau of Economic Analysis. ENTREPRENEURSHIP and UNEMPLOYMENT_INSURANCE come from the HRS database. Other variables from the HRS database include AGE, MARRIED, BLACK, WHITE, and EDUCATION. Table 1 provides detailed definition for these variables. Regression coefficients are estimated using fixed-effect regressions. t-statistics are reported in parentheses and calculated using robust standard errors clustered at the individual level. Significance levels of 1%, 5% and 10% are indicated by ***, **, and *.

	Retirement		Income			Home	Family		Health		Life		
Dep. var	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[10]	[11]	[12]	[13]	[14]
FININCLUSION	0.277***	0.062***	0.670***	0.395***	0.587***	0.147***	0.608*	0.148**	0.166**	0.129***	0.854**	0.281*	0.226***
	(3.377)	(4.078)	(9.018)	(5.531)	(7.369)	(3.760)	(2.358)	(2.719)	(2.592)	(3.939)	(2.922)	(2.223)	(3.720)
AGE							0.019**				0.028***		
							(3.189)				(4.630)		
FININCLUSION*AGE							-0.007				-0.009*		
			0.428				(-1.617)				(-2.012)		
MARRIED			(1.121)						0.464**			0.686**	
			-0.368*						(2.456)			(2.455)	
FININCLUSION*MARRIED			(-2.034)						-0.100			-0.100	
									(-1.107)			(-0.835)	
BLACK		-0.270***		-0.664**		-0.267**		-0.065		-0.082			-0.537**
		(-5.463)		(-3.204)		(-2.525)		(-0.522)		(-0.819)			(-3.029)
FININCLUSION*BLACK		-0.011		0.390**		0.061		0.032		0.019			0.100
		(-0.314)		(3.976)		(0.614)		(0.367)		(0.204)			(0.758)
WHITE					0.487**								
					(3.376)								
FININCLUSION*WHITE					-0.190*								
					(-2.567)								
GENDER	0.274												
	(1.510)												
FININCLUSION*GENDER	-0.341**												
	(-2.300)												
Constant	2.444**	1.364*	1.889	1.663	0.916	5.262***	3.529**	4.624***	5.235**	5.960***	4.908***	4.928***	4.710***
	(3.248)	(1.967)	(1.768)	(1.834)	(1.030)	(5.033)	(2.649)	(3.896)	(3.433)	(4.473)	(4.203)	(6.013)	(5.474)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,334	2,334	1,433	1,433	1,433	1,654	1,654	1,654	1,654	1,654	1,885	1,885	1,885
R-squared	0.128	0.162	0.331	0.342	0.336	0.158	0.090	0.067	0.085	0.072	0.203	0.195	0.196

Table 5
Financial inclusion and Retirement, wealth, and life outcomes

Table 5 presents the regression results for the relationship between financial inclusion, home and vehicle ownership and households' earnings. The dependent variables are HOMEOWNERSHIP (the value of a home owned by the respondent) in column 1-3, VEHICLE (the value of the vehicle(s) owned by the respondent) in columns 4-6, EARNINGS in columns 7 and 8. FININCLUSION is an index ranging from 1992 to 2020, with a mean of 0.732. It is calculated every two years during the study period. The index is dynamic and controlled by various factors, such as GDP, DIVIDEND, INTEREST, FARMING INCOME PER CAPITA, POPULATION, ENTREPRENEURSHIP, RETIREMENT_PER_CAPITA, EMPLOYMENT, and UNEMPLOYMENT_INSURANCE. GDP_PER_CAPITA is the natural logarithm of the two-year average of real gross domestic product (GDP) per capita in each county over the study period. DIVIDEND, INTEREST, and FARMING INCOME PER CAPITA are the natural logarithm of the two-year average of dividend income, interest income, and farming income per capita, respectively, in each county over the study period. POPULATION is the county population; ENTREPRENEURSHIP corresponds to the average number of respondents who own a business. RETIREMENT_PER_CAPITA is the natural logarithm of retirement income. EMPLOYMENT is the number of employed individuals in the county. UNEMPLOYMENT_INSURANCE equals to the average number of respondents likely to claim unemployment insurance during the survey period. All county level variables come from the Bureau of Economic Analysis. ENTREPRENEURSHIP and UNEMPLOYMENT_INSURANCE come from the HRS database. Other variables from the HRS database include AGE, MARRIED, BLACK, WHITE, and EDUCATION. Table 1 provides detailed definition for these variables. Regression coefficients are estimated using fixed-effect regressions. t-statistics are reported in parentheses and calculated using robust standard errors clustered at the individual level. Significance levels of 1%, 5% and 10% are indicated by ***, **, and *.

	Home ownership			Vehicle value			Earnings	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FININCLUSION	0.069**	0.131**	0.051***	0.359**	1.133**	0.289***	1.423**	0.501***
	(2.286)	(2.776)	(6.785)	(2.321)	(3.016)	(4.397)	(2.270)	(4.625)
MARRIED	0.550***			2.366***				
	(10.424)			(9.779)				
FININCLUSION*MARRIED	-0.074			-0.315				
	(-1.803)			(-1.728)				
EDUC [years]					0.239***		0.463***	
					(10.255)		(7.784)	
FININCLUSION*EDUC					-0.068**		-0.086*	
					(-2.770)		(-1.849)	
GENDER		-0.263***						0.147
		(-3.608)						(0.262)
FININCLUSION*GENDER		-0.131						0.255
		(-1.584)						(0.638)
BLACK			-0.179***			-0.608**		
			(-5.097)			(-3.190)		
FININCLUSION*BLACK			-0.002			0.094		
			(-0.066)			(0.510)		
CONSTANT	1.828***	3.367***	2.393***	18.221***	23.562***	21.898***	12.427***	14.743***
	(7.473)	(13.271)	(8.881)	(11.990)	(14.216)	(13.550)	(3.675)	(4.258)
Observations	2,351	2,351	2,351	2,351	2,351	2,351	2,351	2,351

R-squared	0.388	0.249	0.259	0.410	0.307	0.235	0.180	0.119

Table 6
Robustness checks: GMM estimates of financial inclusion effect on health and socioeconomic outcomes

Table 6 exhibits the regression results for the relationship between financial inclusion and individual health and socioeconomic indicators. The dependent variables are AILLING FAMILY PROBLEMS (ongoing concerns about family health) in column 1-4, CHRONIC STRESS & DRUG PROBLEMS (ongoing chronic diseases and drug struggles) in columns 5-9, EMOTIONAL & HEALTH PROBLEMS (individuals with emotional and health issues) in columns 10-13 and WORKING PROBLEMS (ongoing work concerns) in columns 14-18. FININCLUSION is an index ranging from 1992 to 2020, with a mean of 0.732. It is calculated every two years during the study period. The index is dynamic and controlled by various factors, such as GDP, DIVIDEND, INTEREST, FARMING INCOME PER CAPITA, POPULATION, ENTREPRENEURSHIP, RETIREMENT_PER_CAPITA, EMPLOYMENT, and UNEMPLOYMENT_INSURANCE. GDP_PER_CAPITA is the natural logarithm of the two-year average of real gross domestic product (GDP) per capita in each county over the study period. DIVIDEND, INTEREST, and FARMING INCOME PER CAPITA are the natural logarithm of the two-year average of dividend income, interest income, and farming income per capita, respectively, in each county over the study period. POPULATION is the county population; ENTREPRENEURSHIP corresponds to the average number of respondents who own a business. RETIREMENT_PER_CAPITA is the natural logarithm of retirement income. EMPLOYMENT is the number of employed individuals in the county. UNEMPLOYMENT_INSURANCE equals to the average number of respondents likely to claim unemployment insurance during the survey period. All county level variables come from the Bureau of Economic Analysis. ENTREPRENEURSHIP and UNEMPLOYMENT_INSURANCE come from the HRS database. Other variables from the HRS database include AGE, MARRIED, BLACK, WHITE, and EDUCATION. Table 1 provides detailed definition for these variables. Regression coefficients are estimated using the dynamic GMM system. Z-statistics are reported in parentheses and calculated. Significance levels of 1%, 5% and 10% are indicated by ***, **, and *.

	Ailing family problems					Chronic stress					Housing problems				Relationship problems		
Dep. var	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
FININCLUSION	-0.466*	-0.149*	-0.733**	-0.083*	-0.115	-0.402*	-0.199**	-0.848**	-0.476*	-0.072**	-0.224**	-0.692***	-0.077***	-0.186**	-0.624*	-0.252**	-0.157*
	(-1.695)	(-1.660)	(-2.184)	(-1.899)	(-1.504)	(-1.661)	(-2.167)	(-2.135)	(-1.835)	(-2.096)	(-2.331)	(-2.605)	(-3.360)	(-2.326)	(-1.901)	(-2.359)	(-1.829)
AGE	-0.009					-0.013**									-0.020**		
	(-1.071)					(-2.012)									(-2.470)		
FININCLUSION*AGE	0.007*					0.005									0.008		
	(1.656)					(1.310)									(1.638)		
MARRIED		-0.100					-0.269				-0.376		11.226***			-0.288	
		(-0.263)					(-0.755)				(-1.124)		(4.273)			(-0.677)	
FININCLUSION*MARRIED		0.249					0.210				0.227		1.621			0.337	
		(1.442)					(1.298)				(1.542)		(0.583)			(1.556)	
FEMALE									-0.683					-11.903**			
									(-0.733)					(-3.152)			
FININCLUSION*FEMALE									0.682					-4.971			
									(1.495)					(-0.998)			
BLACK				-0.333						-0.676*			-0.406				
				(-0.533)						(-1.945)			(-1.096)				
FININCLUSION*BLACK				-0.100						-0.062			-0.158				
				(-0.697)						(-0.481)			(-1.525)				
WHITE					0.020									0.275			0.502
					(0.061)									(0.823)			(1.171)
FININCLUSION*WHITE					0.138									0.111			0.122
					(1.421)									(1.181)			(1.021)
EDUC [years]			-0.047					-0.163*				-0.106**					
			(-0.481)					(-1.914)				(-1.973)					
FININCLUSION*EDUC			0.049**					0.056*				0.044**					
			(2.038)					(1.907)				(2.322)					
LAGGED DEP VAR	-0.179	-0.149	-0.277	-0.020	-0.173	-0.120	-0.115	-0.137	-0.096	-0.094	-0.131	-0.193	-0.174	-0.158	-0.333***	-0.335***	-0.35***
	(-1.453)	(-1.121)	(-1.284)	(-0.072)	(-1.365)	(-1.228)	(-1.123)	(-1.387)	(-0.972)	(-0.945)	(-0.944)	(-1.529)	(-1.321)	(-1.172)	(-3.989)	(-4.137)	(-3.805)
AR(2) (Pr>z)	0.276	0.434	0.246	0.213	0.305	0.386	0.246	0.125	0.191	0.211	0.899	0.838	0.920	0.667	0.447	0.238	0.337
Hansen (Pr>chi2)	0.424	0.528	0.151	0.835	0.525	0.363	0.410	0.381	0.566	0.437	0.543	0.369	0.418	0.477	0.166	0.171	0.118
Observations	531	531	531	531	531	531	531	531	531	531	531	531	531	531	531	531	531

Number of counties	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194

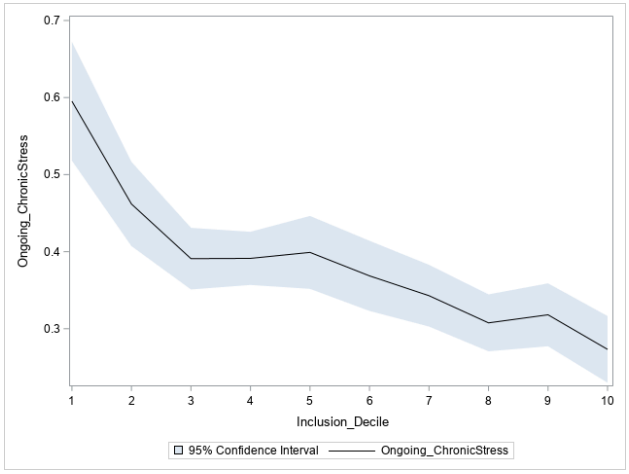
Table 7
Robustness checks: GMM estimates of financial inclusion effect on health and socioeconomic outcomes

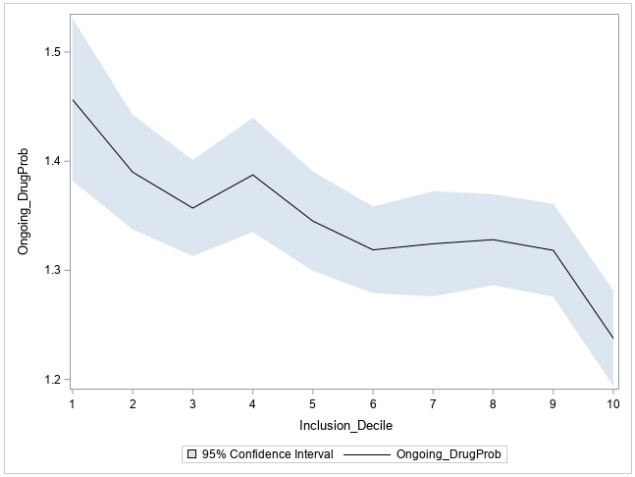
Table 7 shows the regression results for the relationship between financial inclusion and individual health and socioeconomic indicators. The dependent variables are EXTROVERSION in column, CONCIOUSNESS, in columns 2-4; LONELINESS in columns 5-6; NEUROTICISM in column 7; INCOME (satisfaction with income) in columns 8-10; FAMILY (satisfaction with family) in column 11; WORK (work problems) in columns 12-13; and RETIREMENT (satisfaction with retirement) in column 14. FININCLUSION is an index ranging from 1992 to 2020, with a mean of 0.732. It is calculated every two years during the study period. The index is dynamic and controlled by various factors, such as GDP, DIVIDEND, INTEREST, FARMING INCOME PER CAPITA, POPULATION, ENTREPRENEURSHIP, RETIREMENT_PER_CAPITA, EMPLOYMENT, and UNEMPLOYMENT_INSURANCE. GDP_PER_CAPITA is the natural logarithm of the two-year average of real gross domestic product (GDP) per capita in each county over the study period. DIVIDEND, INTEREST, and FARMING INCOME PER CAPITA are the natural logarithm of the two-year average of dividend income, interest income, and farming income per capita, respectively, in each county over the study period. POPULATION is the county population; ENTREPRENEURSHIP corresponds to the average number of respondents who own a business. RETIREMENT_PER_CAPITA is the natural logarithm of retirement income. EMPLOYMENT is the number of employed individuals in the county. UNEMPLOYMENT_INSURANCE equals to the average number of respondents likely to claim unemployment insurance during the survey period. All county level variables come from the Bureau of Economic Analysis. ENTREPRENEURSHIP and UNEMPLOYMENT_INSURANCE come from the HRS database. Other variables from the HRS database include AGE, MARRIED, BLACK, WHITE, and EDUCATION. Table 1 provides detailed definition for these variables. Regression coefficients are estimated using the dynamic GMM system. Z-statistics are reported in parentheses and calculated. Significance levels of 1%, 5% and 10% are indicated by ***, **, and *.

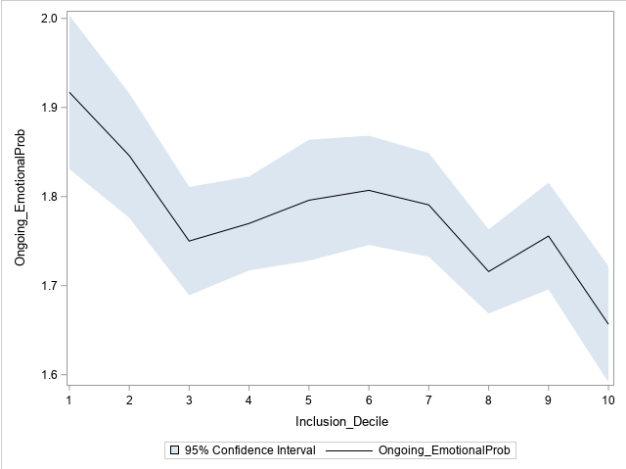
	Extroversion	Consciousness			Loneliness		neuroticism	Income	Health	Family		Work		Retirement
Dep. var	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
FININCLUSION	0.199**	0.264**	0.015*	0.062**	-0.253**	-0.107***	-0.058***	0.105	0.593**	0.494**	0.178**	-0.044**	-0.218***	-0.058*
	(2.126)	(2.098)	(1.812)	(2.016)	(-2.076)	(-3.173)	(-2.873)	(1.267)	(2.535)	(2.352)	(2.286)	(-2.550)	(-3.527)	(-1.936)
AGE	-0.001				-0.006					0.014**				
	(-0.207)				(-1.281)					(2.189)				
FININCLUSION*AGE	-0.003**				0.003*					-0.007**				
	(-2.042)				(1.831)					(-2.063)				
MARRIED											0.904***			
											(2.963)			
FININCLUSION*MARRIED											-0.228*			
											(-1.691)			
FEMALE		0.110							1.346					
		(0.320)							(1.542)					
FININCLUSION*FEMALE		-0.445**							-0.989**					
		(-2.034)							(-2.437)					
BLACK			-0.003				-0.031	-2.404***				0.265		
			(-0.015)				(-0.141)	(-2.645)				(1.038)		
FININCLUSION*BLACK			0.005				0.146**	1.044***				-0.231***		
			(0.154)				(2.311)	(4.101)				(-2.894)		
WHITE				0.232		-0.183							-0.573*	-0.086
				(1.217)		(-0.768)							(-1.946)	(-0.405)
FININCLUSION*WHITE				-0.073*		0.102**							0.186**	0.080**
				(-1.777)		(2.495)							(2.567)	(2.196)
LAGGED DEP VAR	-0.618***	-0.449**		-0.403**	-0.446***	-0.465***	-0.172	0.397**	-0.106	-0.010	-0.061	-0.100	-0.093	-0.041
	(-5.699)	(-2.510)		(-2.183)	(-3.436)	(-3.804)	(-0.976)	(2.370)	(-1.269)	(-0.105)	(-0.652)	(-1.293)	(-1.172)	(-0.411)
AR(2) (Pr>z)	0.254	0.899	0.305	0.886	0.639	0.431	0.395	0.140	0.577	0.162	0.105	0.215	0.356	0.447

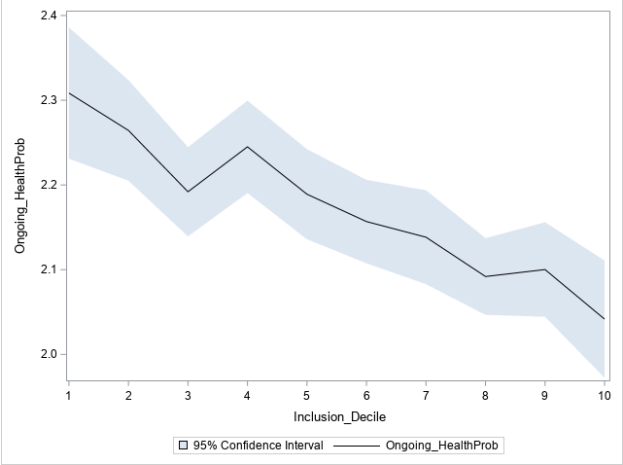
Hansen (Pr>chi2)	0.184	0.164	0.525	0.200	0.396	0.419	0.137	0.188	0.314	0.222	0.166	0.136	0.157	0.781
Observations	874	874	874	874	874	874	874	762	944	944	944	760	760	1,354
Number of counties	210	210	210	210	210	210	210	231	241	241	241	230	230	231

Figure 1 Financial Inclusion and Ongoing Concerns






2.0
1.9
1.8
1.7
1.6
Ongoing_EmotionalProb
1
2
3
4
5
6
7
8
9
10
Inclusion_Decile
95% Confidence Interval
Ongoing_EmotionalProb


2.4
2.3
2.2
2.1
2.0
Ongoing_HealthProb
1
2
3
4
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6
7
8
9
10
Inclusion_Decile
95% Confidence Interval
Ongoing_HealthProb

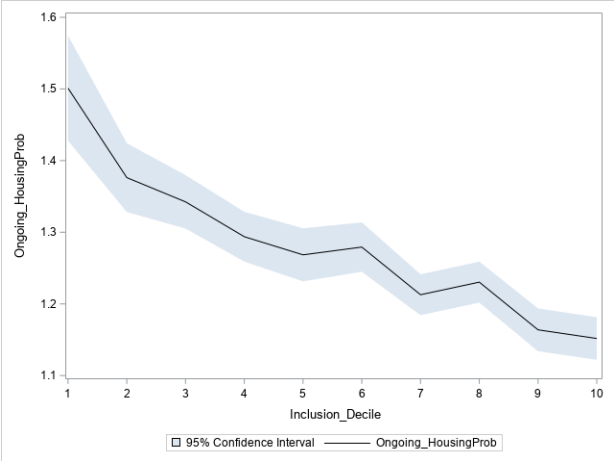


Figure 1: This figure plots the relationship between financial inclusion, mental wellness, health and relationship problems across counties. The solid line shows the financial inclusion score and the respective outcomes, while the dashed line shows a 95% confidence band around the mean.

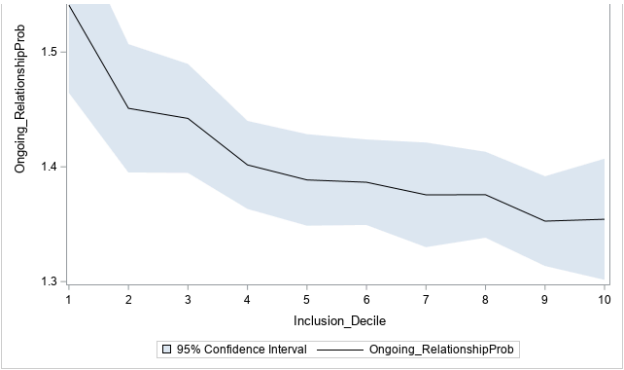
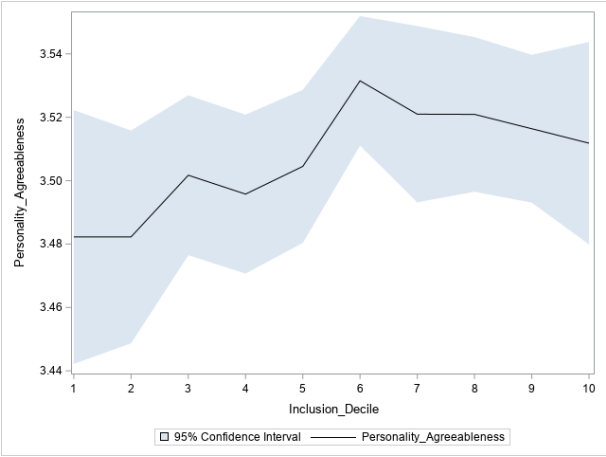
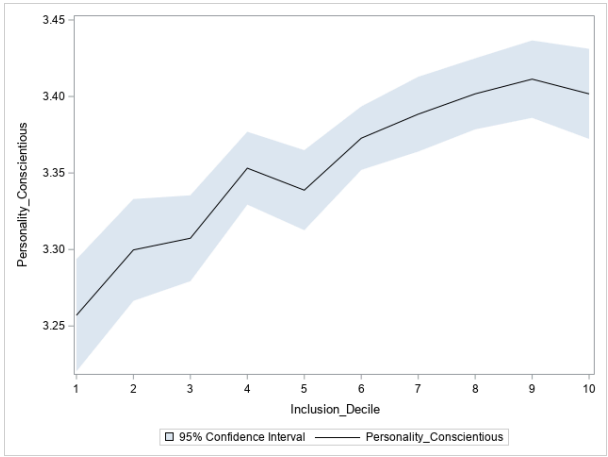


Figure 2 Financial Inclusion and Personality





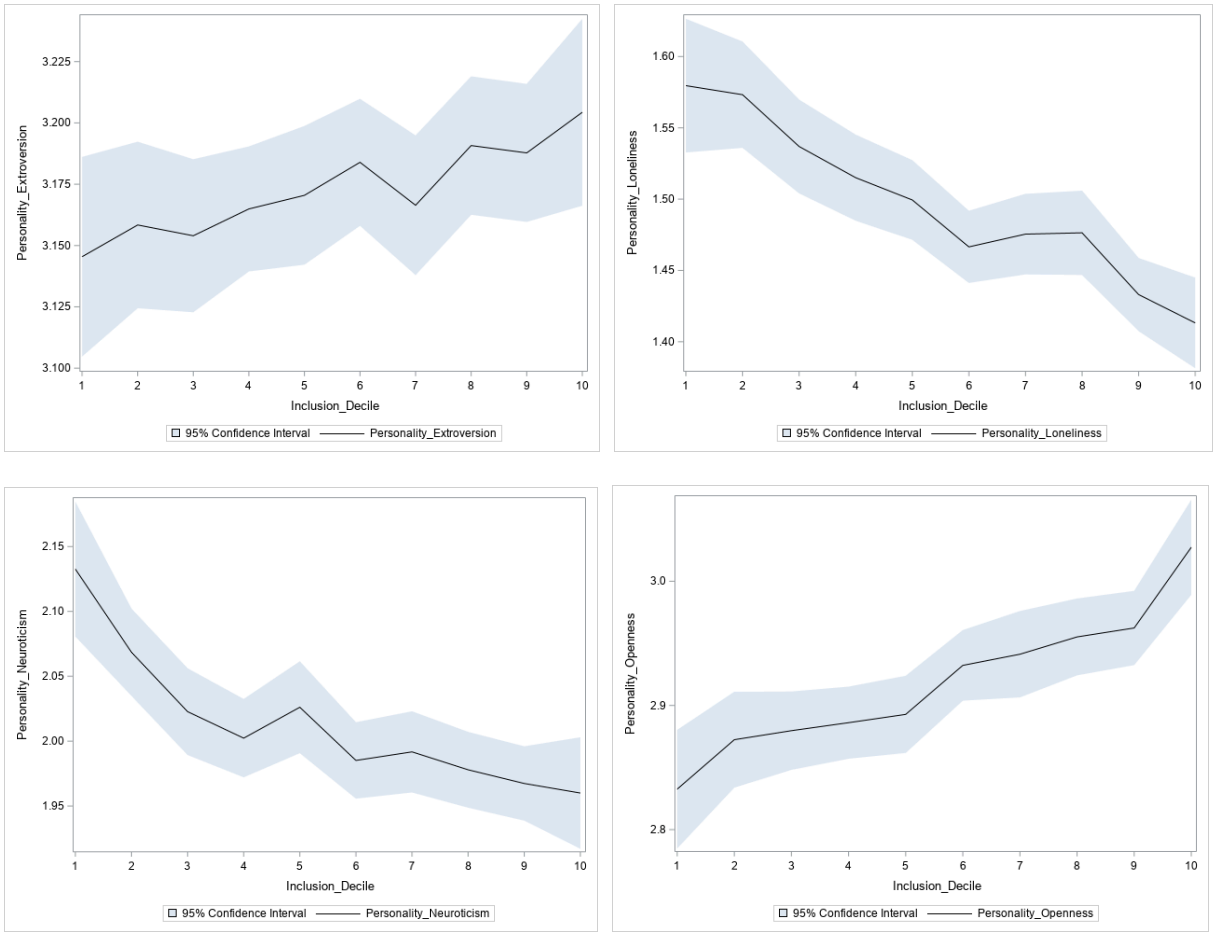
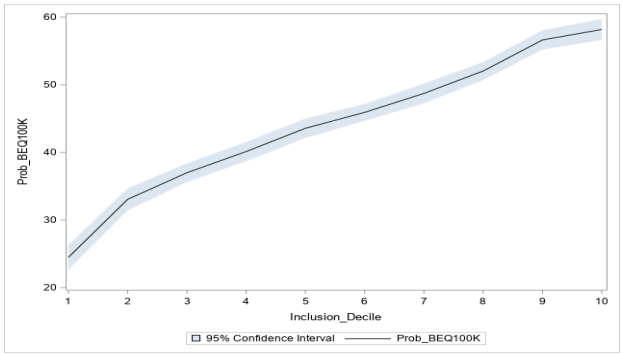
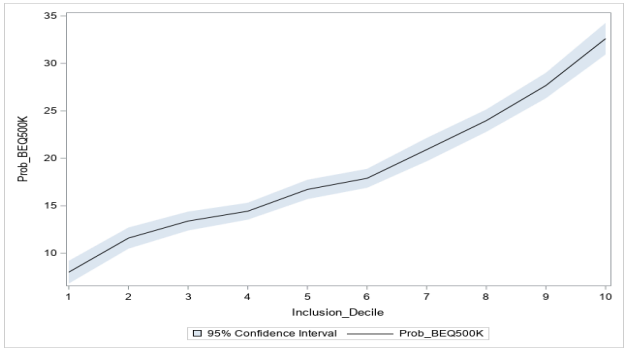
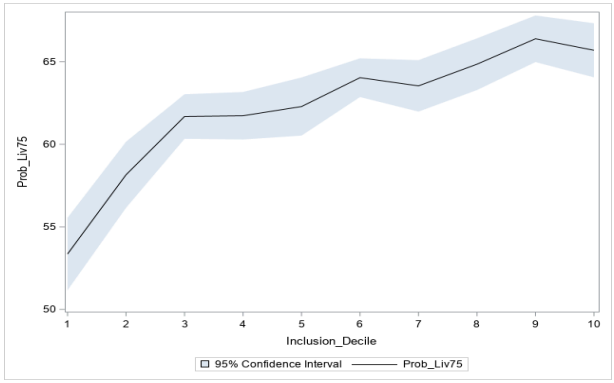


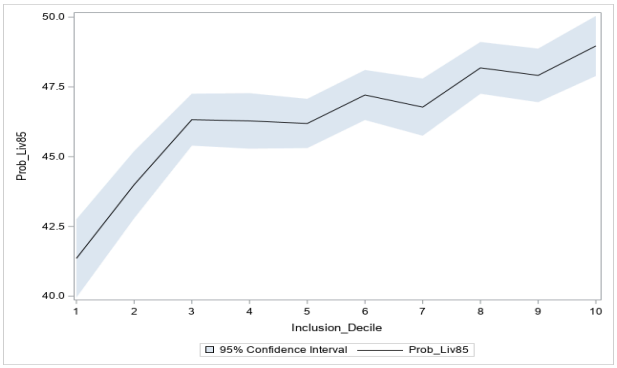
Figure 2: This figure plots the relationship between financial inclusion, other psychometric indicators, including agreeableness, consciousness, extroversion, loneliness, neuroticism, and openness. The solid line shows the financial inclusion score and the respective outcomes, while the dashed line shows a 95% confidence band around the mean.

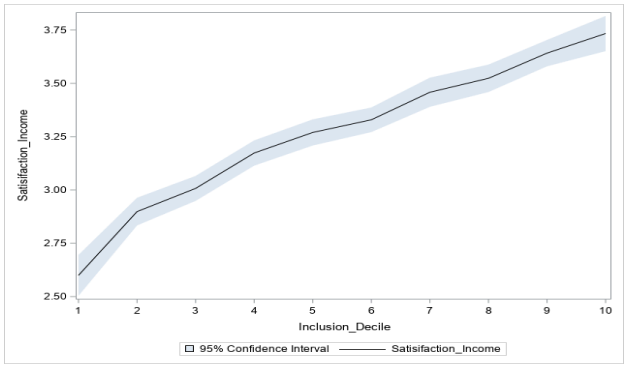
Figure 3: Financial Inclusion, Bequest Expectation and Longevity Expectation

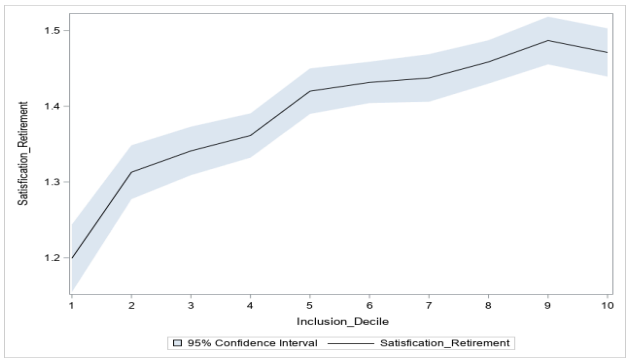












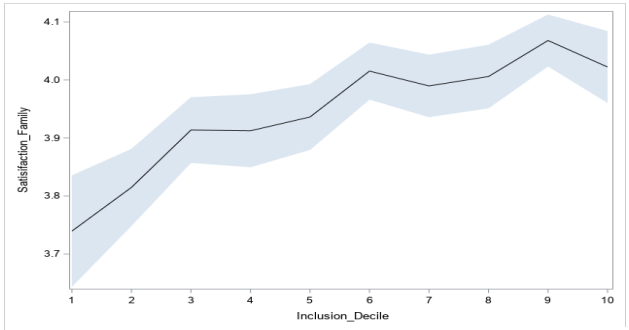


Figure 3: This figure plots the relationship between financial inclusion and the probability of bequest, retirement income and family and health. The solid line shows the financial inclusion score and the respective outcomes, while the dashed line shows a 95% confidence band around the mean.

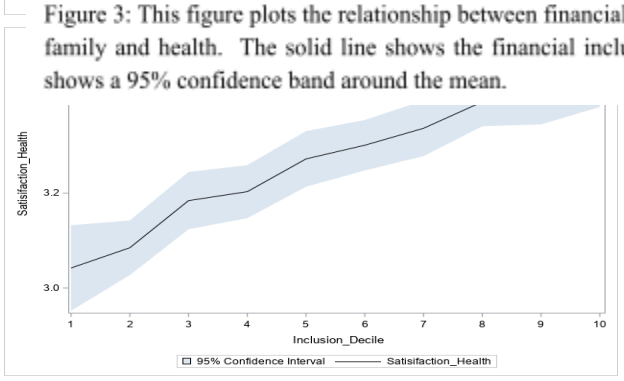


Figure 4: Financial inclusion, home, and life quality

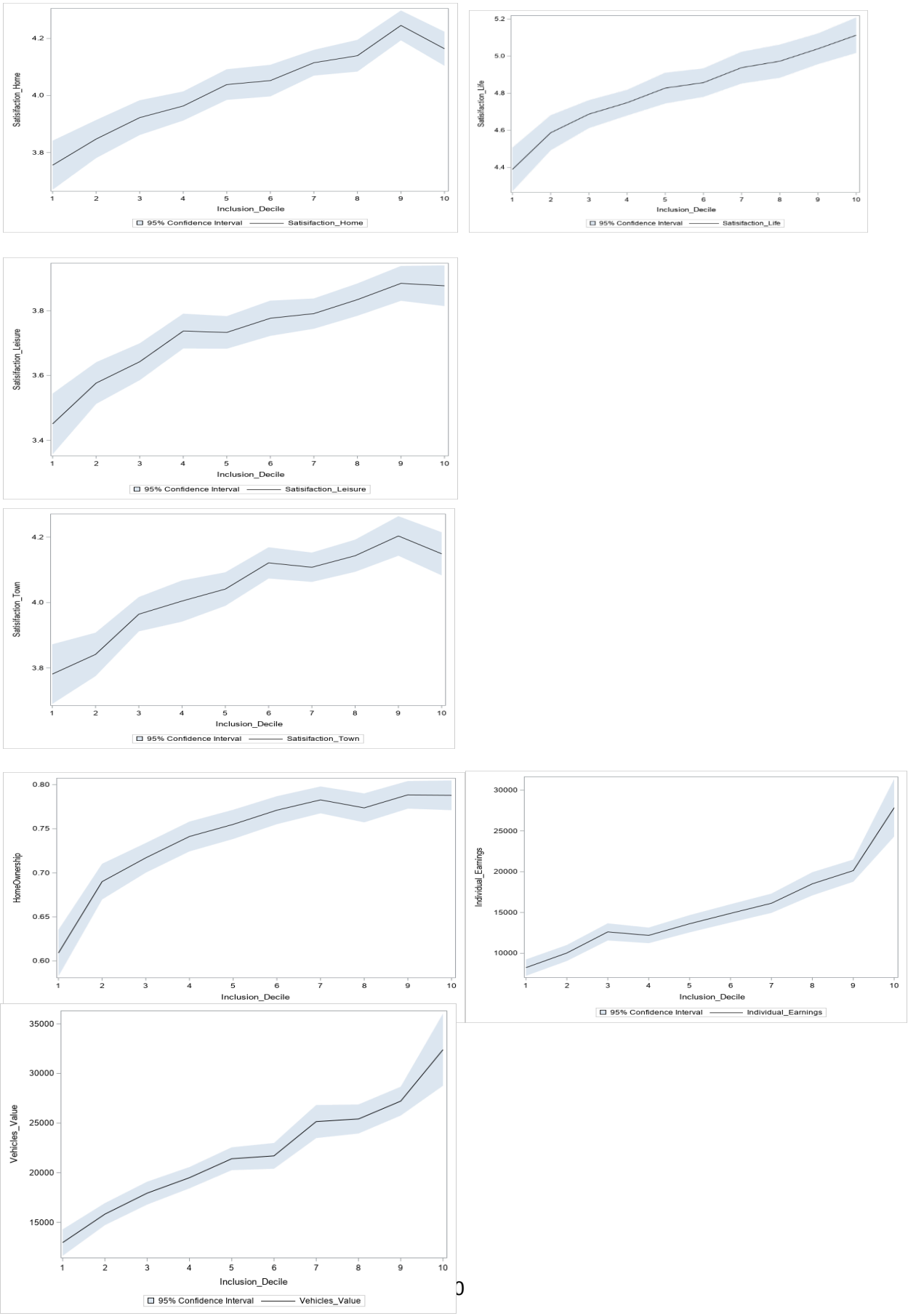
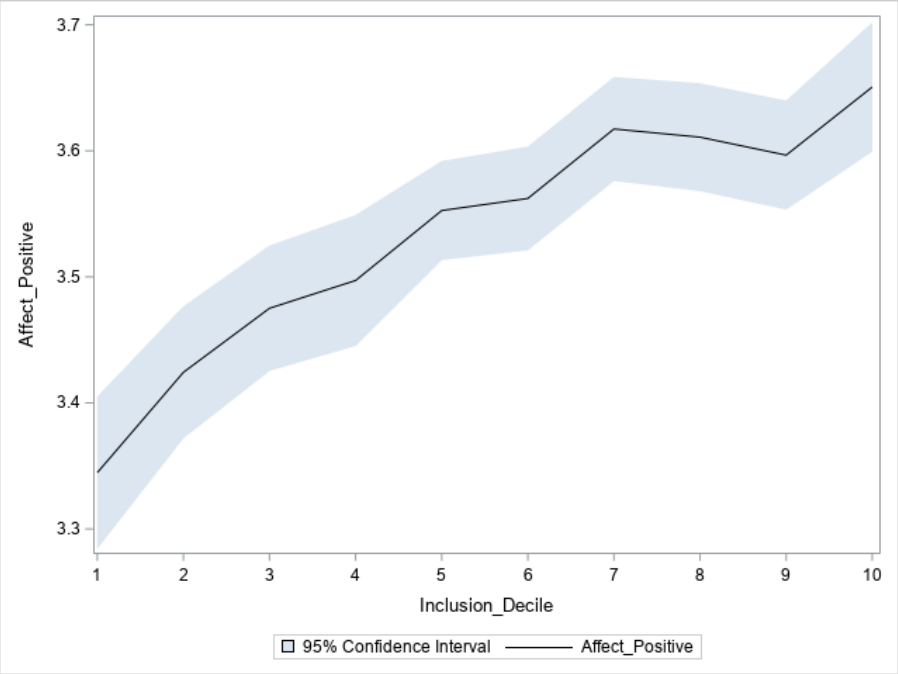


Figure 4: This figure plots the relationship between financial inclusion and home and life quality. The solid line shows the financial inclusion score and the respective outcomes, while the dashed line shows a 95% confidence band around the mean.

Figure 5 Financial inclusion and dimension of emotional well-being



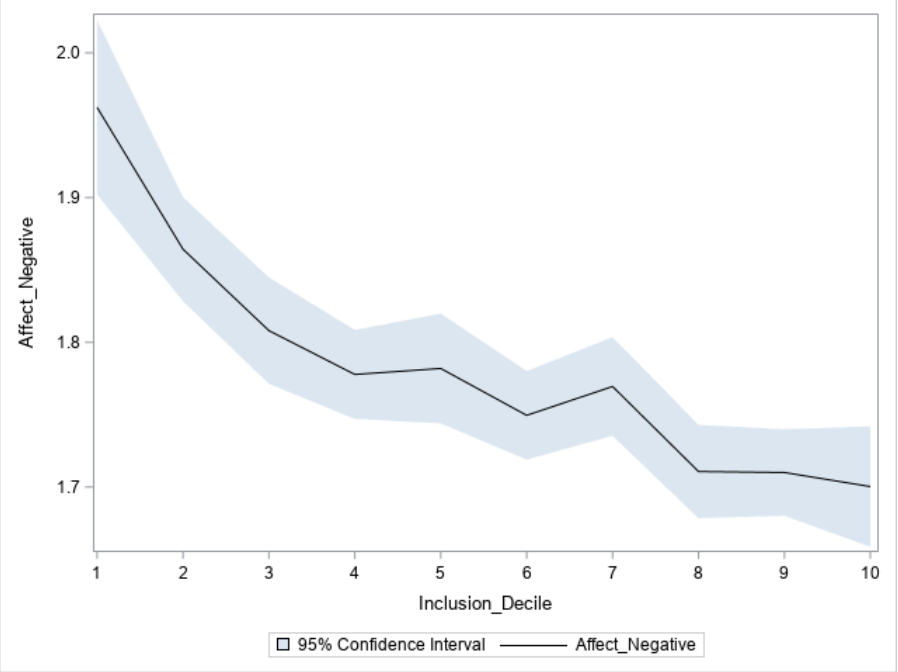
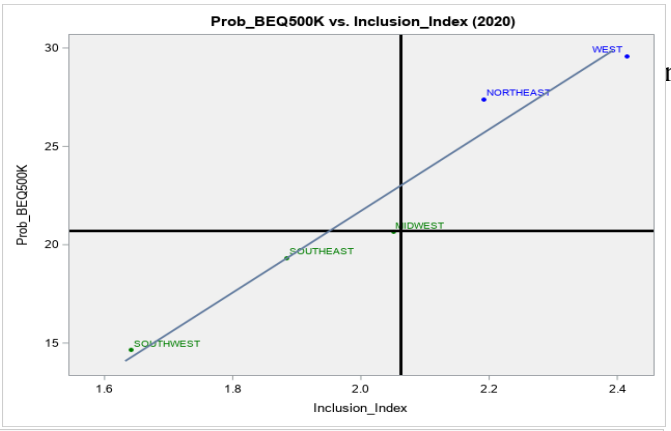


Figure 5: This figure plots the relationship between financial inclusion and emotional well-being. The solid line shows the financial inclusion score and the respective outcomes, while the dashed line shows a 95% confidence band around the mean. The HRS defines emotional well-being using five categories: "1=All of the time," "2=Most of the time," "3=Some of the time," "4=A little of the time," or "5=None of the time." HRS scores range from 1 to 5, with higher scores indicating less impact. Before averaging response scores, the inputs are inverted. A high Affect_Positive score indicates more frequent positive emotions, while a high Affect_Negative score indicates more frequent negative emotions.

Appendix A1

Financial inclusion probability of 500K bequest, longevity and income satisfaction



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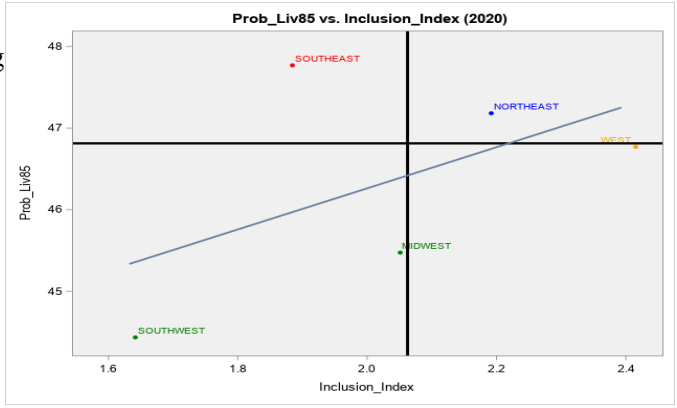

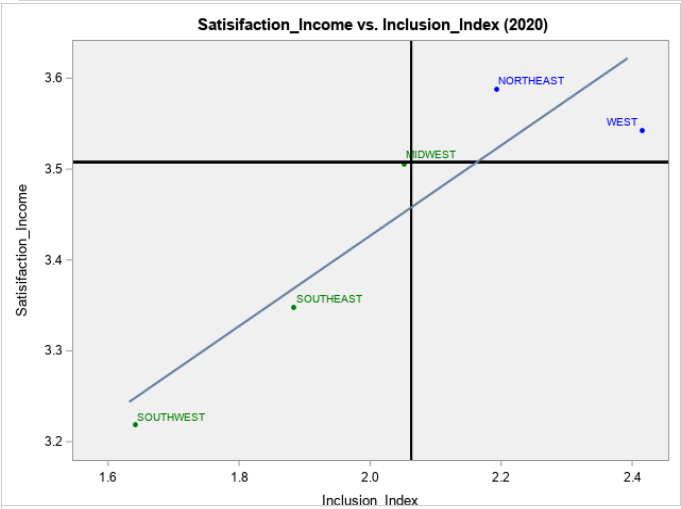

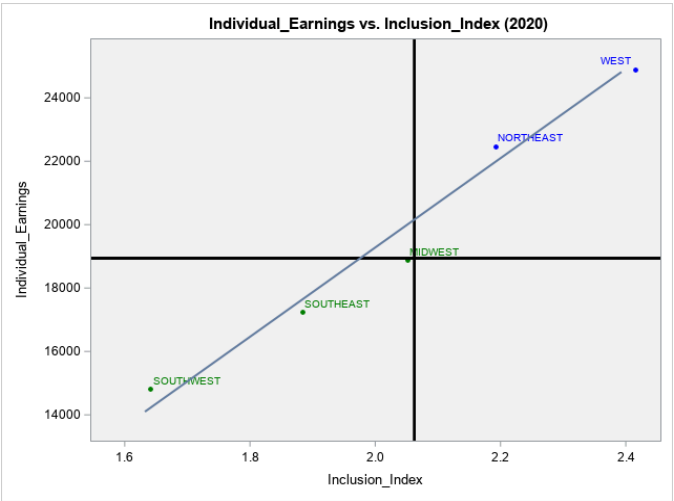

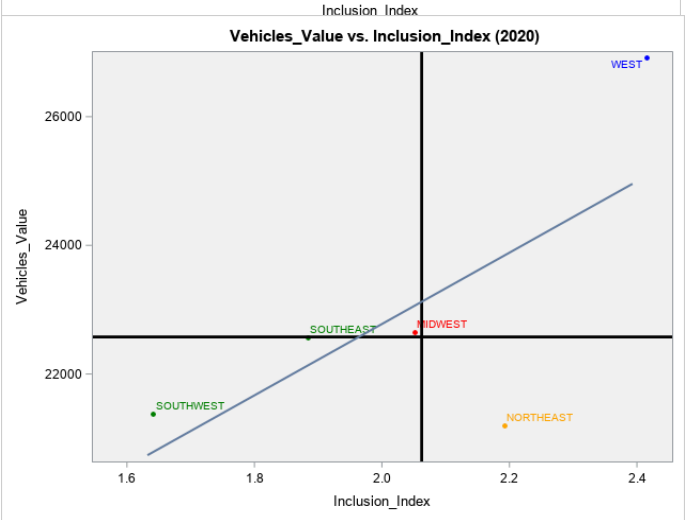

Appendix A1: This figure plots the relationship between financial inclusion and the probability of bequest of $500,000.00, living to 85 and satisfaction with income across census regions.

Appendix B

Table A2
Variable definition

This table presents the variables and their definition. We obtain the outcome variables from the HRS database. Other variables extracted from the HRS include the personal characteristics such as age, marital status, ethnicity, and education. Macroeconomic variables are from the Bureau of Economic Analysis (BEA) database. N refers to the number of observations, followed by the corresponding mean and standard deviation (S.D).

Variables	Definition	N	Mean	S.D.
Outcome variables				
AFFECT_NEGATIVE	Affect dimension of emotional well-being (-)	1,691	1.783	0.259
AFFECT_POSITIVE	Affect dimension of emotional well-being (+)	1,691	3.534	0.326
ONGOING_AILINGFAMPROB	Ongoing concerns about ailing family problems	1,701	1.497	0.305
ONGOING_HOUSINGPROB	Ongoing concerns about housing problems	1,701	0.384	0.323
ONGOING_CHRONICSTRESS	Ongoing concerns about chronic stress	1,701	1.346	0.329
ONGOING_DRUGPROB	Ongoing concerns about drug problems	1,700	1.780	0.423
ONGOING_EMOTIONALPROB	Ongoing concerns about emotional problems	1,700	2.172	0.388
ONGOING_HEALTHPROB	Ongoing concerns about health problems	1,701	1.281	0.281
ONGOING_RELATIONSHIPPROB	Ongoing concerns about relationship problems	1,701	1.407	0.322
ONGOING_WORKPROB	Ongoing concerns about working problems	1,699	1.268	0.266
PERSONALITY_AGREEABLENESS	Respondent's personality traits - Agreeableness	1,928	3.507	0.198
PERSONALITY_CONSCIENTIOUS	Respondent's personality traits - Conscientious	1,928	3.354	0.198
PERSONALITY_EXTROVERSION	Respondent's personality traits - Extroversion	1,928	3.173	0.220
PERSONALITY_LONELINESS	Respondent's personality traits - Loneliness	1,926	1.496	0.230
PERSONALITY_NEUROTICISM	Respondent's personality traits - Neuroticism	1,928	2.013	0.252
PERSONALITY_OPENNESS	Respondent's personality traits - Openness	1,928	2.919	0.247
PROB_BEQ_ANY	Probability of leaving a bequest of any amount	2640	74.73	18.34
PROB_BEQ10K	Probability of leaving a bequest ≥ $10,000	2,641	65.416	13.612
PROB_BEQ100K	Probability of leaving a bequest ≥ $100,000	2,641	44.046	15.702
PROB_BEQ500K	Probability of leaving a bequest ≥ $500,000	2,402	18.777	11.736
PROB_LIV75	Self-reported probability of living to age 75	2,572	62.222	13.695
PROB_LIV85	Self-reported probability of living to age 85	2,641	46.336	8.790
SATISFACTION_RETIREMENT	Satisfaction with retirement	2,621	1.393	0.278
SATISFACTION_INCOME	Satisfaction with income	1,692	3.943	0.415
SATISFACTION_HEALTH	Satisfaction with health	1,692	3.269	0.431
SATISFACTION_FAMILY	Satisfaction with family	1,692	4.025	0.415
SATISFACTION_HOME	Satisfaction with home	1,466	3.266	0.534
SATISFACTION_LEISURE	Satisfaction with leisure	1,692	3.732	0.413
SATISFACTION_LIFE	Satisfaction with life	1,928	4.818	0.647
SATISFACTION_TOWN	Satisfaction with town	1,692	4.037	0.417
HOMEOWNERSHIP	The proportion of individuals owning a home	2,641	0.742	0.156
VEHICLEVALUE	The value of the vehicle owned	2,641	21,996	15,060
EARNINGS	Average amount of earnings in dollars	2,641	15,466	13,920
Control variables				
WAGE_SALARY	Logarithmic value of average salary	2,351	45,967	13,967
DIV_INTERETS_PERCAPITA	Natural logarithm of dividends and interests per capita	2,351	8,323	5,474
GDP	Natural logarithm of GDP	2,351	37,510,786	69,018,551
NETEARNINGS_PERCAPITA	Natural logarithm of net earnings per capita	2,351	28,232	11,560
PERSONALINCOME_PERCAPITA	Natural logarithm of personal income per capita	2,351	43,993	16,569
POPULATION	Natural logarithm of population per county	2,351	631,231	944,360
LOG_PROPRIETORS_EMPLOYMENT	Natural logarithm of entrepreneurs (employment)	2,351	81,032	135,599
RETIREMENT_PERCAPITA	Natural log of retirement income (monthly) per capita	2,351	6,422	2,318
TOTAL_EMPLOYMENT	Logarithmic value of Employment	2,351	390,361	602,007
UNEMPL_INSURANCE_PERCAPITA	Logarithmic value of Unemployment Insurance per Capita	2,351	306	490
MARRIED	Demographic - Proportion of Married People	2,641	0.563	0.155
BLACK	Demographic - Proportion of Black People	2,641	0.174	0.217
WHITE	Demographic - Proportion of White People	2,641	0.758	0.232
GENDER_FEMALE	Demographic - Proportion of females	2,641	0.595	0.075
EDUCATION_YEARS	Demographic - Years of Education	2,641	12.554	1.363
AGE	Demographic - Respondent's age	2,641	67.957	5.217